

PHYSICAL FITNESS PROGRAMS FOR THE LAW ENFORCEMENT OFFICER:
A MANUAL FOR THE POLICE ADMINISTRATOR



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International Association of Chiefs of Police
Technical Research Services Divisions
Human Factors Division

Development of Methods and Programs to Promote Physical Fitness Among Police Officers

FINAL REPORT

PHYSICAL FITNESS PROGRAMS FOR LAW ENFORCEMENT OFFICER: A MANUAL FOR POLICE ADMINISTRATORS

U.S. Department of Justice
National Institute of Justice

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PHYSICAL FITNESS PROGRAMS FOR LAW ENFORCEMENT OFFICER: A MANUAL FOR POLICE ADMINISTRATORS

by

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International Association of Chiefs of Police
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PREFACE

This manual is the final report of a study entitled, "Development of Methods and Programs to Promote Physical Fitness Among Police Officers." The Study was funded by the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U. S. Department of Justice, under Grant Number 76-NI-99-0011.

The complete description and analysis of the experimental exercise programs and attitudinal research conducted by the International Association of Chiefs of Police and the Institute for Aerobics Research of Dallas, Texas, is contained in Report 1, "Nature of Specific Exercise Programs," International Association of Chiefs of Police, Gaithersburg, Maryland, December 1976. Report 2, "Methods Police Departments Can Utilize to Determine the Need for Physical Fitness Programs: Recommended Program Implementation", International Association of Chiefs of Police, Gaithersburg, Maryland, December 1976, is incorporated as a part of this manual. A third volume, "Physical Fitness Practices, Attitudes, and Perceptions," International Association of Chiefs of Police, March 1977, contains the products of our field work, and the complete narratives of the results of the two national surveys conducted.

Appended to the end of this manual, for the reader's reference, is an annotated bibliography of readings related to physical fitness testing and exercise.

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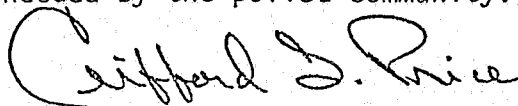
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Finally, the authors wish to recognize those who have sought information and advice from us during the project period. Their interest acted as a continuing reminder that this report is greatly needed by the police community.


Clifford S. Price
Project Director

SUMMARY

This project was initiated with the primary purpose of developing physical fitness programs for law enforcement officers. However, prior to recommending exercise and fitness programs for the nation's police officers, it became necessary to investigate several areas of concern regarding the police and physical fitness.

First, we were interested in the current physical fitness status of police officers. Secondly, we desired to present the police community with evidence that the physical condition of police officers could be improved in a relative short period of time at a limited cost. Third, we endeavored to discover the attitudes and perceptions of police officers toward health and physical fitness, specifically as it related to their work. We were also concerned about the problems of stress, related to police work, and desired to determine if participation in regular physical activity had any relationship upon the anxiety levels experienced by the police officer. Fourth, we felt it was necessary to determine the physical fitness programs currently employed by law enforcement agencies, and the attitudes of police officers concerning these programs.

Finally, it was our objective to present to the law enforcement administrator, physical fitness programs which could be implemented within their agency. In order to accomplish the work involved in this program, the International Association of Chiefs of Police selected The Institute for Aerobics Research of Dallas, Texas, to conduct the controlled experiments and related tasks of

the project. IAR and its staff, whose unique experiences and capabilities in the area of exercise physiology is well known, immeasurably strengthened the final work accomplished in this project.

This manual is the final report of this study. Three previous reports which provide the complete description and analysis of the experimental program, and the field work accomplished, have been previously submitted to The National Institute of Law Enforcement and Criminal Justice.

This report is divided into three sections with the intention that the reader can obtain that information which is most pertinent to his immediate need.

Part I of the manual describes the results of the investigative tasks of the project. The methodology employed by the International Association of Chiefs of Police, and the Institute for Aerobics Research, is described in the introduction. The principles of exercise and terminology employed throughout the report is outlined in Chapter , and it is recommended that the reader familiarize himself with this chapter before he refers to Part II or Part III of the manual.

The physical fitness evaluations of officers involved in this research show that police officers under age 30 are average when compared to other population groups of the same age. On the other hand, officers over age 30 have a higher degree of coronary heart disease risk factors and are below other population groups their age in endurance and flexibility. The results of evaluation show that inmates in correctional institutions are generally in

better physical condition than police officers.

Significant improvement in endurance, strength, and flexibility was shown, however, after the officers were involved in an exercise program for only 20 weeks.

The examination into the psychological effects of exercise showed that prior to fitness evaluation and participation in an exercise program, officers tend to have an inflated perception of their physical ability. It was also discovered that the physical demands upon the police officer are infrequent. Based upon the information received from the experimental groups and the officers responding to our national survey, it is apparent that additional research in the area of task analysis is needed. All officers indicated that tasks which require strength, endurance, and the like, were infrequently performed. Regardless of the infrequency of the demands, it remains a fact that these tasks must be performed when the situation arises, which is additional evidence that physical fitness training should be conducted on a regular basis.

The inflated perception of physical abilities may be the result of the lack of a requirement in most departments to demonstrate fitness by periodic testing and evaluation.

We also show in this manual that the majority of police officers favor the implementation of physical fitness programs. They do, however, indicate a desire to participate in the planning and implementation of such activities. The majority of officers have a good understanding of the benefits of physical conditioning, and realize that it is necessary in the performance of their duties.

They indicate they are willing to become involved, but like many of us, they are waiting for someone to tell them they must.

Our investigation into the area of stress and anxiety was not as conclusive as desired. We are able to show that officers who had high levels of anxiety became less anxious after 10 weeks of regular exercise. However, the number of officers who demonstrated high anxiety levels was not significant. This may be attributed to many factors, however, it is our belief that the officers, in many cases, were reluctant to indicate that they felt uncomfortable or tense when responding to various types of service calls.

The information provided to us by law enforcement agencies shows that very few departments are currently engaged in physical fitness programs. The majority of these programs are voluntary in nature, and generally emphasize weightlifting as opposed to other forms of exercise. While the majority of departments are not currently engaged in physical fitness, significant interest was shown in implementing such programs. Review of the information concerning "loss of personnel," will show that heart-related illnesses and lower back problems contribute significantly to early retirements, limited duty assignments, and premature death.

Based upon the information gathered during our research, we recommend that departments desiring to implement fitness programs begin with an evaluation of the current fitness levels of their officers. Part II of the manual provides information for medical screening and fitness evaluation. Once the current condition of personnel is determined, programs can be implemented for officers

to reach desired levels of performance.

The exercise prescriptions outlined in Part II allow the administrator to establish departmental standards. These recommended programs are designed to provide information on programs for all age groups, and those individuals who require directions to improve specific areas of performance, such as muscular strength, flexibility, cardiorespiratory endurance, and weight reduction.

Part III of the manual is devoted to "other" administrative considerations. The legal issues surrounding physical fitness, entrance requirements, physical agility tests, and disciplinary actions taken in such cases is reviewed. In addition, suggestions concerning program implementation, weight maintenance programs, and motivation is discussed.

Throughout the course of our investigations and research, we found that the interest in physical fitness programs was quite intense. Many departments have contacted us regarding this subject. Perhaps the most frequently asked question is, "Where can I obtain a valid physical ability performance test for entry level personnel?" This, of course, was not one of our objectives in this research, but should be considered as subject material for another project.

While many questions still remain unanswered, such as real cost effectiveness of this type of personnel development program, it is our intention and hope that this manual will provide the administrator with the information necessary to initiate physical fitness among his personnel.

PART I

CHAPTER 1

INTRODUCTION

In recent years, scientific interest and concern about the relationship of coronary heart disease (CHD) and physical fitness, and the relationship of other physiological and socio/psychological benefits of exercise, has increased significantly. Numerous population studies have been conducted on various age and occupational groups to determine the value of physical activity as a means of preserving or enhancing health. These would include studies of London transport employees (1), Los Angeles City civil service employees (2), farmers, (3), postal workers (4), and railroad workers (5) to name a few. Additionally, studies to determine the physiological effects of exercise training have been conducted on sedentary men 49 to 65 years of age (6), track athletes 40 to 75 years of age (7), and numerous other individuals who voluntarily and individually participate in exercise training (8).

As extensive as the general literature is on physical fitness, few references could be found regarding physical fitness and the police. This is unfortunate considering the fact that the sedentary nature of police work, coupled with shift work, job-related stress, and numerous other factors contribute to a high rate of coronary heart disease among police officers (9). To a certain extent, the police have been and are cognizant of the need for their members to be physically fit. In the year 1900, at the seventh annual convention of the Police Chiefs of the United States and Canada, the conference program contained information promoting physical fitness for police officers (10). In 1924, the National Committee on Police Welfare conducted a nationwide survey to determine the types of sports and recreation programs and facilities existing in police agencies (11).

The related studies and past and present interest of the police, however, have not provided a systematic determination of what the fitness and programmatic needs of the police are. A clinical and analytical examination of the physiological fitness of police deputies was conducted by the Los Angeles County Sheriff's Department (12), but the study did not include a consideration of the socio/psychological effects of exercise, nor did it consider different approaches to implement, organize, and administer police fitness programs. The lack of much evidence concerning fitness standards and programs for the police indicated the need for further inquiry and provided the impetus for the undertaking of the research conducted.

The police are enigmatic in terms of their apparent attitudes and practices relative to physical fitness. There is universal agreement that there are times when on-the-job physical requirements are extremely high and that the patrol officer has to be capable of performing these physical feats when the occasion arises. Yet, available indicators point to the generalization that after the completion of recruit training, individual police officers show little initiative to keep themselves prepared to perform the varied physical requirements of the job. Furthermore, few police administrators have approached this problem programmatically.

Consequently, what is needed in the field of law enforcement is the systematic development and evaluation of programs and methods that can be used to ensure a high level of physical fitness among police personnel. This is the objective of this project.

To accomplish the project objective, three broad areas relative to physical fitness and physical fitness programming were investigated. First, a variety of

exercise programs were designed and conducted in controlled environments to assess the physiological effects of exercise on selected police personnel. Particular attention was given to the cardiovascular condition of the subjects since heart and circulatory diseases are two of the leading causes of nonaccidental disability retirement among police officers.

Secondly, socio/psychological factors were investigated to determine how these factors influence an individual's perception of physical fitness and his decision to participate in a fitness program.

The third area investigated in this study was a survey of the types and quality of physical fitness programs already in existence in various police departments. Information relative to the nature of the programs, methods of program organization and administration, levels of participation, legal aspects such as liability, and measures of effectiveness were investigated. In conjunction with the national survey of police agencies, a survey of police officers was conducted for the purpose of obtaining individualistic responses to a number of questions which impact on the effectiveness of fitness programming and program administration.

METHODOLOGY

Program Description

To evaluate the physical fitness needs of police officers, various programs of fitness tests and exercises were designed. The fitness tests also served the purpose of documenting the physiological changes incurred with various physical training programs implemented for police officers of different ages and job descriptions. The various programs of physical training included the following:

1. Richardson Police Department (RPD) and Texas Department of Public Safety (TDPS) - a general aerobics program designed to evaluate the integration of physical training programs into small police units which have minimal equipment and facilities and little or no funds available for exercise and testing programs. Young police officers, ages 21 to 35 years, participated in this program.
2. Dallas Police Department (DPD) Running Program - comparison of interval running, continuous running, and combined interval/continuous running to determine the mode of endurance exercise which best improves the physiological functioning of young police officers, ages 21 to 35 years.
3. Dallas Police Department Weight Training Program - an evaluation of a weight training regimen to determine its effect on cardio-respiratory function of young officers, ages 21 to 35 years.
4. Dallas Police Department Supervised/Unsupervised Program - a comparison of closely supervised aerobic training with one of minimal supervision for middle-aged (36 to 52 years) police officers.

Selection of Participants

Information describing the opportunity to participate in a physical fitness program was distributed to all officers in the Richardson Police Department, Texas Department of Public Safety, and Dallas Police Department. Interested officers were asked to complete an application form for the program. The applications were screened for apparently healthy and sedentary officers. The volunteers then attended a briefing during which the testing and exercise programs were described in detail and informed consent obtained. The following criteria for selection of participants in the study were explained to the volunteer officers:

1. Health: Participants must be free from coronary heart disease or other serious health problems.
2. Age: 21-35 years for RPD, TDPS, and DPD young programs.
3. Availability: Participants must be available for training for 20 consecutive weeks plus two weeks for evaluations prior to and following the training phase.
4. Vacations: Participants will take no vacations during the project that would necessitate missing more than four consecutive days.
5. Life Style: Participants will not change general living habits during the project, such as diet and smoking habits.
6. Sedentary: Participants should not have been involved in any type of regular physical activity for at least one year.
7. Other Physical Activities During Project: Officers will not participate in physical activities other than the training project.
8. Volunteers: Officers will be asked to participate on a volunteer basis.
9. Random Sampling: Officers must be willing to participate in any of the exercise or control groups to be chosen.

The officers were required to complete various medical and physical fitness evaluations and attitude questionnaires before being allowed to participate in the exercise programs. The attitude questionnaires were designed to document feelings toward self and exercise and the possible changes that take place in attitudes through exercise programs. All officers completed a medical history questionnaire which was reviewed by a physician, attitude questionnaires, and then were evaluated by a Bruce maximal treadmill stress test (5) monitored for electrocardiogram (ECG) and blood pressure. The test progressed in three-minute stages until the individual reached a voluntary maximal endpoint. The following lists the stages used in the Bruce treadmill test:

Stage	Speed (mph)	Grade (%)
1	1.7	10
2	2.5	12
3	3.4	14
4	4.2	16
5	5.0	18
6	5.5	20

Guidelines for Graded Exercise Testing, published by the American College of Sports Medicine (1) were followed. Officers who exhibited abnormal ECG or blood pressure results on this "screening" test, as determined by the physician, were asked to consult their private physician and were not selected for the study. Only healthy and previously sedentary officers were selected for subsequent fitness evaluations and exercise participation. Those officers who were selected were given a practice session of running on the treadmill attired with metabolic equipment used to determine maximum oxygen intake. This practice session allowed for

the learning and familiarization process that takes place in a test of this nature. The following numbers of officers were selected for the studies:

1. 29 young officers from the Richardson Police Department
2. 3 young officers from the Texas Department of Public Safety
3. 130 young officers from the Dallas Police Department
4. 53 middle-aged officers from the Dallas Police Department

After completing the cardiovascular-respiratory fitness tests described later, the participants were randomly assigned to specific groups within each study as follows:

1. RPD and TDPS Program
 - A. 20 officers assigned to Training Group
 - B. 12 officers assigned to Control Group
2. DPD Young Officer Running Programs
 - A. 30 officers assigned to Interval Running Group
 - B. 30 officers assigned to Continuous Running Group
 - C. 30 officers assigned to Combined Running Group
 - D. 20 officers assigned to Control Group
3. DPD Young Officer Weight Training Program
 - A. 20 officers assigned to Weight Training Group
4. DPD Middle-Aged Programs
 - A. 20 officers assigned to Supervised Group
 - B. 20 officers assigned to Unsupervised Group
 - C. 13 officers assigned to Control Group

The officers assigned to the control groups took part in the fitness testing, but remained sedentary for the 20-week experimental period. All officers in both

the exercise and control groups received a complete exercise uniform including running shoes, shorts, T-shirt, and sweat suit for their participation in the study. After the 20-week experimental period, the control groups were provided the opportunity to exercise.

Two young female officers from the RPD and six young female officers from the DPD volunteered for the program. In the RPD program, one officer each was assigned to the training and control groups, and in the DPD program two officers each were assigned to the continuous, interval, and combined running groups.

Questionnaire Development

Nine separate psychological and attitudinal instruments were administered to the participating experimental and control group police officers at three points in time during the 20-week programs. These instruments are briefly described below:

1. Medical History Questionnaire (MHQ) - This standard IAR form is used to evaluate various personal and family health related issues. Although it is primarily concerned with specific medical conditions, it also includes information on sports and other physical fitness activities and preferences.
2. Background Information Report Form (BIRF) - This questionnaire provides additional information in the areas of personal and job-related identification, medical problems, experience with formal physical fitness activities, and family patterns of exercising.
3. Self-Evaluation Questionnaire (SEQ) - One of two standard psychological instruments used, this test examines anxiety levels, yielding two scores, i.e., state anxiety ("how I feel right now") and trait anxiety ("how I generally feel"). Each score is generated by the indicated degree to which each of 20 statements is applicable to the individual.

4. Attitude Questionnaire (AQ) - This second standardized psychological instrument consists of 100 statements of attitudes and interests to which the individual responds with "true" or "false," depending upon the perceived applicability of each statement. Two scores result from the responses to certain of the items. An "estimation" score reveals perception of self relative to an appropriate peer group, while an "attitude" score indicates degree of favorable reaction to physical fitness activities.
5. Physical Fitness and Job Relatedness Questionnaire Part I (PFJRQ-I) - Perceptions of physical abilities in the performance of specific police tasks and attitude toward physical fitness programs are the subject of this questionnaire.
6. Physical Fitness and Job Relatedness Questionnaire Part II (PFJRQ-II) - This lengthy questionnaire was borrowed in part from work by Kroes examining various sources and degrees of stress and tension relative to specific police functions.
7. Health Opinion Questionnaire (HOQ) - Attitudes toward health, particularly in relation to heart attacks, have been examined with this instrument in previous studies by Heinzlemann.
8. Project Participation Questionnaire (PPQ) - Two different participation instrument forms were used. The pretest form examined reasons for volunteering for the experimental program, as well as expectations of the participants; the posttest form examined self-reported results.
9. Spouse Questionnaire (SQ) - Evaluations of program results from the viewpoint of the participant's husband or wife are provided by this

instrument. Since the sample of women officers was very small, the spouse questionnaire will reflect the opinion of the male officers' wives.

Questionnaire Administration

With the exception of the medical history questionnaire and the spouse questionnaire, all instruments were administered in a package to participating officers at three times during the 20-week programs. Pre-test questionnaires were completed during initial orientation and medical/stress testing. Mid-test forms were administered following the tenth week of training. Post-test data on participants were collected when the officers reported for their final medical/stress testing; the spouse questionnaires were mailed individually to the officers' homes. Table indicates the questionnaire forms which were used at each test administration.

Data Analysis

Results of all questionnaires were translated to computer coding systems and analyzed with the SPSS (Statistical Package for the Social Sciences) computer program using the services of the American Management Systems and Control Data Center.

Police Officer Survey

In conjunction with the survey of the physical fitness programs provided by police departments, a description of the individual police officer's attitudes toward this type of program and of their assessment of their own state of physical fitness was sought. In order to obtain this information, a questionnaire was mailed to a stratified, random probability sample of 3,814 sworn police officers from the 302 departments responding to the initial survey.

Table 1.1 Psychological and attitudinal instruments administered to experimental and control group subjects at pre-, mid-, and post-program times

INSTRUMENTS	PROGRAM TIMES		
	Pre-Test	Mid-Test	Post-Test
Medical History Questionnaire	X ^a		
Background Information Report Form	X	Y ^b	X
Self-Evaluation Questionnaire	X	X	X
Attitude Questionnaire	X	X	X
Physical Fitness and Job Relatedness Questionnaire Part I	X	Y	X
Physical Fitness and Job Relatedness Questionnaire Part II	X	Y	X
Health Opinion Questionnaire	X	Y	X
Project Participation Questionnaire	X		Z ^c
Spouse's Questionnaire			X

^aX indicates that the questionnaire was given at this time.

^bY indicates that a different, shortened form of the questionnaire was used.

^cZ indicates that a completely different questionnaire was used.

Stratification

Since the sample of police officers was drawn from the list of police departments responding to the first phase of the study, the strata remain the same; that is, the sample of police officers is stratified by the size and type of police department of employment.

The population of the first stratum was all the full-time sworn personnel from the 98 police departments from cities of over 100,000 inhabitants which responded to the departmental survey. The population of the second stratum was the full-time sworn officers of the 73 responding police departments of cities with 25,000 to 100,000 residents. The third stratum included the full-time police officers from the 62 responding police departments of communities ranging from 2,500 to 24,999 in population size. Likewise, the fourth stratum included all the full-time sworn personnel from the 41 statewide police departments completing the initial questionnaire, and the population of the fifth stratum was composed of all police officers from the 28 county police departments which returned a questionnaire.

Sampling Rates

The next phase of the sampling process involved considering sample size and estimated response rates, in order to determine the sampling rate of each stratum.

Approximately 2,000 completed questionnaires - at least 100 to 150 in the smallest strata - can provide the precision required in this phase of the project. The response rate was estimated to be about 50%, based on previous experience with mailed questionnaires. Accordingly, it was necessary to select at least 300 departments from each stratum in order to have a minimum of about 150 returned questionnaires per stratum to analyze. Since subsampling was required within

each stratum, officers were listed in sequential order by numbers assigned by their department within departments, and the departments were arranged in order as the questionnaires were returned.

Stratum I contained 77,547 police officers. Sampling at the base rate of 1 in 45 yielded a sample of 1,819 officers.

Stratum II had 5,908 police officers. Sampling at the base rate of 1 in 45 would have resulted in less than 300 cases. Therefore, this stratum was oversampled at a rate of 3 in 45, giving a sample of 463 officers.

Stratum III had 1,019 police officers. Oversampling at a rate of 15 in 45 was necessary to yield a sample of sufficient size. At that rate, 395 officers were selected.

Stratum IV had 34,280 police officers. Sampling at the base rate of 1 in 45 was adequate and resulted in a sample of 801 officers.

Stratum V had 1,572 police officers. Oversampling at the rate of 9 in 45 was necessary. A sample of 336 officers from this stratum was selected and mailed a questionnaire.

Response Rate

Of the 3,814 officers who were sent the questionnaires, 1,905 responded, for an overall rate of response of 50 percent. However, the response rate varied greatly from stratum to stratum. Stratum III and Stratum IV had the highest rate at 69% each, followed by Stratum II where 271 out of 463, or 59%, of the officers responded. The response rates for Stratum I and Stratum V were lowest with only 38% of the officers who were sent the questionnaire responding.

National Survey Methodology

One of the major aspects of the current physical fitness project consisted of the determination of the extent to which various types of physical and medical fitness or conditioning programs are available to police officers at the present time. This task was accomplished by means of a survey administered to a nationally representative sample of police agencies.

Sample Selection

The operational definition of a "nationally representative sample" of police agencies necessitated the identification of a stratified, random probability sample of agencies to receive the survey instrument. Five groups or strata of police agencies were identified as follows:

- Stratum I - police agencies in cities with populations of 100,000 or more
- Stratum II - police agencies in cities with populations between 25,000 and 99,999
- Stratum III - police agencies in cities with populations between 2,500 and 24,999
- Stratum IV - state police agencies
- Stratum V - county police and sheriff agencies

Municipality populations for those agencies to be included in Strata I, II, and III, were derived from the 1970 United States Census summary tables. County police and sheriff agencies were identified with the assistance of the Criminal Justice Agencies in Regions I Through X reports (LEAA 1975). The total number of jurisdictions identified in each stratum then was as follows:

Stratum I	-	153 large cities ¹
Stratum II	-	731 medium-sized cities ²
Stratum III	-	4972 small cities ³
Stratum IV	-	49 states ⁴
Stratum V	-	3096 counties

Since, for purposes of this project, it was both unnecessary and impossible to survey all 9,000 jurisdictions indicated by the above categorization, a smaller sample of jurisdictions had to be selected to receive the survey instrument. Random sampling techniques based upon the sample size and the estimated response rate were deemed appropriate.

It was decided that approximately 100 completed survey questionnaires per stratum would provide an adequate basis for analysis. Based on previous experience, a response rate of about 70% was considered attainable. Therefore, it was necessary to select approximately 150 jurisdictions in each stratum to receive surveys (70% of 150 yields approximately 100 surveys). Subsampling, then, was necessary in three of the five strata; all agencies in Strata I and IV received surveys.

¹The four burroughs of New York City which are listed separately in the Census reports were combined as one entry.

²All unincorporated places listed in the Census tables were excluded from the sample, as it is unlikely that they provide their own public services.

³Towns of less than 2,500 in population were excluded, since it is unlikely that they provide their own public services.

⁴Hawaii does not have a state police agency.

To maintain the randomness of subsample selection, all potential respondents in each of Strata II, III, and V were listed in alphabetical order within states, and states were then arranged geographically from east to west according to meridian. The sampling rates utilized varied, of course, in the three strata. Stratum II agencies were selected at a rate of 1 in 5, Stratum III agencies were chosen at a rate of 1 in 29, and Stratum V agencies were selected at a rate of 1 in 21.

The final sample selected to receive the surveys, then, consisted of the following number of agencies:

Stratum I	-	153 large city agencies
Stratum II	-	146 medium-sized city agencies
Stratum III	-	162 small city agencies
Stratum IV	-	49 state agencies
Stratum V	-	145 county police and sheriff agencies

Questionnaire Development and Pre-Testing

A draft of the survey instrument was pre-tested in six police agencies in the states of Maryland and Virginia. None of these departments was included in the final sample. As a result of the pre-testing, a number of revisions in the questionnaire were made to insure greater clarity.

The final questionnaire consisted in part of 11 screening questions with a total of 108 follow-up items. These questions addressed current physical fitness training programs, discontinued physical fitness training programs, sports activities, special group rates, funding, weight maintenance programs, periodic medical examinations, periodic physical performance tests, entrance-level medical examinations, entrance-level physical performance tests, and recruit training. Forty-two additional questions concerned number of employees, selection requirements, performance evaluation, retirement, and administrative and legal issues.

A copy of the entire survey instrument will be found in Appendix .

Survey Administration

Final printed forms of the survey instrument were mailed to the 655 randomly selected police agencies. Completed questionnaires were returned to the IACP, where each survey was reviewed for completeness and accuracy prior to computer data analysis. Responding agencies were assured individual confidentiality regarding specific data reported.

Orientation to the Reader

Throughout the manual, the five strata of police agencies are referred to primarily by number. The composition of these strata should perhaps be re-emphasized here.

- | | | |
|-------------|---|--|
| Stratum I | - | police departments in cities of 100,000 or more persons |
| Stratum II | - | police departments in cities of 25,000 to 99,999 persons |
| Stratum III | - | police departments in cities of 2,500 to 24,999 persons |
| Stratum IV | - | state police agencies |
| Stratum V | - | county police and sheriff agencies |

Questionnaire Returns

As can be seen in Table 1.2, response rates varied widely among the five strata of police agencies. Response rate was highest for state police agencies (Stratum IV), followed by the largest municipal agencies (Stratum I). Very low response rates occurred among the smallest municipal agencies (Stratum III) and county police or sheriff agencies (Stratum V). The overall response rate of 46.1% is low for surveys of this nature and probably resulted at least in part from the length and complexity of the questionnaire. Nevertheless, the sample

Table 1.2 Response Rate of Agencies Within
Each of the Five Strata

Stratum	Questionnaires Forwarded	Questionnaires Returned	
	Number	Number	Percent
I. Cities over 100,000	153	98	64.1
II. Cities between 25,000 and 99,999	146	73	50.0
III. Cities between 2,500 and 24,999	162	62	38.3
IV. States	49	41	83.7
V. Counties	145	28	19.3
Total	655	302	46.1

size is considered adequate for analysis of responses from three of the strata; data from Strata III and V, however, should be treated with caution.

The total number of respondents indicated in this table (N=306) is larger than the total number included in the statistical analysis. Several surveys were not included in the statistical analysis because they were not a part of the original random-sample group or they were received too late in the survey analysis process. It should also be noted here that data from New York City were eliminated to prevent widely skewed responses on numerical items.

Screening Questions

Table 1.3 presents the number and percent of responding agencies in each stratum which currently provide any of five types of fitness-related programs for sworn police personnel. Police agencies in the largest cities are more likely to provide a physical fitness training program (N=23 or 23.5%) and organized individual or team sports programs (N=32 or 32.7%) than agencies in the other four strata. State police agencies, on the other hand, more frequently indicated provision of a weight maintenance program and a periodic medical examination (N=22 or 53.7% for both) than agencies in the other four strata, although over 50% of the large-city agencies also indicated that periodic medical examinations are provided for sworn police personnel. Such medical exams were the most frequently reported type of program among agencies in Strata I, II, and IV.

In general, it can be seen that as the size of the city decreases, the likelihood of having any of these five programs also decreases, with the exception of periodic physical performance tests, which are most frequently reported by agencies in Stratum II. Additionally, county police and sheriff agencies are least likely to provide any of these programs for sworn personnel.

Table 1.3 Number and Percent of Agencies in Each of Five Strata Currently Providing a Variety of Programs for Sworn Police Personnel

Type of Program	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Physical fitness training program	23	23.5	10	13.7	4	6.4	6	14.6	0	-
Organized team/racket sports	32	32.7	17	23.3	12	19.4	7	17.1	5	17.9
Weight maintenance program	20	20.4	11	15.1	6	9.7	22	53.7	1	3.6
Periodic medical examinations	50	51.0	29	39.7	12	19.4	22	53.7	1	3.6
Periodic physical performance tests	5	5.1	8	11.0	1	1.6	2	4.9	0	-

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CHAPTER 2

PRINCIPLES OF EXERCISE AND TERMINOLOGY

In recent years, physical fitness has taken still another beneficial aspect to human health in its relationship to the prevention of coronary heart disease. Coronary heart disease involves the deposition of fatty plaques in the major vessels of the heart. These plaques compromise the blood flow to the heart muscle, and if this condition becomes severe, the heart can develop a fatal arrhythmia or heart attack. Coronary heart disease has been related to several risk factors. These include high serum lipids (cholesterol and triglycerides), excessive body fat, elevated blood pressure (hypertension), smoking, elevated blood sugar (glucose) and uric acid, excessive emotional stress, physical inactivity, and family history (1, 5, 7, 9-11).

Although there are some conflicting views, recent studies by Morris et al. (13), Paffenbarger and Hale (14), and Cooper et al. (4) have placed strong evidence in favor of the role that exercise plays in preventive medicine. Morris et al. (13), in studying the leisure-time habits of over 16,000 male executive-grade civil servants from 40 to 64 years of age, concluded that vigorous exercise apparently protected them against sudden fatal heart attacks and other first clinical attacks of coronary heart disease. The study by Paffenbarger and Hale (14) on 6,351 longshoremen, 35 to 75 years of age, indicated that the workers classified in a high caloric output job task had significantly lower death rates from coronary heart disease than those in a low energy cost job. Cooper et al. (4) in a cross-sectional study on 3,000 men, found a significant relationship between level of cardiorespiratory fitness and selected risk factors and fitness variables (serum cholesterol, triglycerides,

glucose and uric acid, systolic blood pressure, percent body fat and weight, resting heart rate, and forced vital capacity). Thus, through the reduction of risk factors associated with coronary heart disease, an officer who exercises and becomes physically fit may be indirectly protecting himself from heart disease.

In the context of this report, a police officer with good physical fitness is considered to be one who possesses an efficient cardiovascular-respiratory system (good aerobic capacity), moderate to low levels of body fat, and adequate muscular strength, endurance, and flexibility. With these characteristics, an officer would possess the means to accomplish daily tasks, both occupational and recreational without undue fatigue or risk of injury.

There are three basic components of physical fitness: cardiorespiratory fitness (CR), body composition, and musculoskeletal fitness. CR fitness, or aerobic capacity, involves the body's ability to transport and utilize oxygen. One of the main objectives of an aerobics program is to increase the maximum amount of oxygen that the body can process within a given time. The aerobic process depends on the oxygen transport system, which includes the lungs' ability to take in large amounts of air and diffuse it into the bloodstream, the heart's ability to pump large amounts of blood to the tissues, and the tissues' (cells') ability to utilize the oxygen. The magnitude of improvement in aerobic capacity depends upon the total work accomplished, i.e., the energy cost of the activity involved. The energy cost, however, is dependent upon several variables, namely the intensity, duration, and frequency of the work (15). Other factors such as the regularity of the work, the mode of the work, as well as the age of the individual doing the work all influence the improvement

in CR fitness (16-18). With adequate intensity, duration, and frequency of training, an officer will experience the "training effect" (3), whereby the organ systems of the CR system collectively operate to provide more effective transportation and utilization of oxygen and elimination of waste products.

Intensity, duration, and frequency in relation to the total work done in an activity also have a direct influence on the body composition of an individual. Body composition is divided into two components: lean tissue (bone, muscle, and body fluids) and fat tissue. Percent fat is the percentage that the fat weight is of the total body weight.

Through the process of becoming physically fit, one can alter body composition (percent fat) (2). The major factor in this alteration is related to the number of calories expended (regardless of activity mode) in relation to the number consumed. Thus, by expending calories through some physical activity in addition to those expended to maintain body functions and by reducing the caloric intake, one can achieve a negative caloric balance. As a result, the body is forced to obtain the additional energy it requires from fat breakdown, thus reducing the fat content of the body.

Physical activity is a major factor in fat reduction in that it can maintain or even increase the lean tissue weight while fat weight is reduced. A study by Zuti and Golding (19) has shown that dieting alone can reduce body weight, but the net percent fat loss is reduced because of a decrease in muscle mass with the decrease in fat. (Muscle is catabolized by the body for energy as is fat). Ideally, a reduced calorie intake should be combined with an exercise program to lose body fat as well as weight. After, a desired level of body fat is achieved, regular exercise coupled with a sensible diet

can maintain satisfactory body composition.

The third component of physical fitness, musculoskeletal fitness (MS), encompasses two major areas: a) muscle strength and endurance and b) flexibility. Muscle strength and endurance are interrelated, and the development of either or both is dependent upon the training regimen involved. Muscular strength is the muscles' ability to generate a force against some resistance and is proportional to the cross-sectional area of the muscle or muscle group involved. Strength is developed through two major types of training: isotonic, which involves muscle shortening and lengthening with a corresponding movement of a related limb, and isometric, which involves muscular contractions but no movement of limb.

Muscular endurance is the ability of a muscle or muscle group to maintain repeated contractions of equal force until fatigue causes cessation. It is interrelated with strength in that the stronger muscle generally has more endurance.

With regard to the development of strength and endurance, isometric resistance training develops strength with little or no endurance improvements, while isotonic resistance training when done correctly (exercising through the full range of motion of the muscle groups involved) increases strength as well as endurance. Depending upon the combination of resistances and repetitions employed, isotonic training can develop strength or endurance. Generally, high resistance with low repetitions increases strength, while, conversely, greater repetitions and lower weights increase endurance. Obviously, a compromise in approach will develop adequate strength and endurance.

When training for either strength or endurance, the overload principle is imperative for improvement. Simply, the overload principle involves increases in resistance and/or number of repetitions as the muscle adapts. However, once adequate strength and endurance are achieved, fewer workouts are necessary to maintain that level.

While muscular strength and endurance are critical to MS fitness, the ability of the MS system to move through a full range of motion is imperative. Flexibility can be defined as the ability of a joint or group of joints to move through a full range of motion. This range is affected by two factors: the boney structures comprising the joint and the extensibility of the surrounding ligaments, tendons, and muscles. It is obvious, therefore, that improvements in flexibility depend upon the development of the extensibility of these ligaments, tendons, and muscles.

Two types of stretching are employed to develop flexibility. These are static and ballistic. Ballistic stretching (stretching through momentum of movement) has its value primarily in warm-up of the entire body but could be harmful if not done properly. Static stretching (firm, steady stretch), however, involves less chance of muscle soreness and applies more specific stretching to a particular area. Research has shown (12) that flexibility reduces injury, enhances skill, and allows for more graceful movement.

In addition to stretching, several other factors have been associated with flexibility. These include the degree of activity, age, sex, and environmental temperature (6).

Two general principles that are important to consider when developing an exercise program include the warm-up and cool-down. A general warm-up program

of several minutes involving calisthenics, jogging, and stretching provides several benefits. By warming-up, the internal temperature of the body is raised. This condition allows for an increased rate of biochemical reactions involving the production of energy for exercise. Also, circulation and respiration are stimulated. All of these factors not only accelerate the adaptive process of the CR system, but also render the MS system more flexible, stronger, and better prepared for work.

After physical activity has been completed, a gradual cool-down greatly benefits the recovery process. Walking or jogging during the cooling-down period enables the body to better maintain uniform circulation, and thus more efficient removal of biochemical waste products, some of which are associated with muscle discomforts.

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CHAPTER 3

PHYSICAL FITNESS TESTING

Prior to the first visit to the laboratory for testing, each participating officer was required to abstain from eating, drinking, and smoking for 14 hours. Upon arriving at the laboratory, a 15 ml blood sample was drawn for analysis of serum lipids (cholesterol and triglycerides) and serum glucose. A second sample was drawn on a separate day for comparison and if the two samples did not agree, a third analysis was required.

Resting cardiovascular (CV) function was assessed by seating each officer in a quiet room for a 10-minute period and then recording his resting heart rate and blood pressure. Heart rate was counted for one minute using a stethoscope and blood pressure was measured using a mercury sphygmomanometer. Submaximal CV function was measured by heart recovery from a three-minute step test (4). Each officer performed the three minute test by stepping up and down on a 12-inch bench at a rate of 24 trips per minute. Immediately after completing the three minutes of stepping, the officer was seated and his recovery heart rate was counted for one full minute (0:05 to 1:05 into recovery).

In addition to the initial screening test, maximum cardiorespiratory function was assessed a second time by a treadmill test during which the individual was asked to perform "all out." The young officers were tested using a treadmill running protocol described by Astrand (5) as modified by Pollock et al. (6). The speed of running remained the same throughout the test but the grade of the treadmill changed 2.5% progressively every two or three minutes. The middle-aged officers were tested a second time using the same Bruce treadmill test protocol (3)

described previously. The maximum amount of time performed in the treadmill test is considered a measure of working capacity, i.e., the longer one performs in the standard protocol, the more fit the individual. During the second treadmill tests, maximum oxygen intake ($\text{VO}_2 \text{ max}$), maximum heart rate (MHR), and maximal pulmonary ventilation ($\text{V}_{\text{E}} \text{ max}$) measures were monitored. Metabolic procedures and calculations described by Consolazio et al. (7) were followed.

Body composition was analyzed by various measurements of body weight, girths, and skinfold fat. Body weight was measured to the nearest 10 grams on an Acme scale and later converted to pounds for statistical analysis. Skinfold fat measures were determined to the nearest 0.5 mm with a Lange caliper and included the chest, axilla, triceps, abdomen, hip, and thigh locations. Recommendations published by the Committee on Nutritional Anthropometry of the Food and Nutrition Board of the National Research Council were followed in obtaining skinfold data (8). Girth measures were taken to the nearest 0.1 cm with a Lufkin steel tape at the shoulder, chest, abdomen, waist, gluteal, thigh, bicep, and forearm locations. Specific recommendations on the exact locations for obtaining skinfold and girth measures are shown by Behnke and Wilmore (9).

Body density was calculated for the young officers using the skinfold formula $D = 1.08847 - (.007123 \text{ axilla}) - (.004834 \text{ chest}) - (.005513 \text{ triceps})$ reported by Pascale et al. (10). The formula $D = 1.10185 - (.00072 \text{ chest}) - (.00046 \text{ axilla}) - (.001 \text{ gluteal girth}) + (.00227 \text{ forearm girth})$ involving both skinfold and girth measures reported by Pollock et al. (11) was used to calculate body density for the middle-aged officers. Body density was converted to percent body fat using the formula $(\text{fat} = 4.95 \div D - 4.5)$ reported by Siri (12).

Vitality capacity (VC) of the lungs and forced expiratory volume of air expelled in one second (FEV_1) were measured using a rolling seal spirometer (Ohio Medical Model 842). The procedures outlined by Kory et al. (13) and W. E. Collins, Inc. (14) were followed. FEV_1 was expressed as percentage of VC in the results ($FEV_1 - VC$).

Various motor ability field tests were administered to represent areas of physical fitness that may enhance the performance of a police officer when challenged physically. Flexibility of the back and legs was determined by the sit and reach test (15). The total number of pushups and the number of bent-knee situps performed in one minute were used as measures of muscular endurance (15). Strength was represented by the one-repetition maximum bench press since it correlates well with total body strength (16). Power was described by the vertical jump test (17) and agility was represented by the Illinois Agility Run (18).

In addition to the above field tests, participating officers in the Richardson Police Department (RPD) were asked to perform the field test devised by that department. The field test had been used by the RPD for the past two years as a screening physical fitness test for applicants to the department. It consists of four parts each of which is timed separately and then added to obtain a total score for the entire test. The first phase of the test is an obstacle course which included a three- and a six-foot wall to climb, a tunnel to crawl through, a six-inch beam to walk, and a 12-foot high horizontal ladder to cross, using the hand-over-hand technique. The second phase is called the body drag and involves running 65 feet, picking up a 160-pound dummy, and dragging it 65 feet back to the start. The third phase is a stair run which includes two trips up and down two flights of stairs. The final phase is termed a "street chase" and consists of running 440 yards around a grass field area. The RPD feels that these items relate to the job requirements of their patrolmen.

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CHAPTER 4

CORONARY HEART DISEASE RISK

The data related to coronary heart disease risk for police officers are shown in Table 4.1 and Figure 1. These variables include performance time on the treadmill (IMT), cholesterol (CHOL), triglycerides (TRI), uric acid (UA), percent body fat (% FAT), systolic blood pressure (SBP), diastolic blood pressure (DBP), a blood relative less than 50 years of age having heart disease (FH), cigarette smoking (CIG), and abnormal exercise electrocardiogram (ECG). Data for smoking, family history of coronary heart disease, and abnormal exercise electrocardiogram were quantified as to a yes or no response. To quantify coronary risk for police officers, the data were compared to the standards recommended by the Cooper Clinic^a. Figure 1 lists the criteria used to determine if an individual is at risk and shows the percentage of police officers at risk for each of the age groups.

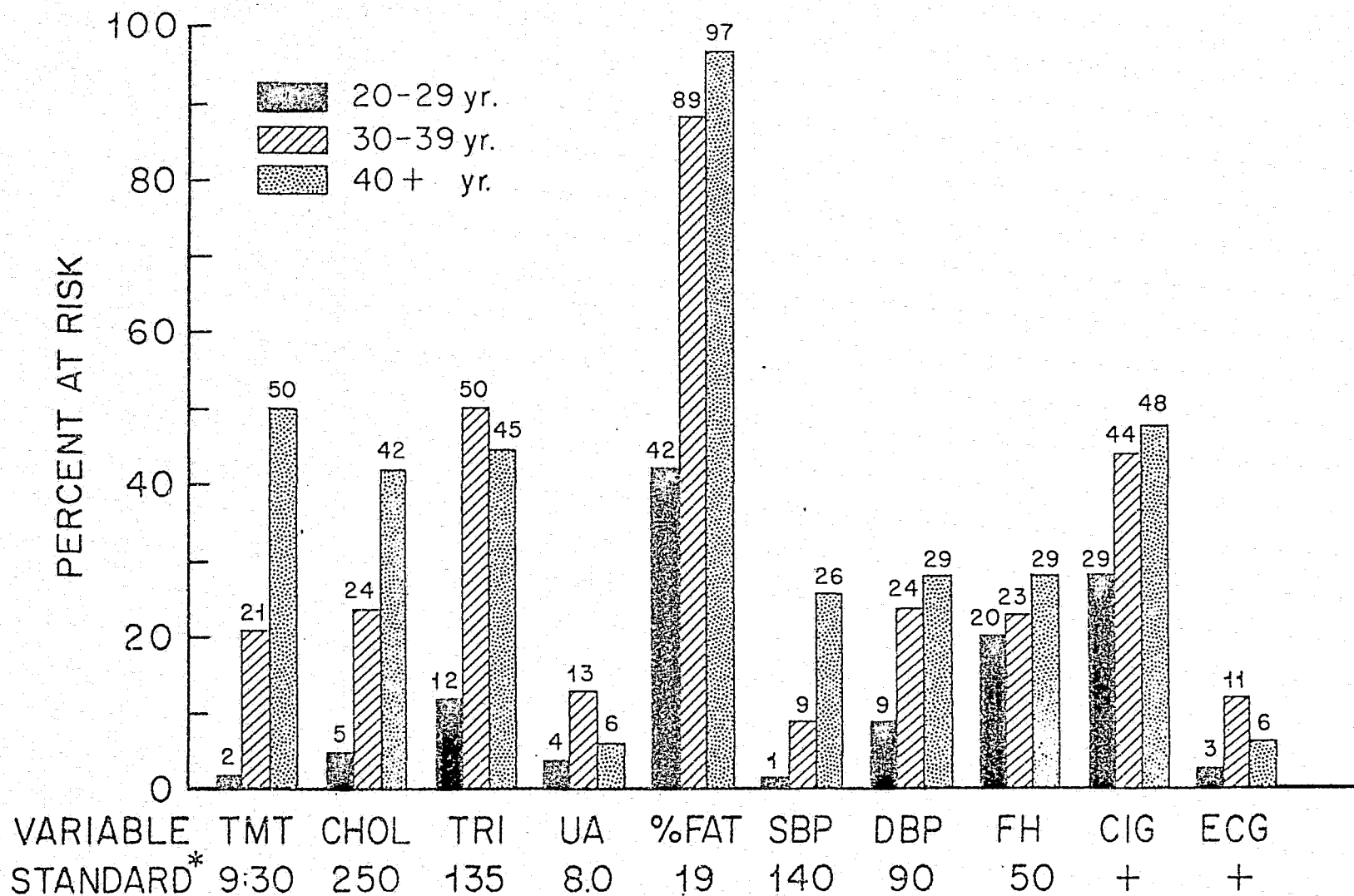
The results show a distinct increase in coronary risk with age. This relationship is well established in the literature (1, 4, 22). Compared to the general population, the police officers studied in this investigation were shown to be average in coronary risk in all variables except serum triglycerides and body fat in men 30-39 years of age; and treadmill performance, serum cholesterol, serum triglycerides, and body fat in the group aged 40-52. In comparison with 68 Los Angeles City Fire Fighters who were 40-50 years of age, the police scored significantly lower in cardiorespiratory endurance and higher in serum cholesterol, diastolic blood pressure, percent fat, and percent of smokers (23). Overall the younger police officers seem to be of average risk and the older officers appear to be at higher than average risk.

^aCooper Clinic, 12100 Preston Road, Dallas, Texas 75230

Table 4.1 Coronary risk factor scores of police officers

Age Group		Coronary Risk Factor Variables*								
		TMT (min:sec)	CHOL (mg %)	TRI (mg %)	GLU (mg %)	UA (mg %)	% FAT	SBP (mmHg)	DBP (mmHg)	AGE (yr)
20-29 (n=91)	\bar{X}	10:46	188	92	81	6.2	20.9	122	81.2	25.8
	SD	1:0	36	42	5.7	1.0	5.9	7.2	5.8	2.1
	Range	8-13:40	106-315	35-254	68-95	3.9-9.4	8-33	106-140	65-94	21-29
30-39 (n=90)	\bar{X}	10:00	219	146	84	6.5	24.1	123	83	33.4
	SD	1:0	43	76	6.9	1.2	4.3	10.9	8.4	2.7
	Range	7:30-12:45	122-364	44-420	63-102	4.5-9.8	16-35	100-156	65-100	30-39
40-52 (n=32)	\bar{X}	9:06	242	164	85	6.2	25.0	123	84.1	44.0
	SD	0:48	41	144	8.3	1.0	3.4	9.0	7.9	3.0
	Range	7:08-10:45	162-366	58-858	69-108	4.9-8.9	18-32	102-138	58-100	40-52

* TMT = Treadmill time, CHOL = Cholesterol, TRI = Triglycerides, GLU = Glucose, UA = Uric Acid,
 SBP = Systolic Blood Pressure, DBP = Diastolic Blood Pressure



CORONARY RISK FOR POLICE OFFICERS 20-52 YEARS OF AGE (n=213)

* Risk Factor Standards Used at Cooper Clinic, Dallas, Texas

Figure 1

The results showed that of the 213 police officers studied, 88% had at least one risk factor, 48% had three, 31% had four, and 16% had five. As mentioned earlier, an increase in coronary risk is significantly greater with each added risk factor (3, 4, 22). Thus, these data reflect the potential danger of coronary heart disease in these police officers.

Although much of the risk factor data found with police officers were considered average in relation to the general population in the United States, it must be remembered that Americans lead the world in deaths from coronary heart disease (1). The need for a good preventive medicine program for police officers is apparent.

Physical Fitness

Percentile tables were constructed for police officers and included data relating to working capacity, cardiorespiratory fitness, body composition, and motor ability. Tables 4.2 and 4.3 show data for police officers 21-35 years of age, and Tables 4.4 and 4.5, 36-52 years of age. The 50th percentile on each table represents the mid point in the variable measured for each group of police officers with half scoring lower and half higher. For comparative purposes, data for the general population (23, 24, 25), inmates (26), sheriff's department Personnel (14) and highway patrolmen (16) are plotted on the various tables.

Young police officers. Tables 4.2 and 4.3 show normative data on working capacity, cardiorespiratory endurance, pulmonary function, serum lipids, body composition, and motor ability of police officers 21-35 years of age. When compared to the normal sedentary population of similar age, the younger officers were about the same in all variables except body weight (+), waist circumference (+)

Table 4.2 Work capacity, cardiorespiratory and pulmonary function, and serum lipids of police officers 21-35 years of age.

Percentile Rankings	TMT (min:sec)	VO ₂ max (ml/kg·min)	HR max (bts/min)	Step Test (bts/min)	RHR (bts/min)	RSBP (mmHg)	RDBP (mmHg)	VC (L)	FEV ₁ ÷VC (%)	Chol. (mg/100ml)	Tri. (mg/100ml)
99	13:00	50.0	213	76	47	105	65	7.99	91	122	42
95	12:15	48.0	210	81	51	108	70	7.26	89	138	46
90	12:00	47.0	204	88	52	112	74	6.88	86	152	54
85	11:30	45.5	204	93	55	114	75	6.50	85	157	60
80	11:15	44.3	202	97	58	116	76	6.39	85	163	63
75	11:00	44.0	200	98	59	116	78	6.28	84	169	69
70	11:00	43.2	199	99	60	118	78	6.16	84	178	74
65	10:45	42.4	198	101	60	118	80	6.05	83	184	76
60	10:45	42.0	196	103	62	120	80	5.94	83	188	80
55	10:30	41.6	194	105	63	122	82	5.83	82	190	83
50	10:30	40.7	194	108	64	122	82	5.72	82	195	91
45	10:25	40.1	193	109	66	124	83	5.61	81	202	100
40	10:15	39.5	192	111	66	124	84	5.49	80	207	110
35	10:15	38.6	192	114	68	126	84	5.34	79	211	116
30	10:02	37.7	190	116	69	126	86	5.20	79	216	124
25	10:00	37.1	183	119	70	128	86	5.05	77	224	150
20	9:50	36.7	186	121	71	128	88	4.90	76	228	162
15	9:45	36.0	183	125	73	130	90	4.75	76	238	178
10	9:25	35.2	180	129	74	132	92	4.60	73	251	200
5	8:45	34.2	177	138	76	137	94	4.27	67	266	236
1	8:00	30.6	168	153	85	143	98	3.65	14	332	384
N	154	153	153	152	153	153	153	154	154	154	154
X	10:32	40.7	194	108	64	122	82	5.68	79	199	115
SD	1:01	4.5	10	16	8	8	7	.80	11	42	67

TMT = treadmill time; VO₂ max = maximum oxygen intake; HR max = maximum heart rate; Step Test = 3 min step test recovery heart rate; RHR = resting heart rate; RSBP = resting systolic blood pressure; RDBP = resting diastolic blood pressure; VC = vital capacity; FEV₁ ÷ VC = forced expiratory volume for one second divided by vital capacity; Chol. = cholesterol; Tri. = triglycerides.

--- Inmates

— Sedentary average

..... Sheriff's Department and Highway Patrolmen

Table 4.3 Body composition and motor ability of police officers 21-35 years of age.

Percentile Rankings	Height (in)	Weight (lb)	Fat (%)	Skinfolds Sum of 6 (mm)	Waist (in)	Press ¹ (lb)	Pushups (No.)	Situps (No.)	VJ ² (in)	Agility ³ (sec)	Flex ⁴ (in)
99	77.2	143.9	8.3	36	29.4	245	46	49	26.1	16.5	24.3
95	75.2	146.9	10.7	60	30.6	195	38	44	23.3	16.8	23.0
90	74.2	150.4	12.6	79	32.0	180	32	43	22.2	17.0	22.1
85	73.6	153.4	14.0	91	32.6	180	30	41	21.1	17.3	21.3
80	73.0	155.7	14.8	96	33.0	165	27	40	20.4	17.5	20.9
75	72.4	161.1	15.4	101	33.7	165	25	39	19.7	17.7	20.4
70	71.9	166.2	16.3	110	34.8	165	23	38	19.2	17.9	20.0
65	71.5	170.4	17.0	119	35.2	165	22	37	18.8	18.0	19.5
60	71.1	174.3	17.7	124	35.5	165	22	35	18.5	18.2	18.9
55	70.8	177.2	18.4	126	35.9	145	20	35	18.2	18.3	18.4
50	70.5	180.5	18.8	129	36.3	145	20	34	17.9	18.5	18.0
45	70.1	184.1	19.1	132	36.9	145	20	34	17.6	18.7	17.6
40	69.8	186.1	19.5	136	37.4	145	19	33	17.3	18.8	17.2
35	69.4	191.1	20.1	140	37.8	135	18	32	17.0	18.9	16.9
30	69.1	196.2	20.7	144	38.5	135	16	31	16.6	19.1	16.5
25	68.7	201.6	21.4	155	39.0	135	15	30	16.3	19.2	15.9
20	68.4	205.8	22.6	163	39.4	135	15	29	15.9	19.4	15.2
15	68.1	210.0	23.4	173	40.1	130	15	28	15.5	19.6	14.3
10	67.8	218.0	24.7	180	41.4	115	12	26	15.0	19.9	13.4
5	67.3	231.3	25.9	185	42.9	115	10	25	14.5	20.3	11.9
1	66.6	250.7	31.0	242	44.1	100	7	18	11.9	21.1	8.9
N	154	154	154	154	154	144	143	145	144	135	145
\bar{X}	70.6	182.8	18.6	129	36.5	152	21	34	18.1	18.5	17.8
SD	2.4	26.5	4.6	40	3.6	27	8	6	3.2	1.0	3.4

¹ Press = maximum one repetition bench press; ² VJ = vertical jump; ³ Agility = Illinois agility run; ⁴ Flex = flexibility sit and reach.

---Inmates

-----Sedentary average

.....Sheriff's Department and Highway Patrolmen

Table 4.4 Work capacity, cardiorespiratory and pulmonary function, and serum lipids of police officers 36-52 years of age.

Percentile Rankings	TMT (min:sec)	VO ₂ max (ml/kg·min)	HR max (bts/min)	Step Test (bts/min)	RHR (bts/min)	RSBP (mmHg)	RDBP (mmHg)	VC (L)	FEV ₁ :VC (%)	Chol. (mg/100ml)	Tri. (mg/100ml)
99	12:00	44.0	200	82	51	100	70	6.44	99	162	58
95	10:35	41.3	196	90	52	102	70	6.19	85	187	63
90	10:15	39.1	196	94	58	110	73	5.89	84	195	80
85	10:00	36.5	194	96	58	112	76	5.58	83	202	84
80	10:00	35.3	189	97	60	112	78	5.44	83	206	99
75	9:45	34.4	188	101	61	114	78	5.36	83	210	106
70	9:39	34.1	186	104	62	117	80	5.28	83	217	112
65	9:30	33.8	186	106	64	118	82	5.19	82	222	118
60	9:25	33.5	185	108	65	121	82	5.11	81	237	125
55	9:17	33.2	184	111	66	122	82	5.03	79	240	132
50	9:15	32.9	184	111	67	124	84	4.95	79	243	143
45	9:15	32.5	181	116	68	124	84	4.87	78	248	149
40	9:00	32.1	179	117	68	124	85	4.79	77	251	160
35	9:00	31.7	179	118	69	126	86	4.70	76	254	170
30	9:00	31.3	178	119	70	126	88	4.62	74	258	172
25	9:00	31.0	173	121	72	128	90	4.54	73	266	178
20	8:40	30.6	172	129	74	128	90	4.39	72	269	200
15	8:30	29.8	170	136	76	130	92	4.17	71	272	234
10	8:00	29.1	167	139	77	133	94	3.95	70	283	268
5	7:50	28.2	166	144	82	136	98	3.72	68	301	316
1	7:10	27.0	160	152	100	142	100	3.54	54	366	858
N	49	47	47	49	50	50	50	49	49	50	50
\bar{X}	9:15	33.4	182	114	67	122	84	4.90	78	242	164
SD	0:53	3.6	10	17	9	10	7	.59	7	38	119

TMT = treadmill time; VO₂ max = maximum oxygen intake; HR max = maximum heart rate; Step Test = 3 min step test recovery heart rate; RHR = resting heart rate; RSBP = resting systolic blood pressure; RDBP = resting diastolic blood pressure; VC = vital capacity; FEV₁:VC = forced expiratory volume for one second divided by vital capacity; Chol. = cholesterol; Tri. = triglycerides.

— Sedentary average

..... Sheriff's Department and Highway Patrolmen

Table 4.5 Body composition and motor ability of police officers 36-52 years of age.

Percentile Rankings	Height (in)	Weight (lb)	Fat (%)	Skinfolds Sum of 6 (mm)	Waist (in)	Press ¹ (lb)	Pushups (No.)	Situps (No.)	Flex ² (in)
99	77.0	158.4	17.7	96	34.7	180	35	39	21.3
95	75.8	165.5	18.3	103	35.7	180	23	34	19.4
90	73.3	170.5	20.8	105	36.6	179	22	32	18.9
85	72.7	175.3	21.6	113	36.5	165	20	30	18.4
80	72.3	177.1	21.8	113	36.9	165	20	30	17.2
75	72.0	178.9	22.1	116	37.1	165	20	28	16.3
70	71.7	180.8	22.4	119	37.3	145	18	26	15.9
65	71.4	184.1	23.5	122	37.7	145	18	26	15.5
60	71.3	185.9	23.8	127	37.8	145	17	25	15.1
55	71.1	190.8	24.0	137	38.4	145	15	25	14.6
50	70.9	193.6	24.3	141	38.7	145	14	25	14.0
45	70.8	197.7	24.7	147	38.9	145	12	24	13.4
40	70.6	199.1	26.0	148	39.2	135	12	24	13.1
35	70.4	202.4	27.0	154	40.0	135	12	23	12.8
30	70.2	207.2	27.7	154	40.2	135	11	21	12.4
25	69.9	209.5	28.2	163	40.9	135	10	20	11.9
20	69.7	214.5	29.5	167	41.5	134	10	17	11.3
15	69.4	220.5	30.3	178	42.4	115	9	13	10.1
10	68.9	225.5	31.2	180	43.1	115	8	11	7.4
5	67.9	242.0	32.2	203	44.9	100	8	10	6.2
1	66.0	248.6	35.0	223	47.2	100	7	8	4.0
N	49	50	50	50	50	48	47	47	48
\bar{X}	70.9	196.3	25.3	143	39.2	144	15	23	13.7
SD	2.0	22.1	4.2	31	2.9	21	6	7	4.0

¹ Press = maximum one repetition bench press; ² Flex = flexibility sit and reach.

— Sedentary average

..... Sheriff's Department and Highway Patrolmen

vital capacity (+), and trunk flexion (+). The percent body fat between groups was similar, thus the heavier weight was a result of more bone and muscle tissue. Since the average person in the U.S. is considered below standards in physical fitness compared to many other industrialized countries, the standards should be thought of as inadequate for young police officers.

Data from the sheriff's department personnel and highway patrolmen show similar results to the young policemen in cardiorespiratory fitness, but show them to have higher levels of serum cholesterol and triglycerides. Firemen (not shown in tables) have greater cardiorespiratory endurance and less body weight, fat, and waist circumference.

The question that should be considered is how fit should young police officers be? Is a standard that is average for a normal sedentary population acceptable? If a job requires physical effort, such as running, climbing, and jumping; if an officer needs to have endurance and the ability to handle his own body weight, then the answer is negative. Many positions on the police force do require some intense physical activity. Therefore, higher levels of fitness are necessary.

A recent study conducted on 100 inmates (26) showed them to be in better physical condition than police officers (Tables 4.2 and 4.3). This included a higher working capacity and cardiorespiratory endurance and lower body weight, fat, waist circumference, diastolic blood pressure, and serum cholesterol. This comparison to police officers has been shown elsewhere (12). The inmates' ability to expel air from their lungs quickly ($FEV_1 \div VC$) was lower and was thought to be related to their heavy smoking habit. Although most inmates lose body weight while incarcerated, it was surprising to find them in such good

cardiorespiratory fitness. Similar to the police officers tested, the inmates had had no endurance training prior to being tested. It is imperative that police officers be in better physical condition in order to cope with fit young persons who commit crimes in a variety of situations.

Middle-aged police officers. Tables 4.4 and 4.5 show normative data on physiological and performance variables of middle-aged police officers 36-52 years of age. When compared to the normal sedentary population of similar age, they were considered below average in working capacity, cardiorespiratory fitness, and body composition. Specifically, the results show middle-aged police officers low in treadmill performance, maximum oxygen intake, and efficiency on a bench step test, and high in body weight and fat, waist circumference, and serum lipids. When compared to the normal population, the middle-aged police officer is in worse physical condition than the young police officer.

The data from the sheriff's department personnel and highway patrolmen show similar body composition results to the police officers in this investigation, but were closer to the normal population in cardiorespiratory fitness. Thus, the low values for cardiorespiratory fitness found in this study may not be typical of police throughout the country. Even so, the need for further development in physical fitness and attention to factors related to risk of coronary heart disease in police officers is well documented in this investigation.

SUMMARY

Two hundred thirteen male police officers between 21 and 52 years of age volunteered to participate in a physical evaluation and conditioning program. Information concerning risk of coronary heart disease and physical fitness status of police officers were shown. Younger police officers (≤ 30 years of age)

tended to be of average risk for coronary heart disease and average in physical fitness compared to the normal population. Middle-aged police officers were shown to be at higher risk and lower in physical fitness than the normal population. The results from this investigation support the need for physical fitness and preventive medicine programs for police officers.

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CHAPTER 5

PHYSICAL FITNESS PROGRAMS

The exercise programs for both the young and middle-aged officers were conducted over a 20-week period of time. All officers exercised 3 days per week for approximately 45 minutes per exercise session. The first 15 minutes of the workout was devoted to a standard warm-up period involving various stretching and calisthenic exercises completed in the following order:

- | | |
|---|---|
| 1. Jumping Jacks (20 reps) | 8. Double arm circles and toe raise (20 reps) |
| 2. Pushups (20 reps) | 9. Trunk rotation (5 reps each direction) |
| 3. Situps (30 reps) | 10. Forward bend (10 reps) |
| 4. Squats (10 reps) | 11. Front leg stretch (30 sec) |
| 5. Pullups (5 reps positive
or negative) | 12. Hamstring stretch (30 sec) |
| 6. Back stretch (30 sec) | 13. Calf stretch (30 sec) |
| 7. Side stretch (5 reps each side) | |

The above repetitions and/or times were recommended to the officers; however, each officer recorded his exact repetitions and/or time for each warm-up exercise.

The remaining 30 minutes of each workout were devoted to the specific exercise prescribed for each group. The following describes each exercise program:

1. RPD and TDPS Program - The aerobic program consisted of walking and jogging on a 440-yard marked path on a grass field area. The path was located in one of the Richardson City Parks and traversed in and out of trees. Several turns were designed for the jogging path in an effort to avoid the monotony often encountered when training on oval tracks. Initially, the walking and jogging distances were equal, but the training progressed throughout the 20 weeks in such

a fashion that the individuals walked less and jogged longer distances, for example, jog one mile, walk 110 yards, jog one mile.

2. DPD Young Officer Running Programs - The aerobic programs consisted of either interval running, continuous running, or combined interval/continuous running on an oval 440 yard cinder track.

A. Interval Program - This group alternated short periods of high intensity work (running) and low intensity work (walking).

Essentially, the training consisted of walking 220 yards and then running 220 yards at high speed.

B. Continuous Program - This group walked and jogged equal distances initially, but progressed throughout the 20 weeks in such a fashion that the individuals walked less and jogged longer distances. The final few weeks of training were essentially continuous jogging for the exercise period.

C. Combined Program - This group alternated days of training in the interval program with those of the continuous program.

3. DPD Young Officer Weight Training Program - This group exercised in a program of weight training. The weights were adjusted so that each individual was working at approximately 50% of his one-repetition maximum strength and the repetitions progressed from 10 to 20 per set for the first six weeks, and then reduced to 15 per set for the remaining 14 weeks. It was found that 20 repetitions per set was too uncomfortable for the officers. The individual moved in a continuous fashion from one exercise to another with a rest period between sets of 30 seconds for the first five weeks. Thereafter, the rest period decreased to 25 and finally to 20 seconds between each set. The above protocol, using

relatively light weights, several repetitions, and minimal rest between sets was designed to determine if cardiovascular-respiratory improvements could be elicited by such a program. The following weight training, stationary cycling, and calisthenic exercises were performed in each workout:

- | | |
|--|-------------------|
| A. Cycling at 900 kpm/min
for 2 minutes | G. Leg Press |
| B. Bench Press | H. Situps |
| C. Knee Extension | I. Shoulder Press |
| D. Hamstring Curl | J. Lat Pull |
| E. Biceps Curl | K. Upright Rowing |
| F. Dips | |

4. DPD Middle-Aged Programs - The aerobic program consisted of a walking and jogging routine similar to that described for the RPD and TDPS program.

- A. Supervised Program - This group exercised on an oval 440-yard cinder track under direct supervision of exercise leaders conducting this study.
- B. Unsupervised Program - This group exercised under direct supervision for the first four weeks of the study and, thereafter, were required to train on their own at locations of their choice other than the central location where supervision was available. However, every two weeks this group was required to return to the central location for one exercise session under supervision to check training progress.

In order to estimate the intensity of exercise, all officers in the exercise programs were asked to record their heart rates by the palpation technique (1) at the middle (15 minutes) and end (30 minutes) of each workout. In order to quantify the training of the running programs, the distances and times of the walking and jogging segments were recorded for each workout (see Appendix D). For example, an individual may have recorded 0.75 mile walking in 12 minutes and 2.0 miles jogging in 18 minutes. In this way, the energy cost for the total workout could be calculated. In the DPD young officer running programs, the distances and paces of running and walking were designed so that the total calorie cost for the three programs was approximately the same. The weight training program was quantified by recording the number of repetitions and weight used for each exercise. For example, a person may have recorded 2 sets of 15 repetitions in the bench press exercise using 120 pounds.

¹Pollock, M.L., J. Broida, and Z. Kendrick. Validation of the palpation technique for estimation of training heart rate. Res. Quart. 43:77-81, 1972.

CHAPTER 6

RESULTS AND DISCUSSION

A description in terms of average age, height, and weight of the participants in the various programs is presented in Table 6.1. The 82 officers in the young age category averaged 29 to 30 years, and the 18 officers in the middle-aged groups averaged 40 to 41 years of age. All groups were approximately the same height (70 to 71 inches), but the middle-aged officers were about 10 to 20 pounds heavier compared to the younger officers. This was mainly due to the higher amount of body fat in the middle-aged officers.

The effects of the programs on resting heart rate, blood pressure, and recovery heart rate from the three-minute step test are shown in Table 6.2. When comparing the runners with their respective control groups, resting heart rate was significantly lowered through 20 weeks of running. The young runners lowered their resting heart rates by 5 beats/min. and the middle-aged runners by 8 beats/min. A similar observation was made for the recovery heart rate from the step test. The lowering of resting heart rate and recovery heart rate from submaximal work through exercise programs of running has been shown in other studies (20-23). As a result of training, the heart is stronger, pumps more blood per beat, is more efficient, and, therefore, does not beat as rapidly at rest and during submaximal work. The weight training program did not provide a statistically significant reduction in resting or recovery heart rate, although a trend for a lower step test heart rate was seen. Thus, the weight training program used in this study did not affect significantly resting or submaximal cardiovascular function. The sedentary control groups showed no changes in the above variables. The resting blood pressures were normal and did not change for any of the exercise or control

Table 6.1 Physical characteristics of participants in Police Physical Fitness Programs

Group	Variables					
	Age (yr)		Height in(cm)		Weight lb(kg)	
	X	SD	X	SD	X	SD
Young Controls n = 23	30.0	4.0	70.9 (180.1)	3.1 (7.9)	186 (84.56)	23 (10.6)
Young Runners n = 48	29.4	3.0	70.4 (178.8)	2.4 (6.1)	179 (81.42)	22 (10.4)
Young Weight Trainers n = 11	28.9	3.6	70.9 (180.1)	1.0 (2.5)	188 (85.47)	28 (12.7)
Middle-Aged Runners n = 11	41.3	5.0	70.8 (179.8)	1.2 (3.0)	198 (90.02)	24 (10.7)
Middle-Aged Controls n = 7	39.9	3.8	71.0 (180.3)	2.4 (6.1)	202 (91.92)	21 (9.6)

Table 5.2 Effects of exercise programs on cardiovascular function of police officers

Group	Variable	Test Conditions		
		Before Training $\bar{X} \pm SD$	After Training $\bar{X} \pm SD$	Mean Difference
Young Controls n = 23	Rest HR ^a (beats/min)	63 \pm 7	66 \pm 7	+3
	Rest SBP ^b (mmHg)	123 \pm 9	119 \pm 7	-4
	Rest DBP ^c (mmHg)	83 \pm 8	80 \pm 7	-3
	Step Test HR ^d (beats/min)	109 \pm 18	110 \pm 13	+1
Young Runners n = 48	Rest HR (beats/min)	64 \pm 9	59 \pm 7	-5*
	Rest SBP (mmHg)	121 \pm 8	118 \pm 8	-3
	Rest DBP (mmHg)	81 \pm 7	78 \pm 7	-3
	Step Test HR (beats/min)	108 \pm 13	95 \pm 11	-13*
Young Weight Trainers n = 11	Rest HR (beats/min)	64 \pm 10	63 \pm 9	-1
	Rest SBP (mmHg)	125 \pm 7	119 \pm 6	-6
	Rest DBP (mmHg)	84 \pm 3	82 \pm 4	-2
	Step Test HR (beats/min)	109 \pm 26	103 \pm 23	-6
Middle-Aged Runners n = 11	Rest HR (beats/min)	70 \pm 10	62 \pm 13	-8*
	Rest SBP (mmHg)	123 \pm 5	120 \pm 10	-3
	Rest DBP (mmHg)	87 \pm 7	83 \pm 10	-4
	Step Test HR (beats/min)	115 \pm 13	94 \pm 11	-21*
Middle-Aged Controls n = 7	Rest HR (beats/min)	63 \pm 8	64 \pm 9	+1
	Rest SBP (mmHg)	129 \pm 9	125 \pm 11	-4
	Rest DBP (mmHg)	84 \pm 10	86 \pm 11	+2
	Step Test HR (beats/min)	113 \pm 21	108 \pm 17	-5

^a Rest HR = Resting heart rate

^b Rest SBP = Resting systolic blood pressure

^c Rest DBP = Resting diastolic blood pressure

^d Step Test HR = Recovery heart rate from three minute step test

* Significant improvement when compared to control group

groups. This also has been observed in other studies, particularly when the blood pressures are normal initially (20-23).

The results of the maximum cardiorespiratory testing are presented in Table 5.2. The significant effects of the exercise programs on the young and middle-aged runners are again quite evident. Treadmill performance time and maximum oxygen intake ($\text{VO}_2 \text{ max}$) were significantly improved in those groups. The weight training group improved significantly in treadmill time but not in $\text{VO}_2 \text{ max}$. Little evidence is available showing the effects of weight training on cardiorespiratory function. This study agrees with Allen et al. (24) who showed no change in $\text{VO}_2 \text{ max}$ with weight training but contradicts the results by Wilmore et al. (25) who reported small but statistically significant improvements in $\text{VO}_2 \text{ max}$ during weight training for women. The results in this study with men show no changes in $\text{VO}_2 \text{ max}$ but improvements in treadmill running time. This is in agreement with a recent study by Wilmore (personal communication) conducted on young men. The improved running performance is probably explained by the increased leg strength gained through the weight training. It is well known that treadmill performance time and $\text{VO}_2 \text{ max}$ are improved through programs of running (20-23) and are reflective of improvement in maximum cardiorespiratory function. Having an increased working capacity would be desirable for an officer since he would be able to run faster and longer if required to chase a suspect. Having an increased ability to take in and utilize oxygen is also a desirable outcome of training. This indicates that many functions of the body are enhanced and the individual is in a better state of total health.

Table 6.3 Effects of exercise programs on maximum cardiorespiratory function of police officers

Group	Variable	Test Conditions		
		Before Training X \pm SD	After Training X \pm SD	Mean Difference
Young Controls n = 23	Treadmill Time ^a (min:sec)	7:17 \pm 0:51	6:58 \pm 0:47	-0:19
	VO ₂ max ^b (ml/kg•min)	39.5 \pm 3.7	38.0 \pm 3.6	-1.5
	Max HR (beats/min)	192 \pm 11	191 \pm 10	-1
	V _E max BTPS ^c (L/min)	108.7 \pm 14.6	110.6 \pm 14.2	+1.9
Young Runners n = 48	Treadmill Time (min:sec)	7:48 \pm 0:46	10:05 \pm 1:02	+2:17*
	VO ₂ max (ml/kg•min)	41.1 \pm 3.9	46.4 \pm 4.5	+5.3*
	Max HR (beats/min)	193 \pm 8	189 \pm 7	-4*
	V _E max BTPS (L/min)	110.6 \pm 14.8	118.8 \pm 15.9	+8.2*
Young Weight Trainers n = 11	Treadmill Time (min:sec)	7:22 \pm 0:52	8:05 \pm 1:09	+0:43*
	VO ₂ max (ml/kg•min)	40.0 \pm 4.9	41.4 \pm 4.5	+1.4
	Max HR (beats/min)	195 \pm 10	191 \pm 11	-4*
	V _E max BTPS (L/min)	108.6 \pm 13.2	110.1 \pm 14.6	+1.5
Middle-Aged Runners n = 9	Treadmill Time (min:sec)	9:46 \pm 0:35	11:05 \pm 0:47	+1:19*
	VO ₂ max (ml/kg•min)	33.6 \pm 2.2	40.2 \pm 3.8	+6.6*
	Max HR (beats/min)	182 \pm 3	177 \pm 4	-5*
	V _E max BTPS (L/min)	110.9 \pm 16.1	113.3 \pm 17.6	+2.4
Middle-Aged Controls n = 7	Treadmill Time (min:sec)	10:03 \pm 1:02	10:23 \pm 0:22	+0:20
	VO ₂ max (ml/kg•min)	34.1 \pm 4.7	35.8 \pm 4.2	+1.7
	Max HR (beats/min)	180 \pm 11	185 \pm 10	+5
	V _E max BTPS (L/min)	107.5 \pm 14.8	113.1 \pm 9.9	+5.6

^a Treadmill protocols differed between young and middle-aged men

^b VO₂ max = Maximum oxygen intake

^c V_E max BTPS = Maximum pulmonary ventilation; body temperature, pressure, saturated

* Significant improvement when compared to control group

The results of the body composition measures are shown in Table 6.4. Body weight did not change in the young runners, but percent body fat showed a significant reduction. The significant reduction in the sum of six skinfold measures further supports the loss of body fat. This means that the lean body mass of the runners increased since total body weight remained the same. The increase in lean body mass is particularly evident for the weight trainers. They gained an average of one pound of body weight while losing a significant amount of fat. Weight training stimulates the deposition of protein in the muscle and therefore results in an increase of lean body mass (25). The middle-aged runners reduced in body weight, percent fat, and total skinfold fat. The waist girths for both the young and middle-aged training groups were also significantly reduced. The change in body composition through various programs of exercise is in agreement with other investigations (20-23, 26-27).

The results of the motor ability field tests are shown in Table 5.5. The number of situps performed in one minute, the total number of pushups, and the one-repetition maximum bench press were improved significantly in the young runners and weight trainers. Of particular interest was the large increase in upper body performance (pushups and bench press) exhibited by the weight trainers. This reflects the specificity of improvement in performance as it relates to the type of training. Although a definite trend in improvement of motor ability was seen with the middle-aged runners, none of the changes were statistically significant. The changes observed in the young exercisers were reflective of muscular endurance and strength improvements and are partially explainable by the warm-up program required of all exercisers. Included within the warm-up calisthenics were pushups and situps as well as various stretching exercises.

Table 6.4 Effects of exercise programs on body composition of police officers

Group	Variable	Test Conditions		
		Before Training X + SD	After Training X + SD	Mean Difference
Young Controls n = 23	Weight (lb)	186 ± 23	185 ± 22	-1
	Body Fat (%)	19.4 ± 3.4	19.8 ± 3.5	+0.4
	Sum 6 Skinfolds (mm)	133 ± 30	138 ± 30	+5
	Shoulder Girth (in)	46.6 ± 2.7	47.2 ± 2.8	+0.6
	Waist Girth (in)	37.1 ± 3.1	37.4 ± 3.2	+0.3
Young Runners n = 48	Weight (lb)	179 ± 22	179 ± 23	0
	Body Fat (%)	18.9 ± 4.0	17.1 ± 3.5	-1.8*
	Sum 6 Skinfolds (mm)	131 ± 34	116 ± 30	-15*
	Shoulder Girth (in)	46.1 ± 2.1	46.1 ± 2.0	0
	Waist Girth (in)	36.2 ± 2.9	35.7 ± 2.9	-0.5*
Young Weight Trainers n = 11	Weight (lb)	188 ± 28	189 ± 14	+1
	Body Fat (%)	18.3 ± 5.7	17.2 ± 5.4	-1.1*
	Sum 6 Skinfolds (mm)	132 ± 50	119 ± 48	-13*
	Shoulder Girth (in)	46.8 ± 2.4	47.7 ± 2.6	+0.9
	Waist Girth (in)	36.8 ± 4.1	36.4 ± 4.2	-0.4*
Middle-Aged Runners n = 11	Weight (lb)	198 ± 24	190 ± 24	-8*
	Body Fat (%)	25.2 ± 5.7	22.7 ± 6.0	-2.5*
	Sum 6 Skinfolds (mm)	135 ± 33	117 ± 35	-18*
	Waist Girth (in)	39.2 ± 3.4	37.8 ± 3.5	-1.4*
Middle-Aged Controls n = 7	Weight (lb)	202 ± 21	201 ± 24	-1
	Body Fat (%)	26.7 ± 5.2	26.8 ± 4.6	+0.1
	Sum 6 Skinfolds (mm)	145 ± 40	147 ± 39	+2
	Waist Girth (in)	39.7 ± 3.5	39.7 ± 3.5	0

* Significant change when compared to control group

Table 6.5 Effects of exercise programs on strength, muscular endurance, and motor ability of police officers

Group	Variable	Test Conditions		
		Before Training X + SD	After Training X + SD	Mean Difference
Young Controls n = 23	Flexibility (in)	17.5 ± 2.8	16.8 ± 3.7	-0.7
	Situps (#)	33 ± 6	30 ± 7	-3
	Pushups (#)	20 ± 5	20 ± 5	0
	Bench Press (lb)	145 ± 30	142 ± 24	-3
	Vertical Jump (in)	17.9 ± 2.2	17.5 ± 2.6	-0.4
	Agility (sec)	18.5 ± 1.1	19.0 ± 0.9	+0.5
Young Runners n = 48	Flexibility (in)	17.6 ± 3.1	17.2 ± 3.8	-0.4
	Situps (#)	35 ± 7	37 ± 6	+2*
	Pushups (#)	21 ± 8	29 ± 9	+8*
	Bench Press (lb)	152 ± 18	164 ± 24	+12*
	Vertical Jump (in)	17.8 ± 2.3	17.2 ± 3.1	-0.6
	Agility (sec)	18.5 ± 0.9	18.6 ± 1.0	+0.1
Young Weight Trainers n = 11	Flexibility (in)	20.1 ± 2.9	18.0 ± 3.2	-2.1
	Situps (#)	34 ± 6	38 ± 6	+4*
	Pushups (#)	22 ± 8	32 ± 11	+10*
	Bench Press (lb)	150 ± 24	203 ± 48	+53*
	Vertical Jump (in)	17.0 ± 2.1	17.1 ± 2.6	+0.1
	Agility (sec)	18.8 ± 1.2	19.6 ± 1.7	+0.8
Middle-Aged Runners n = 11	Flexibility (in)	13.7 ± 3.7	14.3 ± 3.4	+0.6
	Situps (#)	23 ± 7	31 ± 5	+8
	Pushups (#)	15 ± 7	21 ± 7	+6
	Bench Press (lb)	146 ± 13	158 ± 19	+12
Middle-Aged Controls n = 7	Flexibility (in)	13.8 ± 5.8	14.8 ± 5.0	+1.0
	Situps (#)	28 ± 8	30 ± 7	+2
	Pushups (#)	14 ± 5	16 ± 7	+2
	Bench Press (lb)	155 ± 20	154 ± 15	-1

* Significant improvement when compared to control group

Improvements in flexibility, power, and agility were expected but not observed; however, the previous paper (1) showed that the young officers had good levels of flexibility before the training programs were implemented. It is difficult to improve upon a fitness element that is already well developed.

The results from the Richardson Police Department field testing are presented in Table 6.6. Average times for each of the four parts of the test are presented, along with the total time for the entire test. Although a definite trend in improvement was seen for the training group, the only statistically significant changes observed were in the 440-yard run and total time. The environmental temperature was significantly higher during the final testing session and could have affected the results. In any case, the specificity of running training is reflected through improvement in the 440-yard running performance test. The obstacle course, body drag, and stair run items of the test require short bursts of intense activity. This type of training was not included in the Richardson training program. Perhaps the inclusion of weight training and sprinting or other specific exercises relating to the obstacle course, body drag, and stair run would have produced even more changes than were observed in those tests. If these items are considered highly related to job performance by the police departments, then specific exercises that affect these physical tasks should be provided. A comprehensive program of weight training, sprinting, and distance running would seem to be the optimal program.

Blood and lung volume measures are summarized in Table 6.7. All values were within the normal range for serum lipids (cholesterol and triglycerides), glucose, lung vital capacity, and forced expiratory volume for one second and did not change significantly for any of the groups. This lack of change for these

Table 6.6 Effects of endurance training on Richardson Police Department field test

Group	Variable	Test Conditions		
		Before Training X + SD	After Training X + SD	Mean Difference
Control (n=5)	Obstacle Course (min:sec)	0:50 ± 0:06	0:54 ± 0:10	+0:04
	Body Drag (min:sec)	0:23 ± 0:03	0:22 ± 0:03	-0:01
	Stair Run (min:sec)	0:46 ± 0:04	0:47 ± 0:04	+0:01
	440 yd Run (min:sec)	1:58 ± 0:28	2:11 ± 0:22	+0:13
	Total Time (min:sec)	3:57 ± 0:36	4:09 ± 0:36	+0:12
Training (n=11)	Obstacle Course (min:sec)	0:49 ± 0:10	0:46 ± 0:07	-0:03
	Body Drag (min:sec)	0:24 ± 0:04	0:22 ± 0:05	-0:02
	Stair Run (min:sec)	0:48 ± 0:05	0:45 ± 0:04	-0:03
	440 yd Run (min:sec)	1:43 ± 0:13	1:39 ± 0:15	-0:04*
	Total Time (min:sec)	3:44 ± 0:24	3:32 ± 0:21	-0:12*

* Significant improvement when compared to control group.

Table 6.7 Effects of exercise programs on serum lipids, glucose, and lung volumes of police officers

Group	Variable	Test Conditions		
		Before Training X + SD	After Training X + SD	Mean Difference
Young Controls n = 23	Cholesterol (mg %)	196 ± 35	202 ± 33	+6
	Triglyceride (mg %)	133 ± 75	140 ± 69	+7
	Glucose (mg %)	82 ± 6	85 ± 8	+3
	Vital Capacity (L)	5.70 ± 0.90	5.44 ± 0.87	-0.26
	FEV ₁ (%) ^a	80 ± 5	79 ± 5	-1
Young Runners n = 48	Cholesterol (mm %)	198 ± 47	200 ± 44	+2
	Triglyceride (mg %)	115 ± 63	107 ± 52	-8
	Glucose (mg %)	83 ± 5	86 ± 4	+3
	Vital Capacity (L)	5.66 ± 0.92	5.47 ± 0.89	-0.19
	FEV ₁ (%)	81 ± 4	81 ± 5	0
Young Weight Trainers n = 11	Cholesterol (mg %)	189 ± 13	184 ± 16	-5
	Triglyceride (mg %)	84 ± 22	99 ± 38	+15
	Glucose (mg %)	83 ± 7	87 ± 8	+4
	Vital Capacity (L)	5.93 ± 0.75	5.70 ± 0.76	-0.23
	FEV ₁ (%)	79 ± 5	81 ± 6	+2
Middle-Aged Runners n = 11	Cholesterol (mg %)	264 ± 53	219 ± 37	-45
	Triglyceride (mg %)	215 ± 220	145 ± 104	-70
	Glucose (mg %)	85 ± 10	85 ± 7	0
	Vital Capacity (L)	4.71 ± 0.65	5.27 ± 0.58	+0.56
	FEV ₁ (%)	80 ± 8	79 ± 6	-1
Middle-Aged Controls n = 7	Cholesterol (mg %)	225 ± 24	214 ± 21	-11
	Triglyceride (mg %)	128 ± 29	146 ± 31	+18
	Glucose (mg %)	82 ± 5	87 ± 5	+5
	Vital Capacity (L)	4.92 ± 0.68	5.48 ± 0.90	+0.56
	FEV ₁ (%)	81 ± 3	80 ± 4	-1

^aFEV₁ (%) - Forced expiratory volume for one second ÷ Vital Capacity

variables has also been observed in past studies (19-20). The cholesterol and triglyceride changes for the middle-aged runners appear to be significant; however, the average drop in those variables was due mainly to one individual who initially had very high values and then subsequently lowered them toward normal levels. Milesis (28) also observed a significant lowering of serum lipids through training in certain individuals who started with abnormally high levels.

SUMMARY

The various exercise programs implemented within the police departments significantly affected the participating officers. The physiological changes observed on the young and middle-aged runners were in desirable directions resulting in improved working capacity, cardiovascular function, body composition, and muscular endurance and strength. The weight training program did not affect cardiovascular function, but significantly improved treadmill running performance, body composition, strength, and muscular endurance measures. Based on these results, it was concluded that future programs for police officers should include a combination of running, strength training, and motor ability development.

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CHAPTER 7

PSYCHOLOGICAL CORRELATES OF PHYSICAL FITNESS TRAINING

A great variety of psychological benefits have been attributed to improved health and physical fitness in both popular and scientific literature. The objective of this segment of the research project was the determination of psychological factors relating specifically to both aerobic training and the police environment and the identification of any changes in those factors that occurred across the 20 weeks of training. Due to the unique nature of the police job, a variety of areas were deemed applicable for examination.

Perceptions of self and others are integral parts of an individual's psychological make-up. The present study examines a great deal of perceptual data, including general physical health and specific physical abilities in relation to an appropriate peer group (i.e., other police officers of the same age), as well as the perceived physical fitness of other police officers. Since the stress and tension associated with police work is seen as relevant to the overall physical and mental well-being of officers doing that work, perceptions of sources of such stress were examined. Additionally, perceptions of significant others, in this case the officers' wives, relative to change in their husband's conditions at the completion of the training programs were documented.

Attitudes toward physical fitness may also play a role in terms of affinity for exercise and adherence to particular programs. Such attitudes were explored here in relation to physical activity, health in general, and heart attacks, often thought to be a hazard of police work.

Finally, personal and family background data were collected as indications of an officer's experiences with physical activity and exercise.

General Description of Participants

Preliminary analysis of the data contained in the Medical History Questionnaire and the Background Information Report Form, revealed no real differences between experimental and control group officers. Combining these training and control groups, then, results in the most efficient presentation of data. For the purposes of this section, data are presented for the following three groups:

- Group I - all officers from the Richardson Police Department and the Texas Department of Public Safety
- Group II - younger officers in the Dallas Police Department (i.e., those in the running and weight lifting programs, as well as the control group)
- Group III - older officers in the Dallas Police Department (i.e., those in the supervised and unsupervised training programs, as well as the control group)

Again, data are discussed for those officers who remained with the program for 20 weeks and who completed most of the questionnaires.

Tables 7.1 through 7.2 present general background information on participating police officers.

The majority of police officers participating in these 20 week programs are married, college-educated veterans currently assigned to patrol or investigation. Younger Dallas officers are more often single or divorced and have less frequently served in the military, while older Dallas officers are of higher rank and more varied assignments. Approximately 20% currently attend college and 25% hold a part-time job.

Although most of the officers participated in sports while in school (some 60% of these having lettered in their respective sports), less than one-third engage in sports activities at the present time. Most of the officers who currently participate in sports indicated greatest frequencies for tennis, bowling, and golf. When asked to indicate preferences for regular exercise programs, however, the three groups produced the rank orders provided in Table 7.3. It can be seen that officers in Groups I and II are very similar in their exercise

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Table 7.1 Marital Status, Education, and Military Service of Participating Officers in Groups I, II, and III

	Group I		Group II		Group III	
	N	%	N	%	N	%
<u>Marital Status</u>						
Single	1	4.8	12	16.4	1	3.3
Married	18	85.7	43	58.9	25	83.3
Divorced	2	9.5	9	12.3	2	6.7
<u>Education</u>						
Less than High School	0		4	5.5	2	6.9
High School Diploma	5	23.8	8	11.0	2	6.9
Some College	13	61.9	25	34.2	10	34.5
4 Year College Degree	3	14.3	24	32.0	11	37.9
<u>Military Experience</u>	16	76.2	31	43.1	22	75.9

Table 7.2 Current Rank, Assignment, and Outside Educational and Work Activities of Participating Officers in Groups I, II, and III

	Group I		Group II		Group III	
	N	%	N	%	N	%
<u>Rank</u>						
Police/Patrol Officer	17	81.0	36	49.3	4	13.8
Investigator	1	4.8	14	19.2	5	17.2
Sergeant	1	4.8	17	23.3	10	34.5
Lieutenant	2	9.5	4	5.5	8	27.6
Captain	0		2	2.7	2	6.9
<u>Assignment</u>						
Administration	2	9.5	5	6.8	7	24.1
Patrol	13	61.9	43	58.9	4	13.8
Traffic	1	4.8	8	11.0	7	24.1
Investigation	1	4.8	15	20.5	9	31.0
Juvenile	1	4.8	2	2.7	2	6.9
Courts	2	9.5	0		0	
Staff	1	4.8	0		0	
<u>Currently Attend College</u>	7	33.3	13	17.8	4	13.8
<u>Hold Second Job</u>	6	28.6	20	27.8	7	24.1

Table 7.3 Sports Related Activities During and Since High School/College of Participating Officers in Groups I, II, and III

	Group I		Group II		Group III	
	N	%	N	%	N	%
Participated in High School/College Sports	16	76.2	42	59.2	23	76.7
Lettered in High School/College Sports	10	62.5	26	61.9	15	65.2
Previous Employers Sponsored Sports	1	4.8	3	4.1	1	3.4
Previous Employers Sponsored Physical Fitness/Weight Maintenance Program	1	4.8	0		0	
Tried New Sports Since School	8	38.1	20	27.4	10	34.5
Engage in Sports Now	8	40.0	20	28.2	11	37.9

Table 7.4 Rank Order of Preferences for Regular Exercise Programs Among Officers in Groups I, II, and III

	Group I	Group II	Group III
Walking and/or running	1	1	1
Tennis	2	2	4
Bicycling (outdoors)	3.5	3	5
Swimming	3.5	4.5	2
Handball, basketball, or squash	5	4.5	3
Jumping rope	6	6	7
Stationary running	7	8	8
Stationary cycling	8	7	6

Table 7.5 Medical Information on Participating Officers in Groups I, II, and III

	Group I		Group II		Group III	
	N	%	N	%	N	%
Father Died of Heart Attack	3	14.3	6	8.2	5	16.7
Mother Died of Heart Attack	1	4.8	0		2	6.7
Smoke Ever	16	76.2	35	49.3	28	93.3
Smoke Now	11	53.0	13	18.3	13	44.8
Drink Now	20	95.2	65	69.0	22	73.3
Beer - None	0		6	9.2	0	
Occasional	16	80.0	44	67.7	15	68.2
Often	4	20.0	15	23.1	7	31.8
Wine - None	5	25.0	22	33.8	4	18.2
Occasional	8	40.0	22	33.8	12	54.5
Often	0		6	9.2	0	
Liquor - None	0		18	27.7	0	
Occasional	16	80.0	28	43.1	16	72.7
Often	1	5.0	4	6.2	3	13.6
Doctor Recommended Exercise	1	4.8	6	8.2	1	3.4
Amount of Sleep						
5 or 6 Hours per day	7	33.3	13	18.1	5	17.2
7 or 8 Hours per day	13	61.9	46	63.9	22	75.9

Table 7.6 Frequency of Experiencing Lower Back Pain in Five Situations for Participating Police Officers in Groups I, II, and III

	Group I		Group II		Group III		Total	
	N	%	N	%	N	%	N	%
<u>Waking Up</u>								
Frequently	0		1	1.4	1	3.4	2	1.6
Occasionally	1	4.8	4	5.5	2	6.9	7	5.7
Rarely	12	57.1	19	26.0	12	41.4	43	35.0
Never	8	38.1	49	67.1	14	48.3	71	57.7
<u>Driving</u>								
Frequently	1	4.8	3	4.1	3	10.3	7	5.7
Occasionally	8	38.1	18	24.6	9	31.0	35	28.4
Rarely	8	38.1	19	26.0	10	34.5	37	30.1
Never	4	19.0	33	45.2	7	24.1	44	35.8
<u>Sitting</u>								
Frequently	1	4.8	2	2.8	1	3.4	4	3.3
Occasionally	2	9.5	14	19.4	4	13.8	20	16.4
Rarely	12	57.1	19	26.4	16	55.2	47	38.4
Never	6	28.6	37	51.4	8	27.6	51	41.8
<u>Lifting Objects</u>								
Frequently	1	4.8	0		1	3.4	2	1.6
Occasionally	2	9.5	13	18.0	4	13.8	19	15.6
Rarely	12	57.1	25	34.7	15	51.7	52	42.6
Never	6	28.6	34	47.2	9	31.0	49	40.2
<u>Walking or Standing</u>								
Frequently	1	4.8	3	4.1	1	3.4	5	4.1
Occasionally	2	9.5	14	19.2	7	24.1	23	18.7
Rarely	12	57.1	21	28.8	14	48.3	47	38.2
Never	6	28.6	35	47.9	7	24.1	48	39.0

Table 7.7 Family Exercising Patterns for Participating Officers in Groups I, II, and III

	Group I		Group II		Group III	
	N	%	N	%	N	%
Officer Exercises at Home	1	4.8	7	9.6	1	3.4
Officer's Spouse Exercises at Home	1	5.0	6	9.7	2	7.4
Spouse Comments on Officer's Physical Condition	11	61.1	27	62.8	18	72.0
Officer Comments on Spouse's Physical Condition	7	38.1	25	58.1	18	72.0
Children Engage in Formal Sports Programs	7	58.3	16	32.6	21	80.8
Children Exercise at Home	1	8.3	4	8.2	5	19.2
Believe Children Get Enough Exercise	12	100.0	29	59.2	18	69.2

preferences, while the Group III older officers provide variations in rank orders.

Very few officers have any previous experience in physical fitness training programs or currently practice any regular exercise program at home. Neither wives nor children of these officers engage in regular exercise at home, and wives generally have negative comments about their husband's physical condition. Officers generally believe their children receive sufficient exercise. Younger Dallas officers have engaged in exercise programs recommended by doctors to a greater extent than Group I or Group III officers. Most of these cases occurred following traffic or home accidents.

Little personal experience with heart attacks in the officer's immediate family has been found. Diversity in smoking and drinking patterns was reported, with younger Dallas officers reporting the lowest smoking and drinking rates. However, the majority of officers reportedly drink beer and liquor occasionally, while approximately one-third smoke at the present time. Nearly 70% of the officers sleep seven or eight hours during every 24-hour period.

Additional health related questions on the BIRF revealed information about the use of certain medications and the frequency of lower back pain. Not surprisingly, the most frequently used medication was found to be aspirin, which is taken on occasion by over 50% of the officers. Vitamins are taken on a daily basis by about 10% of the officers.

Data on the occurrence of lower back pain are presented in Table 7.6; these data should be examined in some detail. It is clear that younger Dallas officers report suffering from lower back pain less frequently than either Group I or Group III officers; the percentages of Group II officers indicating "never" are

highest for each of the five situations. There are also indications that the older Dallas officers have the greatest experience with back pain. The combination of "frequently" and "occasionally" is largest in Group III for four of the five situations; the exception is "driving" for which Group I (42.9%) is slightly higher than Group III (41.3%).

Perhaps more important than these individual figures, however, is the indication that a fairly large proportion of all officers experience lower back pain at some time. If the figures for "frequently" and "occasionally" are combined for the total group of participating officers, the following data result:

Driving	42	34.1%
Walking/Standing	28	22.8%
Sitting	24	19.7%
Lifting	21	17.2%
Waking Up	9	7.3%

Over one-third of all the officers completing these 20 week programs experience lower back pain while driving their cars, while approximately 20% have some back pain when walking/standing and sitting. Although no officer reported that back pain occurred daily, these figures do indicate the prevalence of some back pain for this sample of officers.

Job Perceptions and Health Opinions of Participants

This section will examine in detail three of the questionnaires administered to the experimental (training) and control group officers. The questionnaires to be discussed are the Physical Fitness and Job Relatedness Questionnaire, Parts I and II, and the Health Opinion Questionnaire (refer to Appendix C). Taken together, these instruments reveal perceptions of the physical and

emotional demands of the officers' jobs, as well as their own abilities to meet these demands.

Data will be presented for those officers in each of the following five groups who completed the 20-week programs:

1. Richardson Department and Texas Department of Public Safety officers in the working/jogging training group (N=12).
2. Richardson and Texas Public Safety officers in the control group (N=9).
3. Younger Dallas officers in all training programs, i.e., interval, continuous, combination, and weight training (N=61).
4. Younger Dallas officers in the control group (N=11).
5. Older Dallas officers in the supervised and unsupervised training groups (N=26).

Inasmuch as only two of the original ten officers in the older Dallas control group completed the various psychological questionnaires at the post-testing time, little can be gained from examination of results of this group. Although these data are available, they will not be reported here.

In addition, some 27 officers failed to complete the post-test psychological instruments although they did complete the 20-week programs. To avoid misleading data, all percentages reported have been calculated on the basis of the number of officers in each group at the pre-test stage, i.e., those numbers reported above.

Physical Fitness of Participating Officers

Part I of the Physical Fitness and Job Relatedness Questionnaire provides an indication of how physically fit the participating officers feel they are. Table 7.8 presents data on the reported frequency of performance of nine job-related activities requiring certain physical skills; these data have been collapsed from the complete responses for all participating officers. It can be seen that

Table 7.8 Total Group Frequencies of Combined Physical Activities

	Very Often		Often		Rarely		Never	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. R/DPS Experimental	1.8	0	16.7	9.7	76.4	76.4	6.5	13.9
2. R/DPS Control	1.2	8.3	13.8	12.5	78.8	55.6	6.2	23.6
3. Dallas Younger Experimental	1.5	0.4	17.3	13.4	66.7	75.9	14.5	10.2
4. Dallas Younger Control	0		21.2	19.2	55.6	52.5	23.2	28.3
5. Dallas Older Experimental	0.9	0.6	5.7	5.6	62.9	63.3	30.6	30.6

the majority of every group reported performance of these activities "rarely" or "never" at both pre-test and post-test administrations. Among those activities most frequently performed "very often" or "often" were struggling with a resistant suspect, running up flights of stairs, and lifting a heavy object or a person.

Even though these physical activities are infrequently performed, most officers feel they have the necessary physical skills and abilities required for the activities. When asked to rate specific physical skills in comparison to other officers of the same age, nearly all officers in every group rate themselves at least average, even before the training programs began. However, substantial gains in self-ratings resulted by the end of the 20-weeks programs.

Table 7.9 presents the mean pre- and post-test ratings of participants in all five groups for the five physical abilities. Mean differences were tested for significance using the t-test for correlated samples. As can be seen, the increases in self-ratings of endurance were significant at the .002 level for all three training groups. Younger Dallas officers provided significantly higher post-test self-ratings on all five of the physical abilities, while older Dallas officers rated themselves significantly higher on speed and agility in addition to endurance. It should be remembered that these ratings are made in comparison "to other officers your age." No mean differences were significant among control group officers.

Looking at these questions from the standpoint of below average self-ratings yields further interesting data. Table 7.10 presents data on the pre- to post-test changes in ratings of below average among the three training groups. It is obvious that nearly all of those officers who saw themselves as below average on the pre-test rated themselves as at least average by the end of the training program. Only two officers provided self-ratings below average at the end of the programs.

Table 7.9 Year Ratings of Physical Ability Self Evaluations
for Officers in Five Groups

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Speed	2.9	2.5	3.0	2.8	2.8	2.3*	2.9	2.7	3.0	2.4*
Endurance	3.2	2.2*	3.1	2.9	2.9	2.2*	2.7	2.5	3.0	2.4*
Agility	2.5	2.4	2.6	2.6	2.7	2.2*	2.5	2.5	2.9	2.2*
Strength	3.0	2.8	2.6	2.8	2.9	2.5*	3.1	2.8	2.8	2.5
Combat Skills	2.9	2.4	2.9	2.8	2.9	2.4*	2.9	2.7	2.7	2.4

* p <.002

Table 7.10 Pre and Post Test Ratings of "Below Average" on Five Physical Abilities for the Three Experimental Groups

	R/DPS Experimental				Dallas Younger Experimental				Dallas Older Experimental			
	Pre		Post		Pre		Post		Pre		Post	
	N	%	N	%	N	%	N	%	N	%	N	%
Speed	1	8.3	0		8	13.1	0		5	19.2	1	
Endurance	2	16.7	0		10	16.4	0	1.6	4	15.4	0	
Agility	0		0		3	4.9	0		2	7.7	0	
Strength	0		0		11	18.0	0		5	19.2	0	
Combat Skills	0		0		15	24.6	0		2	7.7	0	

Summarizing these data, it is apparent that perceptions of physical abilities increased after completion of the training programs. Perceived endurance increased to the greatest extent, which is expected as the result of an aerobics program. It is difficult to determine the amount of natural inflation of self-ratings at the pre-test stage, but feedback provided to the participants by IAR lends credence to the post-test judgments.

Officers were also asked to rate the difficulty of entrance-level medical examinations and physical agility tests and recruit physical training standards. Some pre- to post-test differences were also found on these opinion questions. At the pre-test stage, R/DPS officers rated the entrance level medical exams as easy; nearly all officers felt capable of passing these standards at the current time, and over two-thirds considered these medical standards important in their current jobs. By the post-test, however, while few changes were found among control group officer opinions, experimental group officers' opinions had changed. Only 25% now considered the entrance-level medical examinations easy and only two-thirds felt they could pass these examinations. Interestingly, the importance attached to these standards decreased as well.

Among younger Dallas officers beginning the program, less than half of the experimental and control groups rated current medical standards easy, but over 70% of both groups felt they could still comply with the standards and that these standards were important considerations in their current jobs. Post-test data on the experimental group found decreases in ratings of both "easy" and "could pass now," as well as a slight increase in importance. Only minor differences resulted in opinions of the control group officers.

Few older Dallas officers felt the entrance medical standards were easy at either pre-test or post-test administrations. While 18 officers felt they could pass those standards at the beginning of the program, only 17 so indicated at the end of the program; at the same time, the number indicating "no" increased from 1 to 2. In addition, ratings of "important" decreased slightly from beginning to end of the program.

Similar patterns emerged from questions concerning physical standards. While at the beginning of the program only 50% of the R/DPS experimental group officers considered the entrance-level physical tests easy, all twelve felt they could pass them, and nearly all considered these standards important to current positions. Similarly, more than half stated the recruit academy physical standards were easy, and again, all twelve said they could pass them now. By the end of the 20 weeks, however, all of these ratings had decreased. Control group officers retained their opinions with some consistency, with the exception of the importance attached to physical standards, which decreased somewhat.

Younger Dallas officers were somewhat less inclined to give similar ratings to either entrance or academy physical requirements, but over 63% of both training and control groups at the pre-test indicated they could pass both. A substantial decrease resulted in the experimental group ratings of "easy" for the entrance requirements from the pre-test to the post-test; a slight decrease occurred with the ratings of "easy" for academy requirements. Over 73% of these officers felt they could pass both sets of standards by the end of the training program; this figure represents a slight decrease from the pre-test for the entrance standards and a fair increase from the pre-test for the academy requirements. Control group officers also decreased their ratings of "easy" and "could

pass" in relation to the entrance requirements.

These trends were reversed somewhat for the older Dallas officers, who indicated more frequently at both pre- and post-test times that both entrance and academy physical requirements were difficult. Nevertheless, over 65% indicated at both the pre-test and the post-test that they could pass the entrance requirements. With regard to the academy standards, however, an increase in the percent of officers who felt confident about passing was found from pre- to post-test. A decrease resulted in the rating of importance of the entrance standards.

While departmental differences in specific examinations and group differences in the number of "don't know" responses must be taken into account, similarities in response patterns are apparent. Generally, physical requirements associated with recruit training are seen as more difficult (or at least less easy) than entrance standards. Older officers were more inclined to rate both entrance and academy physical standards as difficult. However, after 20 weeks of physical fitness training, fewer officers considered medical and physical tests easy and fewer officers were certain they could still pass those tests. In addition, the importance attached to both medical and physical standards in terms of current job or position declined across the training period.

These changes may result from a number of factors. Pre-test ratings were probably inflated in many cases, simply because most people feel they are physically fit. By the post-test administration, a more realistic self-appraisal can be made, because of experience with both the actual fitness training and the medical examinations. The decrease in perceived importance of ability to comply with entrance medical and physical standards may result from a more thoughtful

consideration of the specific requirements themselves, i.e., results here may be reflecting opinions about the quality of the requirements rather than the notion of being medically and/or physically fit.

The final questions on Part I of this instrument deal with additional opinions about physical fitness. Data are presented in Tables 7.11 through 7.13.

The percentage of officers who favored mandatory medical exams and/or mandatory physical fitness programs decreased from pre-test to post-test in each of the three experimental groups; the decline was greatest among the R/DPS officers. The control groups remained constant for the most part.

A variety of changes can be seen on the question of age exclusion, i.e., who should be excluded from a mandatory physical fitness program? R/DPS experimental group officers generally favored excluding officers above 50 (the middle choice on the questionnaire, not included in the tables), while the majority of both younger and older Dallas officers favored age 55 as the cut-off. The number of officers selecting an age cut-off below 50 increased among younger Dallas officers, but decreased among older Dallas officers.

These results may be indicative of some amount of realization that physical fitness is an important factor in anyone's life, regardless of age; but the age exclusion selected most frequently generally reflects the traditional age of retirement. The decline in percent of officers favoring mandatory medical exams and physical fitness programs is also difficult to explain. It is felt that this decrease may reflect an awareness of the difficulties involved in establishing mandatory programs, as well as some sense of "fear of not doing well." Having completed a voluntary program in which discovery of real abilities replaces belief in assumed abilities, some officers may feel threatened by the implementation of a mandatory program.

Table 7.11 Opinions of Richardson and Department of Public Safety Officers in Experimental and Control Groups Concerning Mandatory Programs and the Physical Condition of Fellow Officers

	R/DPS Experimental				R/DPS Control			
	Pre		Post		Pre		Post	
	N	%	N	%	N	%	N	%
1. Favor mandatory medical exam								
Yes	11	91.7	6	50.0	8	88.9	8	88.9
No	0		1	8.3	0		0	
2. Favor mandatory physical fitness program								
Yes	12	100	8	66.7	7	77.1	7	77.8
No	0		0		0		1	11.1
3. Age exclusion								
Less than 50 years	2	16.7	2	16.7	0		2	22.2
More than 55 years	2	16.7	4	33.3	8	88.9	3	33.3
4. Ratings of co-workers								
High	1	8.3	1	8.3	1	11.1	1	11.1
Low	2	16.7	2	16.7	1	11.1	1	11.1
5. Ratings of all sworn personnel								
High	0		1	8.3	0		2	22.2
Low	3	25.0	2	16.7	1	11.1	1	11.1

Table 7.12 Opinions of Younger Dallas Officers in Experimental and Control Groups Concerning Mandatory Programs and the Physical Condition of Fellow Officers

	Dallas Younger Experimental				Dallas Younger Control			
	Pre		Post		Pre		Post	
	N	%	N	%	N	%	N	%
1. Favor mandatory medical exam								
Yes	51	83.6	46	75.4	8	72.7	9	81.8
No	2	3.3	0		1	9.1	1	9.1
2. Favor mandatory physical fitness program								
Yes	51	83.6	48	78.7	11	100	11	100
No	0		1	1.6	0		0	
3. Age exclusion								
Less than 50 years	2	3.3	8	13.1	1	9.1	1	9.1
More than 55 years	35	57.4	35	57.4	9	81.8	8	72.7
4. Ratings of co-workers								
High	3	4.9	2	3.3	1	9.1	1	9.1
Low	38	62.3	20	32.8	5	45.4	5	45.4
5. Ratings of all sworn personnel								
High	0		1	1.6	0		0	
Low	38	62.3	32	52.4	5	45.4	5	45.4

Table 7.13 Opinions of Older Dallas Officers in
Experimental Group Concerning Mandatory
Programs and the Physical Condition of
Fellow Officers

	Dallas Older Experimental			
	Pre		Post	
	N	%	N	%
1. Favor mandatory medical exam				
Yes	23	88.5	19	73.1
No	1	3.8	0	
2. Favor mandatory physical fitness program				
Yes	25	96.2	20	76.9
No	1	3.8	0	
3. Age exclusion				
Less than 50 years	2	7.7	1	3.8
More than 55 years	15	57.7	17	65.4
4. Ratings of co-workers				
High	4	15.4	2	7.7
Low	11	42.3	9	34.6
5. Ratings of all sworn personnel				
High	1	3.8	0	
Low	12	46.2	10	38.5

This sense of realization seems to be carried over to the relative ratings which participants provided for other officers in the department; these are also found in Tables 7.11, 7.12 and 7.13. While R/DPS officers generally were disinclined to rate fellow officers either high or low on physical condition at both pre-test and post-test, over one-third of the Dallas officers utilized the low end of the scale. Over 60% of the younger Dallas officers in the training program rated both co-workers and the general department low on physical condition on the pre-test; by the post-test, however, these percentages had fallen, particularly for co-workers. A similar trend is found among older Dallas officers; some decrease in percentage of low ratings is noted. As stated above, these results probably reflect an increased realism among participants, i.e., whereas, at the beginning of the program they rated themselves high and others low, by the end of the training program, these extreme ratings had moderated somewhat.

Sources of Stress

An examination of perceived stress and tension provides additional insight into those factors that may bear upon an officer's medical and emotional well-being. Stress is the basic subject matter addressed in Part II of the Physical Fitness and Job Relatedness Questionnaire. For purposes of discussion, three general sources of stress may be defined; these are the job of police officer, the effects of the job on personal life, and knowledge of problems faced by other officers.

1. The Job of Police Officer

As can be seen in Table 7.14, the participating police officers see their job as a dangerous one, both physically and emotionally. The ratings provided

Table 7.14 Mean Ratings of Five Groups of Officers
Concerning Perceptions of Danger and
Management Awareness

	Richardson/DPS Experimental	Richardson/DPS Control	Dallas Younger Experimental	Dallas Younger Control	Dallas Older Experimental
1. How <u>physically</u> dangerous is police work?					
Pre Test	5.0	5.0	4.5	4.9	4.6
Mid Test	5.4	4.3	4.8	4.7	4.7
Post Test	5.1	4.6	4.8	4.9	4.8
2. How <u>emotionally</u> dangerous is police work?					
Pre Test	5.1	5.4	4.8	5.4	5.0
Mid Test	4.9	5.3	4.7	5.3	5.0
Post Test	5.0	5.1	5.0	5.4	5.3
3. How aware is management of the physical demands of your job?					
Pre Test	4.4	4.0	4.0	3.3	4.4
Post Test	4.1	4.8	3.7	3.2	4.0
4. How concerned is management about helping you cope with these demands?					
Pre Test	4.5	4.7	3.1	2.1	3.9
Post Test	4.5	4.6	2.8	3.3	3.6

for all four questions are based upon a six-point scale with defined anchor points. For the first two questions, 1 represents "much less dangerous" and 6 represents "much more dangerous" than other occupations. Officers across all five groups view their jobs as at least slightly more dangerous (i.e., 4.0) than other occupations. All of the mean ratings are high with slight and inconsistent changes across time.

Management awareness of and willingness to help officers cope with the physical demands of the job are also sources of some stress for the participants. For these two questions, 1 represents "extremely unaware or unconcerned" while 6 represents "extremely aware or concerned." Many of the mean ratings appear to be at the low end of the scale, i.e., less than 4.0 or "slightly aware/concerned." Younger officers in Dallas tend to give much lower ratings than older officers, while officers in the Richardson and Public Safety departments give management higher marks, particularly in the area of concern about helping officers cope with the job demands.

When asked to indicate the amount of perceived tension associated with a variety of specific police calls, participating officers responded with great consistency across department, group assignment, and time. Because of these similarities, results are presented in terms of rank order by mean rating for the total group at the pre-test administration only (see Table 7.15). Eleven of the eighteen situations were given ratings of at least "slightly tense;" many of these situations involve on-going activities which are highly volatile and therefore dangerous. On the other hand, situations in which officers reportedly feel somewhat relaxed are more frequently "after the fact" activities in which the action has already taken place. Officers tend to feel most relaxed during routine patrol when no specific calls for service are being received.

Table 7.15 Overall Rank Order of Perceived Tension During the Performance of Various Police Duties

Rank Order

1 (Moderately Tense)	Officer needs assistance
2	Robbery in progress
3	High speed auto chase
4	Person with gun
5	Mentally disturbed person
6	Shooting
7	Child beating
8	Family fights/disturbances
9	Possible homicide
10	Unknown nature of call
11 (Slightly Tense)	Delivering death messages
12 (Slightly Relaxed)	Silent alarms
13	Sudden death/DOA
14	Prowler
15	Taking rape reports
16	Burglary
17	Auto accidents
18 (Moderately Relaxed)	Routine patrol

Participating officers also expressed rather strong feelings about other segments of the criminal justice system and about their communities. No significant differences occurred among groups or across time. Generally officers agreed with the following four statements:

- o The courts are often too lenient with offenders.
- o Many lawyers try to make officers look foolish.
- o Most judges treat officers with respect.
- o There is a big difference between whether a person is really guilty and whether the court says he or she is.

At the same time, officers disagreed with two statements:

- o I have to spend too many hours in court.
- o Juries are often prejudiced against officers.

Participating officers, then, generally feel that while judges and juries are fair, their decisions are not always the most desirable and, in addition, that lawyers do not treat officers with respect.

2. Job Effects on Personal Life

Another possible source of stress for police officers consists of the great variety of effects the job may have on personal life. These effects were also explored in this questionnaire. Officers reported having become slightly more cynical, slightly less respectful of the criminal justice system, and slightly angrier toward community leaders as a result of their experiences as police officers. Positive effects of the job hours were reported on friendships with other police officers, ability to stay alert, general energy level, and ability to perform personal errands by many officers.

At the same time, however, many differences among officers in different departments were found regarding effects of job hours on personal life for the R/DPS experimental group; ratings of work hour effect become more negative across time for eleven of the fifteen factors rated. Similar changes resulted for the

R/DPS control group, in which ratings became more negative for nine factors. Among Dallas police officers, however, the pattern was just the opposite. Ratings of work hour effect increased in positive value from pre- to post-test for all 15 factors rated among the Dallas younger experimental officers and for 9 factors among Dallas younger control group officers. Similarly, older Dallas officers provided more positive ratings on twelve of the factors.

Such a wide divergence in response patterns is difficult to explain. Many of the changes were numerically small and may, therefore, be statistical artifacts resulting from small samples. Among the Dallas officers, however, some very large numerical increases toward the positive end of the scale were found. It is felt that these changes may largely be explained by the fact that in January of 1976, after the programs had begun, permanent shift hours replaced monthly shift rotation schedules for the Dallas patrol officers. Working permanent hours undoubtedly has a stabilizing effect on personnel and family life and, therefore, should result in more positive assessments of the factors listed.

Other questions concerning problems in family life provided indications that families may be a source of stress for some officers. Some 16% of the participating officers indicated that their wives/girlfriends are "displeased" or "extremely displeased" about their husbands working as police officers; 84% indicated their wives/girlfriends are "pleased" or "extremely pleased." In addition, while 68 (or 75%) of those officers who are parents felt that the police job had a positive effect on their children, 23 of the officers (or 25%) rated the job as having a negative effect on their children, mostly because of lack of time and of the expectations or reactions of others to the job of police officer.

Finally, in connection with personal family problems, 28% (N=34) of the officers reported having had serious problems in their marriages; 76% (N=26) believed that the police job had a great deal to do with these problems; and 56% (N=19) of these marriages ended in divorce.

3. Knowledge of Problems Faced by Other Officers

Problems which other police officers have encountered may also be a source of stress to the individual, particularly if these officers are personal friends or at least acquaintances. Tables 7.16 and 7.17 present the results of two questions in this area; since no real differences existed between training and control groups, data are presented for the three groups defined in the previous section.

Officers were asked to indicate how many of the five officers whom they knew best had experienced problems with alcohol, marriage, children, finances, drugs, and neighbors. It can be seen in Table 7.16 that at least half of the officers in all three groups have known one or more officers who have had marital and financial problems. Younger Dallas officers are less likely to have known police families in which children were a problem (33%) than either R/DPS officers (52%) or older Dallas officers (57%). While over half of the R/DPS officers have some familiarity with alcohol and neighbor problems among their closest friends, these two factors have caused problems among police friends of approximately one-third and one-fourth, respectively, of the Dallas participants. While few Dallas officers indicated any of their police friends had problems with drugs, over one-third of the R/DPS officers so indicated. It appears then that substantial numbers of the participating officers have some knowledge of the problems which may be caused by five of the six factors listed, the exception being drugs.

Table 7.16 Number and Percent of Participants in Each Group with Knowledge of Six Types of Personnel Problems Among Five Closest Co-workers

	Group I		Group II		Group III	
	N	%	N	%	N	%
<u>Alcohol</u>						
0	9	42.8	55	76.4	20	71.4
1	11	52.4	14	19.4	5	17.9
2 or more	0		3	4.2	3	10.7
<u>Marriage</u>						
0	5	23.8	32	44.4	14	50.0
1	8	38.1	16	22.2	7	25.0
2 or more	7	33.3	24	33.3	7	25.0
<u>Children</u>						
0	9	42.8	48	66.7	12	42.9
1	9	42.8	12	16.7	12	42.9
2 or more	2	9.5	12	16.7	4	14.3
<u>Finances</u>						
0	3	14.3	34	47.2	12	42.9
1	4	19.0	8	11.1	8	28.6
2 or more	13	61.9	30	41.7	8	28.6
<u>Drugs</u>						
0	12	57.1	70	97.2	28	100
1	8	38.1	2	2.8	0	
2 or more	0		0		0	
<u>Neighbors</u>						
0	8	38.1	45	62.5	18	64.3
1	9	42.8	15	20.8	6	21.4
2 or more	3	14.3	12	16.7	4	14.3

Table 7.17 Number and Percent of Participants in Each Group with Knowledge of Suicide Attempts and Heart Attacks Among Fellow Officers

	Group I		Group II		Group III	
	N	%	N	%	N	%
<u>Suicide Attempts</u>						
0	17	81.0	58	80.6	11	39.3
1	2	9.5	12	16.7	10	35.7
2 or more	2	9.5	2	2.8	7	25.0
<u>Heart Attacks</u>						
0	13	61.9	15	20.8	0	
1	7	33.3	41	56.9	13	46.4
2 or more	1	4.8	15	20.8	13	46.4

Finally, Table 7.17 presents data on the extent to which participating officers have knowledge of attempted suicides and severe or fatal heart attacks among fellow officers. As is expected because of longer police careers, older Dallas officers are much more likely to have known one or more officers who have either attempted suicide (60.7%) or have suffered severe/fatal heart attacks (92.8%). However, 20% of both R/DPS and younger Dallas officers know of attempted suicides; nearly 40% of R/DPS officers, and over 75% of younger Dallas officers have known police officers who suffered severe/fatal heart attacks. Since Dallas is a much larger department than Richardson, larger number of heart attacks are to be expected.

In all groups, the majority of officers indicated that the effects of the police job probably played a major role in the suicides and that the known heart attacks occurred while the victims were on duty.

Summary of Stress Data

Reviewing all of the data from Part II of the Physical Fitness and Job Relatedness Questionnaire provides clear indications of a variety of perceived sources of stress and tension for the police officers participating in this study. These perceptions may be summarized as follows:

1. The job of police officer in general is seen as both physically and emotionally dangerous. Police department management is neither sufficiently aware nor sufficiently concerned with the physical demands placed on police officers.
2. A variety of specific calls for police service are sources of stress and tension. Among the most stressful are officer needs assistance, robbery in progress, and high-speed auto chases; least stressful

- situations include burglaries, auto accidents, and routine patrol.
3. Although these police officers do not spend a large amount of time in court, courts nevertheless present a certain amount of frustration, particularly in the behavior of lawyers and in the final outcome of court cases.
 4. Many of the attitudinal changes traditionally associated with the police job, i.e., cynicism, anger, isolation, and lack of caring, are reported only "to a slight degree" by the participants. These officers, then, perceive themselves as little changed from when they first joined their respective departments.
 5. Working hours have divergent effects on the officers in this study. While initially viewed as having an almost neutral effect on a variety of aspects of personal life, the topic of hours worked generally decreased in positive effect for the Richardson and Public Safety Department officers and increased in positive effect for the Dallas officers. Results among Dallas participants may reflect movement from rotating to permanent shifts.
 6. Family life has also been affected by the job for many of the participant. A negative effect on children was reported by one-fourth of the officer-parents; and in the majority of cases where serious marital problems were reported, the effects of the job were said to be definitive.
 7. Finally, in the area of personal relationships, it was found that substantial numbers of participants have had close officer friends who have had problems with alcohol, marriage, finances, children and neighbors. In addition, most of the participants have known officers who attempted suicide or suffered heart attacks.

Health Opinions

It might be hypothesized that familiarity with heart attacks and health-related problems in others as well as the experiences gained through participation in the physical fitness training programs would increase one's own concern about health. Attitudes toward personal health and physical fitness were explored in the Health Opinion Questionnaire (see Appendix).

Tables 7.18 through 7.20 present data on the self-ratings of participants on a variety of health-related questions. No significant pre- to post-test differences are seen for the R/DPS experimental group, although there are indications that these officers become slightly less concerned about both their health and their ability to control it, slightly less concerned about the possibility of heart attacks, and slightly more sure of their physical fitness over the 20-week program. R/DPS control group officers also reported feeling more physically fit at the post-test administration but showed a significant decrease in concern over their general health.

Among Dallas police officers, the patterns of response are clearer. While younger control group officers remained consistent in their self-evaluations of health and physical fitness, younger officers in the experimental group felt significantly more physically fit (Question 4) at the end of the training program. Ratings of the amount of physical activity and exercise ordinarily obtained (Questions 5 and 6) also increased significantly.

Mean self-evaluations for older Dallas officers in the experimental group increased significantly on four of the eight items. By the end of the experimental program, these officers felt significantly more physically fit and were significantly less concerned about having a heart attack within the next ten

Table 7.18 Mean Ratings of Self Evaluations of Physical Fitness
for Richardson and Public Safety Department Officers
in Experimental and Control Groups

	Richardson/DPS Experimental			Richardson/DPS Control		
	Pre	Mid	Post	Pre	Mid	Post
1. Compared to other officers your age, would you say that your own health is poor, fair, or good?	2.9	3.0	2.9	2.7	3.0	2.6
2. How concerned are you over your general state of health?	3.5	3.4	3.4	3.6	3.4	2.9*
3. To what exteme do you feel you can control the general state of your health?	3.8	4.0	3.5	4.0	3.6	3.8
4. How physically fit do you feel you are at present?	2.4	3.4	3.3	2.3	2.9	2.8
5. If you count both work and play, would you say the amount of physical activity you get is little, moderate, or a great deal?	1.6	---	2.0	1.7	---	1.9
6. In your free time, how much exercise such as walking, sports, gardening, etc. do you get?	1.6	---	2.0	1.8	---	2.0
7. How likely do you think it is that a person your age will have a heart attack?	2.8	2.9	3.1	3.0	3.9	3.1
8. How likely do you think it is that you will have a heart attack in the next 10 years?	3.2	3.8	3.4	3.3	4.0	3.5

* p <.02

Table 7.19 Mean Ratings of Self Evaluation of Physical Fitness
for Younger Dallas Officers in Experimental and
Control Groups

	Dallas Younger Experimental			Dallas Younger Control		
	Pre	Mid	Post	Pre	Mid	Post
1. Compared to other officers your age, would you say that your own health is poor, fair, or good?	2.7	3.0	2.9	2.6	2.7	2.5
2. How concerned are you over your general state of health?	3.3	3.7	3.4	3.5	3.3	3.2
3. To what exteme do you feel you can control the general state of your health?	3.8	4.0	3.8	3.9	3.7	3.7
4. How physically fit do you feel you are at present?	2.6	3.2	3.3*	2.4	2.4	2.2
5. If you count both work and play, would you say the amount of physical activity you get is little, moderate, or a great deal?	1.8	---	2.1*	1.4	---	1.6
6. In your free time, how much exercise such as walking, sports, gardening, etc. do you get?	1.6	---	2.1*	1.6	---	1.6
7. How likely do you think it is that a person your age will have a heart attack?	3.3	3.3	3.3	3.3	3.3	3.1
8. How likely do you think it is that you will have a heart attack in the next 10 years?	3.5	2.7	3.6	3.4	3.4	3.2

* p <.002

Table 7.20 Mean Ratings of Self Evaluations of Physical Fitness
for Older Dallas Officers in Experimental Group

	Dallas Older Experimental		
	Pre	Mid	Post
1. Compared to other officers your age, would you say that your own health is poor, fair, or good?	2.7	2.8	2.9
2. How concerned are you over your general state of health?	3.3	3.4	3.4
3. To what exteme do you feel you can control the general state of your health?	3.8	3.7	4.0
4. How physically fit do you feel you are at present?	2.3	3.1	3.1*
5. If you count both work and play, would you say the amount of physical activity you get is little, moderate, or a great deal?	1.7	---	2.2*
6. In your free time, how much exercise such as walking, sports, gardening, etc. do you get?	1.8	---	2.5*
7. How likely do you think it is that a person your age will have a heart attack?	2.8	2.7	2.4
8. How likely do you think it is that you will have a heart attack in the next 10 years?	2.9	2.5	3.4**

* $p < .002$

years. Ratings of physical activity and exercise increased significantly as well.

It would appear, then, that training programs increased participants' feelings of well being in terms of perceived physical fitness and decreased their fear about possible heart attacks. It should be noted that certain of these self-ratings were high for all groups of officers at all test administrations. For example, all officers rated their health as better than fair in comparison to other officers their own age (Question 1). All officers except the R/DPS control group maintained higher than moderate concern over their general state of health (Question 2). Finally, all officers exhibited moderate to high perceptions of personal control over health (Question 3).

These attitudes were reflected in responses to fifteen opinion questions concerning a variety of health-related issues which were included on the Health Opinion Questionnaire. A high degree of consistency of opinion was found among all officers across time. The majority of responding officers in all groups agreed with four of the statements and disagreed with eight of the statements at all three test administrations. Officers agreed with the following:

- Doctors today know a lot more about how to prevent and treat sickness than doctors did 25 years ago.
- More tax money should be spent on medical research.
- It is quite possible to prevent many kinds of heart attacks.
- By taking certain health actions, a person can generally prevent a heart attack.

At the same time, officers generally disagreed with the following:

- Good health is more a matter of luck than what a person does about his health.
- Most often, it's not possible to prevent sickness - if you are going to be sick - you will be sick.
- A person's health is more a matter of what is born into him than what he does about his health.
- In general, doctors today take more interest in their patients than doctors did 25 years ago.
- If you're going to have a heart attack, there is nothing you can really do to prevent it.
- Heart attacks are more a matter of bad luck than what a person does or doesn't do to prevent them.
- Heart attacks are caused more often by something born into a person than by what he does about his own health.
- There may be some things that you can do to prevent a heart attack but it really isn't worth the effort it takes.

The remaining three of these fifteen opinion questions drew mixed reactions across both time and groups. These questions deal with "what most people believe." Although most of the responding officers tended to agree that "most people are satisfied with the care and treatment they receive from their doctors," fewer R/DPS officers agreed with this statement by the end of the 20-week program.

Opinions were fairly evenly divided to the questions, "most people feel that enough is being done in this country to discover the causes of disease," and "most people feel that enough is being done at present to discover new cures for disease." Decreases in agreement resulted in four of the five groups for the first question (all except R/DPS Control) and three of the five groups for the second question (all except R/DPS Control and Dallas Younger Experimental).

While there are no right or wrong answers to opinion questions, it is apparent that even at the pre-test stage the officers participating in these training programs were aware of the many factors relating to health in general and heart attacks in particular, as well as of the possibilities of personal preventive care. These officers generally feel, then, that health must be actively sought and maintained and that heart attacks result at least in part from lack of attention to personal condition.

To examine officers' perceptions of the causes of heart attacks, the final questions on this instrument called for ratings of the importance of five factors in preventing heart attacks. Mean ratings based upon a four-point scale ranging from "very important" (1.0) to "not really important at all" (4.0) are presented in Table 7.21

It can be seen that at the pre-test administration, officers in all five groups viewed all five factors as being of some importance in preventing heart attacks. Generally, "the amount of physical activity and exercise" and "the amount of stress and tension" are seen as more important than other factors (i.e., they have the lowest mean ratings), and these two factors remain more important from pre-test to post-test for many of the participants. On the other hand, the least important factor (i.e., highest mean rating) varies from group to group and from pre-test to post-test.

Only three of the pre- to post-test mean rating changes were significant. By the end of the 20-week programs, R/DPS officers in the experimental group viewed the "amount of food" eaten as being significantly less important, while younger Dallas experimental group officers provided significantly higher mean ratings for both the kind and the amount of food eaten.

Table 7.21 Mean Ratings of the Importance of Five Factors in Preventing Heart Attacks for Officers in All Five Groups

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Kind of food you eat.	1.9	2.0	2.0	2.1	2.3	1.9*	2.1	2.2	2.1	1.7
Amount of food you eat.	2.1	2.3*	2.0	2.0	2.2	1.7*	2.2	2.1	2.0	1.8
Amount of sleep and rest you get.	2.0	2.0	2.2	2.4	2.3	2.1	1.9	1.7	2.1	1.8
Amount of stress and tension in your life.	1.8	1.7	2.1	1.8	1.9	1.8	1.7	1.6	1.7	1.5
Amount of physical activity and exercise you get.	1.4	1.6	1.6	1.4	1.6	1.5	1.5	1.5	1.7	1.5

* $p < .05$

Summary of Job Perceptions and Health Opinions

After 20 weeks of physical fitness training, participating police officers gave significantly higher self-evaluations of physical ability. Younger Dallas officers in the running and weight training programs rated themselves significantly higher in speed, endurance, agility, strength, and combat skill. Older Dallas officers in supervised and unsupervised training programs saw themselves as significantly improved in speed, endurance, and agility. Richardson and Texas Department of Public Safety officers rated their endurance significantly higher. A more general question concerning overall physical fitness yielded significant mean rating increases from pre- to post-test for younger and older Dallas experimental group officers; Richardson and Department of Public Safety officers exhibited a nonsignificant trend toward higher self-evaluations on this question.

A trend toward what may be termed more realistic appraisals of self in relation to generalized others accompanied these significant increases in perceptions of physical fitness. Decreases in ratings of "easy" and "could pass now" occurred on items concerning entrance-level medical examinations and physical agility tests as well as recruit academy physical standards for officers in the training groups. At the same time, the importance of these tests in relation to current position also declined from pre- to post-tests. The tendency to rate fellow officers low on general physical fitness decreased across time as well, as participants perhaps became more aware of their own limitations.

No significant changes from pre- to post-test occurred with respect to either perceptions of the police job or general attitudes about health. Participants across all groups perceive their jobs as physically and emotionally more dangerous than other occupations in both general and situation-specific terms.

Stress and tension result from a variety of sources, including perceived lack of awareness and concern on the part of departmental management, frustrating contacts with the judicial system, the effects of working hours on personal life (particularly in terms of marital problems and children), and associations with other officers who have suffered from a diversity of problem situations (e.g., alcohol, finances, marriage, children, neighbors, suicide, and heart attacks). While Dallas officers indicated an increase in positive effects of working hours from pre- to post-test administrations, it is felt that these changes are more the result of the institution of permanent hours than of the training program.

Initial awareness of the importance of personal attention to health was quite high among participants, and this attitude was maintained across the 20 weeks of training. Generally, officers in all groups exhibited feelings of concern over their health and heart destinies, but such concern was coupled with a high sense of control, in terms of being able to prevent illness. Participants considered the amount of physical activity/exercise and the amount of stress/tension as most important factors in preventing heart attacks, but food and sleep were also rated as important.

It can be concluded, then, that these officers are aware of both the stress associated with their occupation and their own ability to control their health. That these perceptions are not translated into actions is obvious from the lack of self-initiated exercise programs. Although officers have a history of participation in sports during their educational years, few have maintained regular exercise on their own. Many of the officers indicated opposition to the establishment of mandatory exercise and/or testing programs in their police

agencies. These results seem to reflect the common situation existing in society as a whole, i.e., although personal experience leads to knowledge of the value of exercise, and while voluntary participation is preferable to mandatory programs, regular physical activity is simply not a part of many people's lives.

Evaluation of Program Participation

The final instruments to be examined in this chapter are the project participation questionnaires completed by the participating officers and their wives at the conclusion of the various 20-week training programs. Items on these two questionnaires (see Appendix) addressed both the administration and the results of the programs.

The two participation questionnaires were completed by a total of 95 officers and 79 wives; individual group totals are indicated below:

	<u>Officers</u>	<u>Wives</u>
R/DPS Experimental	8	9
R/DPS Control	7	3
Dallas Younger Experimental	49	38
Dallas Younger Control	11	8
Dallas Older Experimental	<u>20</u>	<u>21</u>
	95	79

Unlike results presented in the previous section, percentages reported here will be based upon the number of actual respondents in each group, as identified above.

Tables 7.22 and 7.23 present evaluations of various aspects of physical condition provided by the officers and their wives. It can be seen that the majority of officers in each of the three training groups reported favorable change in amount of fatigue or tiredness, general activity level, and general physical fitness as a result of the various aerobics programs. These figures are highest for general physical fitness. Favorable changes in weight were reported by 62.5% of the R/DPS officers, 42.9% of the younger Dallas officers, and 95.0% of the older Dallas officers in the experimental groups. Similarly, ability to sleep changed

Table 7.22 Post-Test Self-evaluation of Participating Officers
in Five Groups on Six Aspects of Physical Condition

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
<u>Weight</u>										
Favorable Change	5	62.5	0	----	21	42.9	0	----	19	95.0
No Change	2	25.0	5	71.4	24	49.0	0	----	0	---
Unfavorable Change	1	12.5	1	14.3	4	8.2	0	----	1	5.0
<u>Ability to Sleep</u>										
Favorable Change	5	62.5	0	----	22	44.9	1	9.1	7	35.0
No Change	3	37.5	6	85.7	27	55.1	9	81.8	13	65.0
Unfavorable Change	0	----	0	----	0	----	1	9.1	0	----
<u>Amount of Fatigue or Tiredness</u>										
Favorable Change	5	62.5	0	----	44	89.8	6	54.5	18	90.0
No Change	3	37.5	6	85.7	5	10.2	5	45.5	2	10.0
Unfavorable Change	0	----	0	----	0	----	0	----	0	----
<u>General Activity Level</u>										
Favorable Change	5	62.5	0	----	42	85.7	0	----	14	70.0
No Change	3	37.5	6	85.7	5	10.2	7	63.6	6	30.0
Unfavorable Change	0	----	0	----	2	4.1	4	36.4	0	----
<u>Sex Life</u>										
Favorable Change	3	37.5	0	----	13	26.5	0	----	5	25.0
No Change	5	62.5	6	85.7	35	71.4	10	90.9	15	75.0
Unfavorable Change	0	----	0	----	1	2.0	1	9.1	0	---
<u>General Physical Fitness</u>										
Favorable Change	8	100.0	0	----	46	93.9	0	----	20	100.0
No Change	0	----	6	85.7	2	4.1	8	72.7	0	----
Unfavorable Change	0	----	0	----	1	2.0	3	27.3	0	----

Table 7.23 Post-Test Evaluations of Participants' Wives on
Six Aspects of Their Husbands' Physical Condition

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
<u>Weight</u>										
Favorable Change	9	100.0	0	----	20	52.6	1	12.5	14	66.7
No Change	0	----	1	33.3	14	36.8	7	87.5	7	33.3
Unfavorable Change	0	----	2	66.7	4	10.5	0	----	0	---
<u>Ability to Sleep</u>										
Favorable Change	2	22.2	0	----	14	36.8	1	12.5	10	47.6
No Change	7	77.3	3	100.0	23	60.5	6	75.0	11	52.4
Unfavorable Change	0	----	0	----	1	2.6	1	12.5	0	----
<u>Amount of Fatigue or Tiredness</u>										
Favorable Change	7	77.8	0	----	21	55.3	1	12.5	12	57.1
No Change	2	22.2	3	100.0	12	31.6	6	75.0	7	33.3
Unfavorable Change	0	----	0	----	5	13.2	1	12.5	2	9.5
<u>General Activity Level</u>										
Favorable Change	7	77.8	0	----	27	71.0	3	37.5	14	66.7
No Change	2	22.2	3	100.0	9	23.7	5	62.5	6	28.6
Unfavorable Change	0	----	0	----	2	5.3	0	----	1	4.8
<u>Sex Life</u>										
Favorable Change	3	33.3	0	----	14	36.8	0	----	4	19.0
No Change	6	66.7	3	100.0	20	52.6	8	100.0	16	76.2
Unfavorable Change	0	----	0	----	4	10.5	0	----	1	4.8
<u>General Physical Fitness</u>										
Favorable Change	9	100.0	0	----	36	94.7	3	37.5	19	90.5
No Change	0	----	2	66.7	2	5.3	5	62.5	2	9.5
Unfavorable Change	0	----	1	33.3	0	----	0	----	0	----

favorably for 62.5%, 44.9%, and 35.0% of the officers in these three groups. Twenty-five percent or more of each experimental group also reported favorable change in their sex lives. Control group data are presented for comparative purposes.

These very positive results are echoed in the evaluations of officers provided by their wives (Table 7.23). The majority of wives of training group officers reported favorable change in their husbands' condition for four of the six factors listed, i.e., weight, amount of fatigue or tiredness, general activity level, and general physical fitness. Ability to sleep and sex life were also viewed as having changed in a favorable way for between approximately 20% and 48% of wives in the three experimental groups.

Similar data are presented for six aspects of mental condition in Tables 7.24 and 7.25. The majority of officers in each training group report favorable changes in worry about health, self-confidence, ability to relax, and tenseness. Perhaps more surprising, however, are the rather large percentages reporting favorable change in overall job satisfaction and worry about non-health related matters, things which might not be considered as being affected by physical fitness.

Wives of officers in the experimental groups provided somewhat more moderate evaluations of these factors. Approximately 30% or more of each group indicated favorable change had occurred on five of the six factors. Worry about non-health related matters was viewed as having favorably changed by only 22.2% and 7.9% of the wives of officers in R/DPS and Dallas younger groups and by 33.3% of wives of older Dallas officers.

Table 7.24 Post-Test Self-evaluation of Participating Officers
in Five Groups on Six Aspects of Mental Condition

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
<u>Worry About Health</u>										
Favorable Change	5	62.5	3	42.9	27	55.1	0	----	12	60.0
No Change	2	35.0	2	28.6	22	44.9	11	100.0	8	40.0
Unfavorable Change	1	12.5	1	14.3	0	----	0	----	0	----
<u>Self-Confidence</u>										
Favorable Change	6	75.0	1	14.3	34	69.4	1	9.1	11	55.0
No Change	2	25.0	5	71.4	15	30.6	10	90.9	9	45.0
Unfavorable Change	0	----	0	----	0	----	0	----	0	----
<u>Job Satisfaction</u>										
Favorable Change	4	50.0	1	14.3	30	61.2	1	9.1	6	30.0
No Change	4	50.0	5	71.4	19	38.8	10	90.9	14	70.0
Unfavorable Change	0	----	0	----	0	----	0	----	0	----
<u>Ability to Relax</u>										
Favorable Change	5	62.5	1	14.3	33	67.3	1	9.1	12	60.0
No Change	3	37.5	5	71.4	16	32.6	9	81.8	8	40.0
Unfavorable Change	0	----	0	----	0	----	1	9.1	0	----
<u>Tensehess</u>										
Favorable Change	5	62.5	1	14.3	26	53.1	1	9.1	14	70.0
No Change	3	37.5	5	71.4	23	46.9	10	90.9	6	30.0
Unfavorable Change	0	----	0	----	0	----	0	----	0	----
<u>Worry About Non-Health Related Matters</u>										
Favorable Change	4	50.0	1	14.3	21	42.8	0	----	6	30.0
No Change	4	50.0	5	71.4	28	57.1	11	100.0	14	70.0
Unfavorable Change	0	----	0	----	0	----	0	----	0	----

Table 7.25 Post-Test Evaluations of Participants' Wives on Six Aspects of Their Husbands' Mental Condition

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
<u>Worry About Health</u>										
Favorable Change	8	88.9	0	----	16	42.1	2	25.0	11	52.4
No Change	1	11.1	3	100.0	22	57.9	4	50.0	10	47.6
Unfavorable Change	0	----	0	----	0	----	2	25.0	0	----
<u>Self-Confidence</u>										
Favorable Change	7	77.8	0	0	20	52.6	2	25.0	9	42.9
No Change	2	22.2	3	100.0	18	47.4	5	62.5	12	57.1
Unfavorable Change	0	----	0	----	0	----	1	12.5	0	----
<u>Job Satisfaction</u>										
Favorable Change	4	44.4	0	0	11	28.9	1	12.5	7	33.3
No Change	5	55.6	3	100.0	27	71.0	6	75.0	13	61.9
Unfavorable Change	0	----	0	----	0	----	1	12.5	1	4.8
<u>Ability to Relax</u>										
Favorable Change	6	66.7	0	0	15	39.5	1	12.5	12	57.1
No Change	3	33.3	3	100.0	23	60.5	7	87.5	9	42.9
Unfavorable Change	0	----	0	----	0	----	0	----	0	----
<u>Tenseness</u>										
Favorable Change	6	66.7	0	0	14	36.8	0	----	9	42.9
No Change	3	33.3	3	100.0	24	63.2	7	87.5	12	57.1
Unfavorable Change	0	----	0	----	0	----	1	12.5	0	----
<u>Worry About Non-Health Related Matters</u>										
Favorable Change	2	22.2	0	0	3	7.9	1	12.5	7	33.3
No Change	7	77.8	3	100.0	35	92.1	6	75.0	13	61.9
Unfavorable Change	0	----	0	----	0	----	1	12.5	1	4.8

Tables 7.26 and 7.27 present data from several questions concerning overall evaluations of the value of the training programs. It is obvious that nearly all of the participating officers in all five groups provided affirmative answers to these questions; the same is true for the views of these officers. Almost all officers and wives are in favor of continuation of this or a similar physical fitness training program. Control group officers were in favor of continuation provided they could participate actively. Wives indicated they would like to participate in such a fitness training program themselves.

Both officers and wives further responded that the program was well worth the time required, and overall they were pleased or very pleased with their experiences with the program. Increased interest in and/or concern for physical fitness in relation to self and family members was also reported by the great majority of both groups of respondents. Nearly all respondents believed that institution of such a fitness training program would be beneficial for all police officers.

The final two tables present officers' and wives' opinions of specific aspects of the program itself. Feedback information provided by the Institute for Aerobics Research was viewed as "complete and understandable" and "helpful in understanding the program" by both officers and wives. Wives more frequently indicated that this feedback was cause for "some peace of mind" than did officers.

Generally favorable ratings were provided for amount of orientation, quality of instruction, and results, in addition to feedback information. No clear differential trends are apparent among the responses for officers and wives, with the exception that officers tended to rate quality of instruction higher

Table 7.26 General Reactions to Training Programs
Provided by Officers in Five Groups

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
Would like to continue participation in this or similar program.	7	87.5	5	71.4	48	98.0	11	100	20	100
Believe institution of this or similar program would be good for all officers.	7	87.5	7	100	49	100	11	100	20	100
Considering the amount of time, it was worth it.	8	100	7	100	46	93.9	8	72.7	20	100
Program has increased interest in or concern for physical fitness in relation to self and/or family.	8	100	6	85.7	48	98.0	10	90.9	20	100
Increased with overall experiences with program.	8	100	6	85.7	49	100	8	72.7	20	100

Table 7.27 General Reactions to Training Programs
Provided by Wives of Officers in Five
Groups

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
Would like husbands to continue participation in this or similar program.	9	100	3	100	36	94.7	8	100	21	100
Believe institution of this or similar program would be good for all officers.	9	100	3	100	36	94.7	8	100	20	95.2
Considering the amount of time, it was worth it.	9	100	2	66.7	37	97.4	5	62.5	19	90.5
Program has increased interest in or concern for physical fitness in relation to self and/or family.	9	100	3	100	37	97.4	7	87.5	21	100
Am pleased with overall experiences with this program.	9	100	2	66.7	38	100	5	62.5	21	100
Would like to participate in this or similar program.	8	88.9	3	100	25	65.8	8	100	15	71.4

Table 7.28 Specific Reactions to Various Aspects of
Training Programs Provided by Officers in
Five Groups

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
<u>Feedback Information</u>										
Was complete and understandable.	6	75.0	7	100	35	71.4	4	36.4	13	65.0
Was incomplete and inadequate.	0	0	1	14.3	4	8.4	2	18.2	1	5.0
Caused me to worry.	2	25.0	0	----	0	----	2	18.2	0	----
Gave me some peace of mind.	4	50.0	3	42.9	12	24.5	0	----	10	50.0
Was helpful in understanding the program	3	37.5	5	71.4	23	46.9	6	54.5	14	70.0
Didn't tell me anything.	0	----	0	----	0	----	0	----	0	----
<u>Ratings</u>										
<u>Amount of Orientation</u>										
Great	2	25.0	3	42.9	22	44.9	2	18.2	8	40.0
OK	6	75.0	3	42.9	24	49.0	9	81.8	12	60.0
Lousy	0	----	0	----	1	2.0	0	----	0	----
<u>Quality of Instruction</u>										
Great.	5	62.5	5	71.4	30	61.2	3	27.3	14	70.0
OK	3	37.5	2	28.6	17	34.7	8	72.7	6	30.0
Lousy	0	----	0	----	2	4.1	0	----	0	----
<u>Feedback Information</u>										
Great	2	25.0	4	57.1	26	53.1	2	18.2	9	45.0
OK	5	62.5	3	42.9	21	42.9	8	72.7	10	50.0
Lousy	1	12.5	0	----	1	2.0	0	----	1	5.0
<u>Results</u>										
Great	4	50.0	3	42.9	25	51.0	1	9.1	11	55.0
OK	4	50.0	4	57.1	23	46.9	8	72.7	9	45.0
Lousy	0	----	0	----	1	2.0	1	9.1	0	----

Table 7.29 Specific Reactions to Various Aspects of Training Programs Provided by Wives of Officers in Five Groups

	R/DPS Experimental		R/DPS Control		Dallas Younger Experimental		Dallas Younger Control		Dallas Older Experimental	
	N	%	N	%	N	%	N	%	N	%
<u>Feedback Information</u>										
Was complete and understandable.	9	100	3	100	21	55.3	4	50.0	18	85.7
Was incomplete and inadequate.	1	11.1	0	----	1	2.6	2	25.0	1	4.8
Caused me to worry.	1	11.1	0	----	0	----	1	12.5	0	----
Gave me some peace of mind.	5	55.6	3	100	17	44.7	3	37.5	18	85.7
Was helpful in understanding the program	6	66.7	1	33.3	20	52.6	2	25.0	14	66.7
Didn't tell me anything.	0	----	0	----	2	5.3	1	12.5	1	4.8
<u>Ratings</u>										
<u>Amount of Orientation</u>										
Great	6	66.7	0	----	16	42.1	0	----	9	42.9
OK	3	33.3	2	66.7	21	55.3	4	50.0	11	52.4
Lousy	0	----	0	----	1	2.6	1	12.5	1	4.8
<u>Quality of Instruction</u>										
Great	8	88.9	1	33.3	19	50.0	3	37.5	7	33.3
OK	1	11.1	1	33.3	19	50.0	2	25.0	13	61.9
Lousy	0	----	0	----	0	----	0	----	1	4.8
<u>Feedback Information</u>										
Great	5	55.6	1	33.3	16	42.1	3	37.5	7	33.3
OK	3	33.3	2	66.7	17	44.7	1	12.5	12	57.1
Lousy	0	----	0	----	5	13.2	1	12.5	2	9.5
<u>Results</u>										
Great	6	66.7	0	----	24	63.2	1	12.5	11	52.4
OK	2	22.2	2	66.7	13	34.2	2	25.0	10	47.6
Lousy	0	----	0	----	1	2.6	1	12.5	1	4.8

than did the wives. Since officers were directly involved in the program, it is expected that their ratings reflect more specific opinions of the administration of the programs.

Summary of Project Participation Evaluations

Results from these two questionnaires clearly indicate a high degree of satisfaction among both officers and wives with these physical fitness training programs. Both groups of respondents in the experimental groups reported that favorable changes on six factors of physical condition and six factors of mental condition had occurred as a result of participation in these programs.

Favorable change in physical condition was indicated by the greatest number of officers for amount of fatigue, general activity level, and general physical fitness. It should also be noted that 95% of the older Dallas officers reported favorable change in their weight after the 20-week program. Wives confirmed these results in their high ratings of favorable change in their husbands' conditions on these same factors. In addition, sex life improved for over 25% of both officers and wives. Control group officers and wives indicated no change, as expected, although in some cases unfavorable changes were cited.

Favorable changes were indicated by a majority of experimental group officers on four factors of mental condition, i.e., worry about health, self-confidence, ability to relax, and tenseness. In addition, particularly among younger officers, favorable change was noted in job satisfaction and worry over non-health matters. Again, these results were echoed by the wives, although responses here were somewhat more moderate.

These results are important for several reasons. Feelings of increased physical and mental fitness parallel the actual physiological improvements

discussed in the previous chapter. Thus, officers are more fit and feel more fit. Perceived psychological improvement is as important an incentive to participation in a fitness training program as actual physical improvement. The increased job satisfaction noted among younger officers may also be an important incentive for participation in voluntary fitness programs. Increased self-confidence and ability to relax and decreased tenseness are widely thought to be correlates of increased physical fitness; the results reported in this study tend to confirm this belief.

While self-perceptions of increased physical fitness are of primary importance, perceptions of what have been termed "significant others" are of at least secondary importance. In this study, the significant other consisted of the participating officer's wife. Appreciation of increased physical and mental condition by the officer's spouse could be a powerful incentive for continued participation in fitness programs.

Equally important are the results from both officers and wives concerning the fitness training programs themselves. Both groups of respondents overwhelmingly indicated desire for continued participation. Officers in control groups and wives across all groups indicated a desire to participate themselves in such a fitness training program. Nearly all officers and wives in all five groups felt that this or a similar physical fitness training program would be beneficial for all police officers and further indicated that participation had increased their interest in fitness in relation to themselves, as well as other members of their families. The benefits of participation in a physical fitness training program, then, are viewed as having applicability not only to oneself, but also to families and to the larger law enforcement community.

CHAPTER 8

INFLUENCE OF CHRONIC PHYSICAL ACTIVITY ON SELECTED PSYCHOLOGICAL STATES AND TRAITS OF POLICE OFFICERS

Overview

Previous chapters of this report have discussed the details of the exercise programs and the results of a variety of physiological and psychological measures collected on the participating police officers. The present chapter is limited to discussion of two specific psychological tests dealing with anxiety levels and attitudes toward physical fitness.

Before presentation of the results, it is necessary to consider once again the effect of the dropout rate among participants on the data to be examined.

It was not possible to include an evaluation of the psychological data collected in the study carried out in Richardson, Texas, because of the inadequate adherence rate. Only twenty-five percent of the experimental (training) group officers completed the study in this city. Sixty-seven percent of the control group officers in this cohort finished the study, as compared with only 29% of the "unsupervised" control group officers from the Dallas study. Neither of these control groups was included in the final analysis because of the lack of an experimental group for comparative purposes in the first case and the high dropout or mortality rate in the second instance. Also, an older group of officers in the Dallas study "participated" in the exercise program on an "unsupervised" basis, and they are not included in the present analysis since it was not possible to portray accurately their level of involvement. Hence, only six of the original ten groups are considered in the present narrative,

and these are summarized in Table 8.1. along with their respective adherence rates. The adherence rates ranged from a low of 29% for the interval training group to a high of 61% for older officers in the supervised group. The mean adherence rate was 45% (S.D. = 14.29) and this is somewhat lower than the 50-70% values commonly reported in the literature. The various factors responsible for this excessive mortality are elaborated upon in other chapters of this report.

The officers completed a series of physiological and psychological tests at the beginning of the investigation and again at the tenth (mid-term) and twentieth (post-test) weeks of the study. The dropout rate across time was linear as depicted in Figure 1. The mortality rate was so excessive (55%) by the twentieth week that certain of the analyses presented in this narrative will be limited to the first ten weeks. The sample size had decreased so greatly by the close of the study that systematic and logical comparisons were simply not possible for the full twenty-week span in every instance.

Procedure

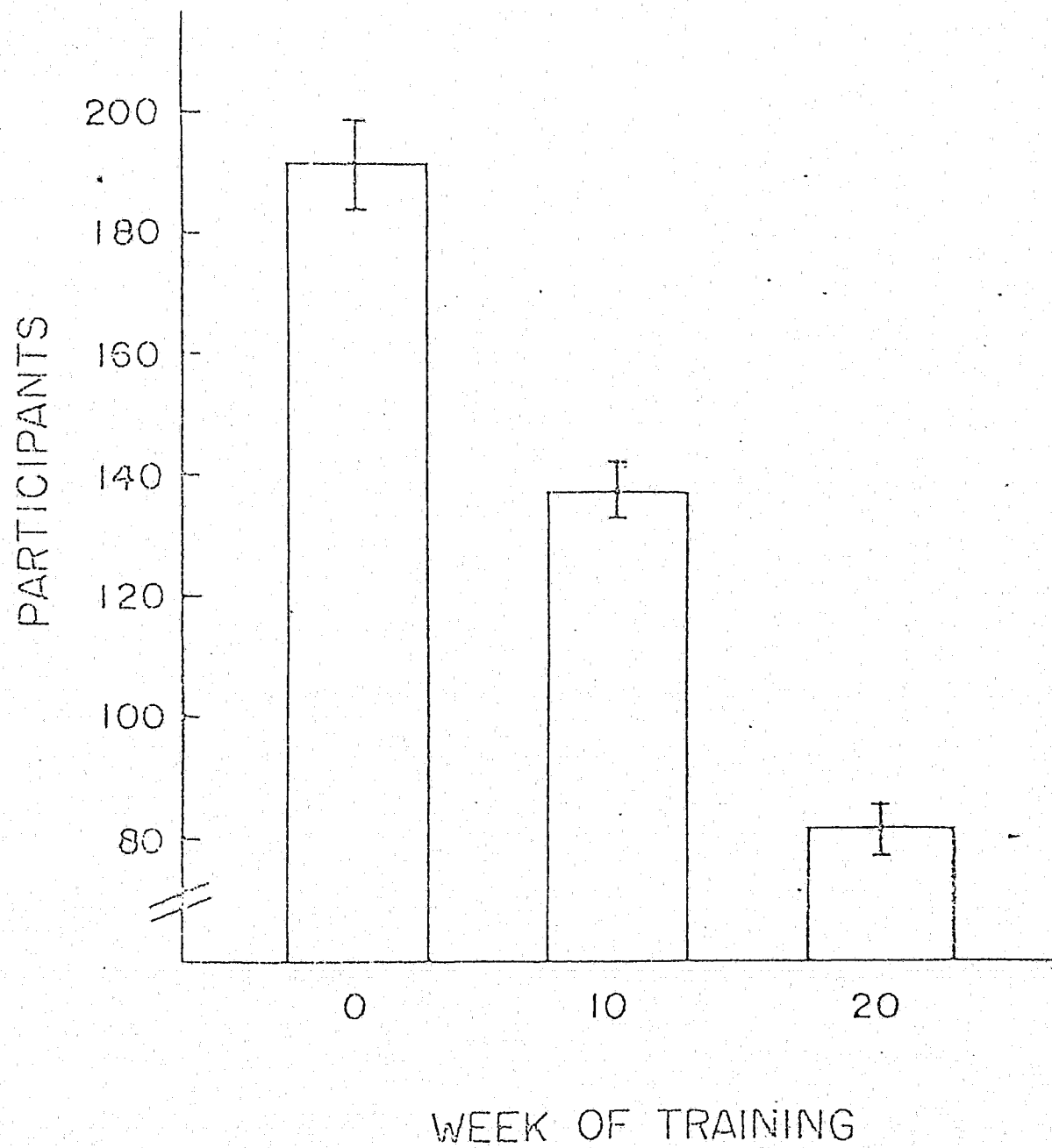
Prior to initiation of the study and again at the tenth and twentieth weeks, the participating police officers completed the State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1970) and the Physical Estimation and Attraction Scale (PEAS) (Sonstroem, 1974). The STAI is designed to measure both state (transitory) and trait (enduring) anxiety, whereas, the PEAS assesses estimation of physical ability, or self-esteem, and attraction or attitude toward physical activity. The rationale for utilizing these measures in the

Table 8.1 Percent Adherence of the Six Groups of Officers Included in the Psychological Test Analyses

Group Number*	Category	Adherence (%)
3	Interval Training	29
4	Continuous Training	54
5	Combination Training	36
6	Weight Training	50
7	Control	42
8	Supervised (older <u>Ss</u>)	61

* Groups 1, 2, 9, and 10 were deleted because of various methodological problems.

FIGURE 8.1
INCIDENCE OF DROP-OUT ACROSS TRIALS



present study was described earlier in a similar training study involving prisoners (Morgan and Pollock, 1976).

At an intuitive level, one would expect volunteers who possessed a high attitude toward physical activity to be more likely to adhere to an exercise program than those with low attraction scores. There are fewer intuitive reasons, however, to argue that anxiety or estimation of physical ability would necessarily covary with either adherence or mortality. At any rate, of the 123 police officers studied (those on whom complete data were available, 77 completed the full twenty weeks and 47 dropped out of the program. This permitted a comparison to be made of dropouts and those who continued in the study for each of the psychological variables from the outset. These data are summarized in Table 8.2. Inspection of these data reveals that those officers who continued in the programs did not differ psychologically from the dropouts.

This finding is somewhat surprising since one would expect the adherence group to possess more favorable attitudes toward physical activity from the outset. However, the initial mean values were nearly identical. Previous work with prisoners (Morgan and Pollock, 1976) and soldiers (Morgan and Vogel, 1976) suggests that the initial mean values of these volunteers were extremely high. In other words, the dropouts apparently decided to discontinue for reasons other than attraction toward physical activity. Interestingly, therefore, attitude toward physical activity would be of little use in predicting adherence or mortality in the current study.

Table 8.2 Means, Standard Deviations, and Standard Errors for Officers Who Continued (N=77) and Officers Who Dropped Out (N=47) on Each of the Psychological Variables

<u>State Anxiety</u>	<u>Continued (N=77)</u>	<u>Dropped Out (N=47)</u>	<u>P</u>
Mean	31.08	30.89	>.05
S.D.	6.76	6.71	
S.E.	0.77	0.98	
<u>Trait Anxiety</u>			
Mean	32.16	32.94	>.05
S.D.	6.38	6.65	
S.E.	0.73	0.97	
<u>Attraction</u>			
Mean	39.20	39.13	>.05
S.D.	6.79	6.41	
S.E.	0.77	0.93	
<u>Estimation</u>			
Mean	21.48	21.30	>.05
S.D.	5.92	6.92	
S.E.	0.67	1.01	

It was hypothesized that involvement in one of the exercise programs¹, in contrast to participation in the nonexercise control group, would be associated with a decrement in state anxiety and an increase in estimation of physical ability, and, further, that trait anxiety and attraction toward physical activity would remain the same across the twenty-week period. Prior to proceeding with an analysis of these data, however, the test-retest reliability of the selected instruments was examined. This was done by comparing the pre-test and mid-term scores of the control group officers, and therefore, a period of ten weeks intervened between the two testing sessions. The means, standard deviations, standard errors, t-tests, and correlation coefficients are presented in Table 8.3 . This analysis revealed that each of the instruments possessed adequate reliability, with the exception of the test-retest correlation for state anxiety ($r=.41$). However, this has been reported previously (Spielberger et al., 1970), and it is due to the actual liability of this state. The remaining correlations ranged from .73 to .83, which are quite acceptable considering that a period of ten weeks had elapsed. Also, it will be noted that the mean values in each instance were quite similar across time, and none of the t-tests was significant. These results indicate that each of the measures was stable across ten weeks, and any differences seen in the experimental groups could be regarded as being associated with the training program, since this was the only known way in which the experimental and control group officers differed across the twenty-week period.

¹The actual intensity, frequency, and duration of exercise performed by members of the various exercise groups are described in the physiological sections of the report.

Table 8.3 Means, Standard Deviations, Standard Errors, t-Tests, and Correlation Coefficients for the Control Group Officers (N=17) Across Ten Weeks

	State Anxiety		Trait Anxiety		Attraction		Estimation	
	Pre	Mid	Pre	Mid	Pre	Mid	Pre	Mid
Mean	29.53	31.12	31.41	30.88	40.76	40.06	24.18	22.71
S.D.	6.40	7.00	8.32	6.68	6.62	6.92	5.40	6.55
S.E.	1.55	1.70	2.02	1.62	1.61	1.68	1.31	1.59
t	0.69*		0.20*		0.30*		0.71*	
r	.41*		.81*		.83*		.81*	

*P >.05

**P <.01

The means and standard deviations for each of the variables at the beginning, middle, and conclusion of the study are presented in Tables 8.4 through 8.7 for each of the groups. The number of officers in each group is constant for a given variable, but the number of officers across variables differs because of missing or uninterpretable data in certain cases.

Inspection of Table 8.4 reveals that none of the groups experienced a reduction in state anxiety which contradicts the hypothesis that exercise would decrease tension. While there is evidence that acute physical activity decreases state anxiety (Morgan, 1973; Morgan and Horstman, 1976), there is not a convincing body of literature which demonstrates the same to occur with chronic exercise. On the other hand, all of the groups in this study scored rather low on state anxiety in contrast to published norms (Spielberger et. al., 1970); therefore, it is conceivable that decrements in anxiety were not possible in these relatively "low anxious" subjects. For this reason, a subsequent analysis will be made of "high anxious" and "low anxious" officers independent of group affiliation.

Inspection of Table 8.5 reveals that trait anxiety also remained stable across time with the exception that Group 5 (Combination) experienced a decrement of approximately six raw score units. Since the pre- and post-test standard deviations were 5.05 and 4.30, respectively, this can be regarded as a decrement of practical significance. However, this may well reflect chance since none of the other exercise groups evidenced such a change.

It was hypothesized that attraction or attitude toward physical activity

Table 8.4 Means and Standard Deviations for State Anxiety (STAI) in Each Group Across Trials

Group	N	<u>Pre-Test</u>		<u>Mid-Term</u>		<u>Post-Test</u>	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
3-Interval	8	32.38	8.48	32.38	11.06	28.75	10.18
4-Continuous	8	33.75	9.35	33.38	8.78	31.63	9.23
5-Combination	8	29.13	7.36	31.38	10.58	28.13	6.98
6-Weights	8	31.88	5.59	34.38	8.35	29.88	6.98
7-Control	8	28.50	5.71	31.38	7.23	28.00	8.47
8-Supervised	8	29.38	6.63	28.25	6.04	28.50	6.16

Table 8.5 Means and Standard Deviations for Trait Anxiety (STAI) in Each Group Across Trials

Group	N	<u>Pre-Test</u>		<u>Mid-Term</u>		<u>Post-Test</u>	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
3-Interval	9	32.56	8.09	29.56	7.43	30.00	9.62
4-Continuous	9	34.67	8.00	31.56	9.32	33.44	8.41
5-Combination	9	33.44	5.05	29.78	9.28	27.56	4.30
6-Weights	9	32.78	6.08	32.22	5.38	30.00	5.10
7-Control	9	33.44	9.59	32.56	7.73	32.11	8.71
8-Supervised	9	29.11	4.96	29.22	4.74	28.33	3.08

would not change across time, and inspection of Table 8.6 confirms this prediction. These volunteers scored substantially higher on this scale, however, than a group of 300 soldiers who were required to take part in an aerobics program (Morgan and Vogel, 1976), and they also scored higher than volunteers in a similar study carried out recently with prisoners. Therefore, since these volunteers possessed high, positive attitudes toward physical activity from the outset, it is understandable that increments did not occur; and it is also reassuring that involvement in the various exercise programs did not produce a decrease in attitude. It is noteworthy, in this context, that the soldiers referred to above actually had a significant decrease in attitude toward physical activity following required physical training.

A different picture emerges when estimation of physical ability is examined. It will be noted in Table 8.7 that each of the exercise groups had increases in their estimates of self, and these increments ranged from a low of 3.5 raw score units (older supervised group) to a high of 5.2 raw score units (weight group). The mean increase for the five exercise groups was 4.5 in comparison to the control group which did not change. These results are illustrated in Figure 2 and a composite is presented for all of the exercise groups since they all had the same response.

These data were also analyzed by means of a repeated measure ANOVA for multifactor experiments (Winer, 1962). This analysis yielded F ratios of 0.67 ($P > .05$) for groups; 27.67 ($P < .01$) for trials; and 1.27 ($P > .05$) for the groups by trials interaction. A further probe using the Newman-Keuls procedure,

Table 8.6 Means and Standard Deviations for Attraction Toward Physical Activity (PEAS) in Each Group Across Trials

Group	N	Pre-Test		Mid-Term		Post-Test	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
3-Interval	10	39.30	8.92	39.60	5.82	41.50	6.70
4-Continuous	10	38.70	5.23	37.10	5.82	38.70	6.70
5-Combination	10	41.00	5.85	41.50	7.63	43.80	3.77
6-Weights	10	43.00	6.29	41.70	5.38	42.90	5.78
7-Control	10	38.10	6.66	37.50	7.55	40.20	8.39
8-Supervised	10	38.30	4.35	39.50	6.49	42.20	6.00

Table 8.7 Means and Standard Deviations for Estimation of Physical Ability (PEAS) in Each Group Across Trials

Group	N	Pre-Test		Mid-Term		Post-Test	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
3-Interval	10	22.90	6.28	26.00	4.50	28.00	3.65
4-Continuous	10	22.40	4.43	25.00	4.76	27.20	4.69
5-Combination	10	20.80	7.45	22.60	6.42	24.60	6.02
6-Weights	10	23.70	4.16	24.70	3.30	28.90	3.48
7-Control	10	24.10	5.59	23.00	7.04	24.00	5.70
8-Supervised	10	21.80	5.85	23.10	6.59	25.30	5.77

revealed that Trial 3 (post-test) was significantly higher than Trial 1 (pre-test), but neither of these differed from Trial 2 (mid-test). The apparent trend for the control group not to increase was not strong enough to create a significant F for groups. This lack of significance is due to the variability of the control and exercise groups at each test point.

An improved estimate of physical ability would certainly be regarded as a positive change in affect since the way in which one views his or her own body influences his/her self-concept and self-esteem. Stability of attraction and increased estimation of physical ability was also demonstrated in the earlier studies involving prisoners (Morgan and Pollock, 1976).

Several additional analyses were carried out in order to evaluate the extent to which initial levels of anxiety, estimation, and attraction influenced change. In these analyses, the alteration of state anxiety in officers scoring high (40 or more) were compared with officers scoring low (23 or less) on state anxiety (STAI). This analysis, as well as those for trait anxiety and the PEAS items, was carried out only for the pre-test and mid-term evaluation. It was not possible to extend this analysis to the twentieth week because of the excessive dropout rate. The data resulting from the first such analysis is presented in Table 7.8 .

First of all, it will be noted that each group experienced about a three-fold increase in the variability across the ten-week period (i.e., the standard deviation values increased from 3.13 to 8.16 and from 1.08 to 3.52). However, this increased variability was accounted for by one or two officers in both

Table 8.8 Means, Standard Deviations, and t-Tests for High State-Anxious (N=12) and Low State-Anxious (N=12) Officers Before and Following Ten Weeks of Physical Activity

Statistic	High Anxious Group N=12		Low Anxious Group N=12	
	Pre	Mid	Pre	Mid
Mean	42.83	37.42	21.92	23.67
S.D.	3.13	8.16	1.08	3.52
t	2.15*		1.64	
p	<.05		>.05	

*One-tailed test

cases. This is quite understandable when one considers the numerous stressors to which many police officers are exposed on a daily basis. Evaluation of individuals in high-stress occupations creates various problems when investigating behavioral states as opposed to traits. At any rate, the pre- to mid-test decrement seen in state anxiety for the high-anxious group was statistically significant ($P < .05$), whereas the mean value for the low-anxious group did not change across time ($P > .05$).

There was also a significant decrement ($P < .005$) in the trait anxiety of high trait-anxious officers following ten weeks of physical training, and it is reassuring to note in Table 8.9 that low anxious officers did not change, i.e., regression effects were presumably not responsible for the observed change. In some respects, it might be reasonable to expect changes in state anxiety with acute and chronic exposures and changes in trait anxiety only with chronic interventions. While trait anxiety is felt to be a stable, enduring, psychological dimension, it can be changed as evidenced by the present results. However, the changes in both state and trait anxiety observed in this study took place only in high-anxious officers. In other words, vigorous physical activity was associated with anxiety reduction in anxious individuals. This same finding was also observed in the earlier investigation dealing with prisoners (Morgan and Pollock, 1976).

Inspection of Table 8.10 reveals that physical training did not differentially influence officers scoring in the extremes for the attraction or "attitude toward physical activity" measure. Individuals with high scores on the attraction

Table 8.9 Means, Standard Deviations, and t-Tests for High Trait-Anxious (N=11) and Low Trait-Anxious (N=11) Officers Before and Following Ten Weeks of Physical Activity

Statistic	High Anxious Group N=11		Low Anxious Group N=11	
	Pre	Mid	Pre	Mid
Mean	42.27	36.91	22.73	23.09
S.D.	2.05	5.45	1.19	2.21
t	3.62*		0.48	
P	<.005		>.05	

*One-tailed test

Table 8.10 Means, Standard Deviation, and t-Tests for Officers with High (N=14) and Low (N=14) Attraction Before and Following Ten Weeks of Training

Statistic	High Attraction Group N=14		Low Attraction Group N=14	
	Pre	Mid	Pre	Mid
Mean	48.21	47.07	29.43	32.93
S.D.	2.72	3.71	3.84	6.93
t	0.93		1.65	
P	>.05		>.05	

measure of the PEAS remained high, and those with low scores remained low following physical training. These findings are also in agreement with the recent report involving prisoners (Morgan and Pollock, 1976).

Similarly, those officers who possessed a high estimation of physical ability at the outset maintained these high scores across the ten weeks of training. However, those officers who scored low on the estimation scale of the PEAS at the outset, experienced a significant ($P < .01$) increase in their self-estimates following ten weeks of training. These results are summarized in Table 8.11.

It is quite possible that all of the significant changes described above would have become more pronounced were a comparison at twenty weeks made, but the dropout rate (see Figure 1) was so substantial following ten weeks that such a comparison was not feasible. On the other hand, it is also well recognized that the major physiological benefits occur during the first two months of training, and the same may very well be the case for psychological gains. From a clinical standpoint, however, it is clear that enormous individual differences exist with respect to training responses--both psychological and physiological.

Summary

This chapter represents a summary of the major psychological findings resulting from the physical fitness intervention program carried out with police officers. In many respects, this study was similar to the earlier investigation dealing with prisoners (Morgan and Pollock, 1976), and for the most part, the findings of the present investigation were comparable to those reported for the

Table 8.11 Means, Standard Deviations, and t-Tests for Officers with High (N=15) and Low (N=15) Estimation of Physical Ability Before and Following Ten Weeks of Training

Statistic	High Estimation Group N=15		Low Estimation Group N=15	
	Pre	Mid	Pre	Mid
Mean	30.47	29.73	14.13	18.53
S.D.	1.36	2.46	2.29	5.80
t	1.01		2.73*	
P	>.05		<.01	

*One-tailed test

prisoners. The present analyses considered only five of the exercise groups and one of the control groups from the Dallas Police Department because of various methodological problems.

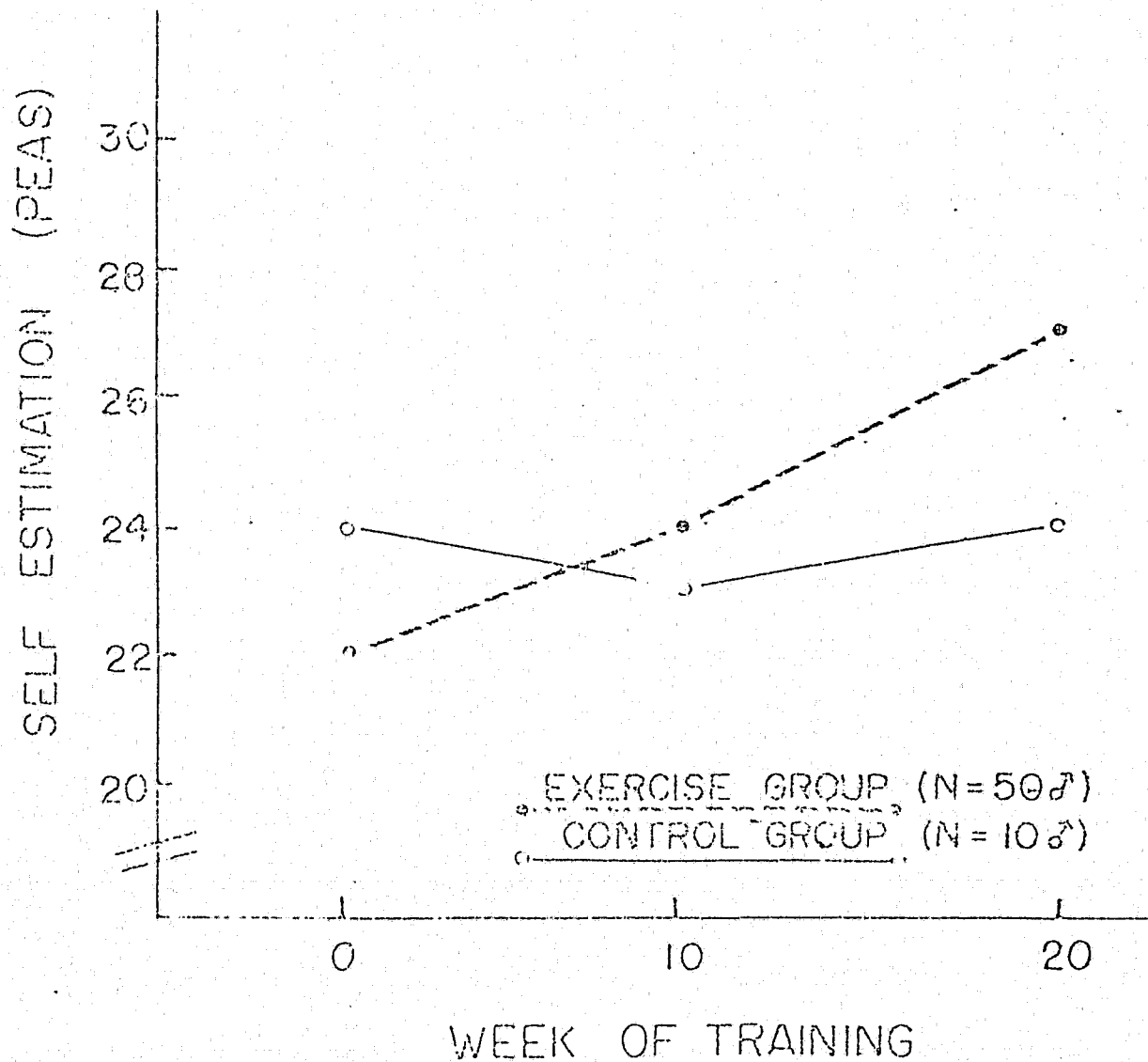
One of the major findings of this investigation was that a substantial number of these volunteer police officers withdrew from the training program by the tenth week, and an equal number dropped out during the following ten weeks. Inspection of Figure 1 suggests that had the study continued for another ten weeks, there would not have been any officers remaining in the study. This is quite important since other investigators have often reported adherence rates of 50% to 70% in long-term trials. It is important to emphasize here that adherence-mortality rates were not associated with initial psychological indices selected for use in this investigation. Interestingly, for example, attitude toward physical activity from the outset was not useful in discriminating between those officers who dropped out and those who continued.

Police officers who participated in any of the physical activity training programs experienced a significant increase in their estimation of physical ability following the twenty weeks of involvement. This must be regarded as a desirable and positive change since the way one feels about his or her own body is known to influence self-concept. It was also noted that control group officers from the same population did not experience such a change (see Figure 2).

The various psychological analyses carried out for all groups across the twenty-week period revealed that, with the exception of the above-mentioned change, alterations in psychological states and traits did not occur. However,

FIGURE 2

CHANGES IN ESTIMATION OF PHYSICAL ABILITY (PEAS) ACROSS
TWENTY WEEKS IN THE EXERCISE ($N = 50$) AND CONTROL Ss ($N = 10$).



when officers scoring in the extremes for various variables, such as anxiety, were evaluated, it was noted that significant alterations did occur. For example, both state and trait anxiety decreased in high-anxious officers across ten weeks of training, whereas, low-anxious officers in the various exercise groups and sedentary control group officers remained unchanged. Therefore, anxiety was reduced in participants who scored high on anxiety from the outset, and this supports the common view held in the exercise sciences that such an intervention is efficacious in the management of anxiety and depression (Morgan and Pollock, 1976).

As a result of these analyses, it appears that the major challenge for administrators concerned with the physical fitness of police officers is two-fold. First, the necessity of devising strategies which will facilitate involvement in physical activity is quite apparent. This might be achieved in numerous ways using a variety of intervention techniques. Second, and perhaps more crucial, improvement of our understanding of adherence is necessary to prevent the catastrophic dropout or mortality rates associated with exercise intervention programs.

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CHAPTER 9

ATTITUDES AND PERCEPTIONS OF PHYSICAL FITNESS AMONG POLICE OFFICERS

In conjunction with this study, a description of the individual police officer's attitudes and his assessment of his own state of physical fitness was sought. In order to obtain this information, a questionnaire was mailed to a stratified, random probability sample of 3,814 sworn police officers from the 302 departments responding to the departmental survey.

Of the 3,814 officers who were sent the questionnaires, 1,905 responded, for an overall rate of response of 50 percent. However, the response rate varied greatly from stratum to stratum. Stratum III and Stratum IV had the highest rate at 69% each, followed by Stratum II where 271 out of 463, or 59%, of the officers responded. The response rates for Stratum I and Stratum V were lowest with only 38% of the officers who were sent the questionnaire responding.

A total of 1,904 officers responded to the questionnaire; 682 from cities of over 100,000 population (Stratum I), 271 from cities with a population between 25,000 and 100,000 (Stratum II), 274 from cities with less than 25,000 population (Stratum III), 550 from state law enforcement agencies (Stratum IV), and 127 from county police departments (Stratum V).

The survey sample was designed to obtain a random sample of officers. As indicated in Table 9.1, the rank of the respondents was quite representative. The majority of officers in all strata are patrol officers, deputies, or state troopers. However, returns were received from officers in all ranks and in all assignments. Table 9.2 reports the distribution of officers by assignment who responded to the survey. As expected, the vast majority in all strata are assigned to the patrol function.

Table 9.1 Current Rank of Respondents

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Patrol Officer	434	63.6	165	60.9	166	60.6	366	66.5	71	55.9
Detective/Investigator	95	13.9	35	12.9	13	4.7	24	4.4	11	8.7
Corporal	9	1.3	9	3.3	2	0.7	35	6.4	8	6.3
Sergeant	92	13.5	25	9.2	44	16.1	82	14.9	19	15.0
Lieutenant	27	4.0	18	6.6	20	7.3	21	3.8	6	4.7
Captain	14	2.1	14	5.2	11	4.0	14	2.5	4	3.1
Above Captain	4	.6	3	1.1	10	3.6	5	.9	4	3.1
Other	5	.7	2	.7	6	2.2	3	.5	3	2.4
No Response	2	.3	-	-	2	.7	-	-	1	.8

Table 9.2 Primary Assignment of Respondents

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Administrative Function	55	8.1	26	9.6	30	10.9	96	17.5	17	13.4
Patrol	387	56.7	156	57.6	179	65.3	152	27.6	55	43.3
Traffic	54	7.9	19	7.0	16	5.8	212	38.5	3	2.4
Criminal Investigation	107	15.7	40	14.8	22	8.0	50	9.1	22	17.3
Juvenile	20	2.9	15	5.5	2	0.7	-	-	1	0.8
Courts	8	1.2	2	0.7	-	-	1	.2	15	11.8
Staff Functions	41	6.0	10	3.7	9	3.3	23	4.2	10	7.9
No Response	10	1.5	3	1.1	16	5.8	16	2.9	4	3.1

One very interesting statistic is shown in Table 9.3. Although the majority of the officers who responded to the questionnaire were assigned to the patrol function, only those employed in state agencies and in communities under 25,000 population were likely to be assigned to a rotating shift. Officers in Strata I and Strata V were more likely to be assigned permanent hours, and officers in Strata II were almost evenly split between permanent and rotating hours of work. One might conclude that these data indicate a trend toward stabilization of working hours in an occupation which traditionally alternated working hours. The problem of shift work versus permanent hours and the correct formula for frequency of shift rotation has been one of continued controversy in the police community for a long time. The physical, mental, and attitudinal affects of shift rotation continue to be debated while apparently a great number of departments have stabilized the working hours in many assignments including, in some cases, those within the patrol division. The difficulties involved in rotating work hours is believed to have a direct bearing upon the individuals' desire and ability to exercise regularly. This problem was one target area in our experimental exercise program conducted in the Dallas, Texas, area. However, the Dallas Police Department assigned all patrol officers to a permanent shift in January 1966, and sufficient data could not be obtained to draw conclusions concerning the affects of shift work on physical fitness program adherence.

With very little difference between the various stratum, the average responding officer was a white male, 35 years and 7 months old, six feet tall, 189 pounds, married, Protestant, and had more than a high school education. He was more likely to be a patrolman, assigned to patrol function, and had a better than average chance to be working permanent hours. If he worked a rotating shift, he was most likely to rotate every month or every 4 weeks.

Table 9.3 Type of Shift Work

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Permanent Hours	388	56.9	133	49.1	92	33.6	152	27.6	67	52.8
Rotating Shift	275	40.3	135	49.8	170	62.0	346	62.9	53	41.7
Other	18	2.6	3	1.1	10	3.6	52	9.5	6	4.7
No Response	1	.1	-	-	2	.7	-	-	1	.8
			159							

Perception of Health

We attempted to determine if the majority of police officers responding to the survey questionnaire had similarity of experience, or attitudes, or habits in various areas concerning health, attitude toward physical fitness, and perception of ability to perform their duties adequately.

Rest

One factor which is frequently attributed to poor physical conditioning is lack of energy, sluggishness, or tiredness. We asked each respondent to indicate how he generally feels upon waking up. Four choices were available:

- (1) Completely Rested
- (2) Somewhat Rested
- (3) Somewhat Tired
- (4) Very Drowsy

The vast majority of officers in all stratum indicated they were completely or somewhat rested when they woke up. We may conclude, therefore, that proper rest is not a problem among our respondents. This pattern is also consistent with the experimental studies conducted in Dallas where the vast majority of officers reported they obtained 7 to 8 hours of sleep per day.

Back Problems

Among the many illnesses and ailments often attributed to the sedentary nature of police work, coupled with shift rotation and job-related stress, is chronic back problems. Therefore, we endeavored to discover the number of police officers who encounter this problem. Although the majority of responses indicated that lower back pain was never or only rarely a problem, a number of persons did report that back problems were more likely to be encountered while driving an automobile than in any of the other given situations. Since a large

period of the police officer's working day is likely to be behind the wheel of an automobile, this is quite interesting. Many lower back problems are attributed to lack of proper exercise of lower back muscles. Poor posture caused by overweight also contributed to lower back discomfort. Chapter 1 of this report shows that back problems cause the most limited duty assignments and are the cause for the majority of early retirements. It is probable to presume, therefore, that a good physical fitness program could attribute to decreasing sick time, limited duty assignments, and early retirements in those cases where lower back problems are the cause for incapacitation.

Weight

The majority of those responding to the questionnaire perceived themselves as overweight from 1 to 20 pounds. Officers who felt they were underweight were few in number, and less than one-third of all officers believed their body weight was proper.

Sick Time

The number of days off for illness during the calendar year 1975 was reported by each officer completing the survey. Table 9.4 shows the average, mean, and range of the number of sick days reported during this calendar year. The average and mean are, of course, affected by the range. In Stratum II, for example, two persons reported they were absent from work during the entire year. However, when one multiplies the average by the number of respondents, a total of 10,206 days were lost by only 1,904 officers during 1975. This is a total of 29.07 man-years. If these figures are representative of the total number of officers in the United States, the cost to the employing agency and the taxpayer is costly indeed. In the event the reduction of the average number of

Table 9.4 Days of Sick Leave 1975

	I	II	III	IV	V
Number of Officers	677	267	269	542	125
Average Number of Days	6.053	9.28	4.80	4.09	4.28
Median Number of Days	3.0	3.0	3.0	2.0	2.0
Range of Days	00 - 120	00 - 365	00 - 120	00 - 65	00 - 54
No Response	5	4	5	8	2

sick days could be reduced by one day within each stratum, the total savings to the departments for 12 months would be 5.1 man-years.

This is, of course, conjecture and no data are available to support these figures. The median number of sick days reported is not, however, excessive and is likely to be better than other occupational groups.

Perceptions of Stress

Research over the past several years has implicated psychological stress as an important causal factor in coronary heart disease, gastro-intestinal malfunction, dermatological problems, severe nervous conditions, neurosis and various other physical and mental disorders. In comparison to workers in other occupations, police officers seem to have unusually high rates of many apparently stress-related illnesses. Our survey questionnaire asked the respondents to reply to many of the areas of concern attributed to psychological stress among police officers.

Marital difficulties, problems with neighbors, raising a family, alcohol, and in at least one reported case, overeating; job stress has been named as the causative factor. We asked each of the officers to respond to the question, "Of the five police officers in your agency with whom you work most closely, how many have had serious problems with the following?" Frequency of alcohol problems; the majority of respondents indicated that none of their five closest associates had difficulties with alcohol. This series of questions also had the greatest number of No Response, which may be indicative of the fact that police officers do not like to respond to questions of this nature. However, 32.9%, 42.5%, 34%, 28.6%, and 29.2% of the officers in Strata 1 through 5, respectively, acknowledged at least one of their five closest police associates had problems

with alcohol.

Those who knew of marital problems was even greater. Very few of the respondents had no knowledge of marital problems within their five closest associates. Here again, the number of officers who did not respond was greater than appeared in questions concerning personal medical history.

Financial problems, on the other hand, are quite prevalent among the associates of the officers completing the survey. Almost 60% of all officers have known of at least one officer who has encountered financial problems. Although financial difficulty is certainly a problem leading to stress, it is not uncommon for persons in any occupation to know of at least one colleague who has faced money difficulties. It would be most unusual if the opposite was the case.

Reported drug problems of police officers are almost nonexistent according to our responses. Only 41 of the 1,904 officers who completed the survey knew officers who had serious drug problems.

Suicide or suicide attempts is often the route taken by those overburdened with stress and frustration. In an effort to determine if suicide plays a significant role in the life of police officers, we asked the number of officers known by our respondents who have attempted or successfully committed suicide. Table 9.5 shows the number of attempts or successful suicides reported. The range of these incidents is from 0 to 15 in Stratum I, 0 to 4 in Stratum II, 0 to 3, 0 to 11, and 0 to 4 in Strata III, IV, and V. (Table 9.6). The highest average of known incidents is in Stratum I where .95% of the officers reported knowledge of at least one attempt by a fellow officer.

Although 1,271 of the respondents knew no one who had attempted this act, 633 officers had knowledge of 1,093 occurrences. Although data by age or years

Table 9.5 Number of Suicides or Attempts by Police Officers

Number of Suicides or Attempts Known	Responses	Subtotal
0	1271	0
1	347	347
2	158	316
3	65	195
4	18	72
5	12	60
6	5	30
7	1	7
8	1	8
9	1	9
10	0	0
11	2	22
12	1	12
13	0	0
14	0	0
15	1	15

Total 1093

Table 9.6 Average, Median, and Range of Suicide Attempts
by Strata

	I	II	III	IV	V
Number of Responses	679	265	267	549	123
Average Number of Suicide Attempts	.95	.41	.02	.45	.29
Median	0	0	0	0	0
Range	00- 15	00- 4	00- 3	00- 11	00- 4
No Response	3	6	7	1	4

of police service were not compared for this response item, the authors observed that the likelihood of known attempts of suicide greatly increased as years of police experience increased.

The question now becomes one of conjecture and opinion. However, we asked each respondent if they felt that the incidents of suicide were precipitated by the effects of the police job. The majority of those who responded to the question felt that police employment did play a role in the police officer suicides. At least 50% of the officers in Strata I, II, and IV believed the police job definitely or probably contributed to the suicide attempts.

The reader must keep in mind, however, that in a study of this kind many responses are from officers employed in the same police agency. Therefore, it is reasonable to assume that in an agency which had ten officers respond that know of three incidents each, the total suicides or attempts in that agency may only be three if each officer knew the same victims. This also is true of those cases of marital, family, alcohol, and neighborhood difficulties. We will not attempt to draw any conclusions based on these data concerning stress, but report it only as a factor that is prevalent in the police community.

Perception of State of Personal Health

The officer's perception of his own state of health is quite revealing. As has been shown in the study conducted in Dallas, Texas, by the Institute for Aerobic Research, police officers tested who were between 20-29 years of age were average in all coronary risk variables except body fat in comparison with general population groups. However, officers 30-31 years of age scored significantly lower in cardiorespiratory endurance and other coronary risk variables. Overall, younger police officers were found to be of average risk, and older officers were in higher risk categories.

The officers who responded to this survey questionnaire generally perceive themselves as healthy. Sixty percent of the officers rate their health as better than the average officer their own age; 71% or more of the officers responding were at least moderately concerned about their general health. Fifty-eight percent or more of the officers believe an individual can control his general state of health, (Table 9.7). A majority of officers in each group also believe there is a likelihood that a person in his age group could suffer from a heart attack (Table 9.8); however, more than half of the respondents reported that it was unlikely that they themselves would suffer a heart attack within the next ten years (Table 9.9). To a certain degree, this may indicate that the respondents are burying their heads in the sand. Not unlike those persons who, although they are aware of the effects of smoking, continue to use cigarettes or other smoking materials, they have adopted the attitude that, "It can't happen to me." When asked to respond to the question, "Do you think you get enough exercise?", less than one-half of the officers reported "yes" (Table 9.10).

The responses also indicate a perception about the entrance-level medical standards. If 50% of the officers feel that they do not exercise enough to maintain good physical condition, one might be led to believe that they would have difficulty passing an entrance-level medical and physical fitness exam for police service.

However, Table 9.11 shows that with the exception of officers employed by state agencies, over 50% of the responses in all other strata indicate that present medical standards are easy, and Table 9.12 lists only 10% to 15% of the officers doubt their ability to pass these exams at the present time.

Table 9.7 Extent of Control Over Own Health

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
A great deal	454	66.6	185	68.3	159	58.0	367	66.7	79	62.2
A moderate amount	184	27.0	71	26.2	85	31.0	138	25.1	40	31.5
Somewhat	36	5.3	13	4.8	24	8.8	36	6.5	6	4.7
Little	4	0.6	1	0.4	3	1.1	7	1.3	1	0.8
Not at all	-	-	-	-	-	-	1	0.2	-	-
No response	4	0.6	1	0.4	3	1.1	1	0.2	1	0.8
			169							

S I N C E

O N E

W E

Table 9.8 Likelihood of Heart Attack in Age Group

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very likely	95	13.9	36	13.3	37	13.5	72	13.1	16	12.6
Somewhat likely	333	48.8	139	51.3	132	48.2	324	58.9	66	52.0
Not very likely at all	249	36.5	94	34.7	101	36.9	153	27.8	43	33.9
No response	5	0.7	2	0.7	4	1.5	1	0.2	2	1.6
			170							

Table 9.9 Likelihood of Heart Attack
1-10 Years

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very likely	53	7.8	14	5.2	14	5.1	30	5.5	8	6.3
Somewhat likely	280	41.1	121	44.6	124	45.3	249	45.3	54	42.5
Not likely at all	342	50.1	135	49.8	131	47.8	270	49.1	62	48.8
No response	7	1.0	1	0.4	5	1.8	1	0.2	3	2.4
			171							

Table 9.10 Do You Get Enough Exercise to Maintain Good Physical Condition?

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Definitely Yes	104	15.2	49	18.1	53	19.3	105	19.1	25	19.7
Probably Yes	175	25.7	67	24.7	54	19.7	147	26.7	35	27.6
Not Sure	51	7.5	24	8.9	21	7.7	29	5.3	11	8.7
Probably No	245	35.9	94	34.7	104	38.0	189	34.4	42	33.1
Definitely No	104	15.2	36	13.3	41	15.0	79	14.4	14	11.0
No Response	3	0.4	1	0.4	1	0.4	1	0.2	-	-
			172							

Table 9.11 Rate Present Medical Standards Required for Entrance Into Police Agency

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very easy	109	16.0	47	17.3	55	20.1	44	8.0	35	27.6
Easy	278	40.8	124	45.8	135	49.3	182	33.1	63	49.6
Difficult	214	31.4	73	26.9	46	16.8	230	41.8	18	14.2
Very difficult	26	3.8	10	3.7	6	2.2	69	12.5	2	1.6
Don't know what the standards are	49	7.2	16	5.9	28	10.2	24	4.4	7	5.5
No response	6	0.9	1	0.4	4	1.5	1	0.2	2	1.6
			173							

Table 9.12 Probability of Passing Present Medical Standards

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Definitely Yes	345	54.4	163	63.9	169	68.7	274	52.1	81	67.5
Probably Yes	198	31.2	67	26.3	57	23.2	182	34.6	38	31.7
Probably No	68	10.7	19	7.5	13	5.3	51	9.7	-	-
Definitely No	20	3.2	5	2.0	5	2.0	18	3.4	-	-
No Response	3	0.5	1	0.4	2	0.8	1	0.2	1	0.8
			174							

The majority of officers view the entrance-level medical exam as important (Table 9.13). As will be seen, the majority of officers also view themselves as physically capable of performing their duties and believe good physical condition is important.

Perceptions of Physical Performance and Job Requirements

Officers completing the survey questionnaire were asked to respond to a series of questions concerning the frequency of performance in certain job-related activities. As is seen in Tables 9.14 through 9.22, the vast majority of officers are rarely required to perform these activities, i.e., chasing a suspect on foot, climbing a fence in pursuit of a suspect, running up a flight of stairs, pushing a stalled car by hand, lifting a sick or injured person, struggling with a resisting suspect, separating two or more fighters, climbing a ladder, or lifting a heavy object.

These activities are often among those that police applicants are required to perform in specified periods of time to demonstrate their physical ability. In general, police officers completing the survey seem to have a great deal of confidence in their ability to perform the physical requirements of their job. As is shown in Tables 9.23 through 9.27, officers rate their speed, endurance, agility, strength, and combat skills as average or better. They are inclined to believe that entrance level physical standards are more likely to be easy than difficult (Table 9.28) and have confidence that they could pass the entry-level physical requirements of their department (Table 9.29). More than 50% of the officers in each stratum rate their physical condition higher than that of the officers with whom they work (Tables 9.31, 9.32, and 9.33). The respondents also felt that police work was more physically and emotionally dangerous than

Table 9.13 Importance of Required Medical Standards in the Performance of Job

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Definitely Important	420	66.7	174	68.5	179	73.7	377	72.4	84	71.8
Probably Important	144	22.9	64	25.2	42	17.3	112	21.5	24	20.5
Not Sure	23	3.7	9	3.5	8	3.3	10	1.9	2	1.7
Probably Unimportant	39	6.2	6	2.4	11	4.5	21	4.0	5	4.3
Definitely Unimportant	-	-	-	-	-	-	-	-	-	-
No Response	4	0.6	1	0.4	3	1.2	1	0.2	2	1.7
			176							

Table 9.14 Frequency of Foot Chase of Suspect (in present assignment)

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	15	2.2	1	0.4	4	1.5	4	0.7	-	-
Often	124	18.2	41	15.1	41	15.0	27	4.9	18	14.2
Rare	433	63.5	197	72.7	209	76.3	426	77.5	84	66.1
Never	105	15.4	31	11.4	20	7.3	92	16.7	22	17.3
No Response	5	0.7	1	0.4	-	-	1	0.2	3	2.4
			177							

Table 9.15 Frequency of Fence Climbing in Pursuit of Suspect

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	13	1.9	1	0.4	2	0.7	-	-	-	-
Often	80	11.7	22	8.1	16	5.8	13	2.4	11	8.7
Rarely	441	64.7	200	73.8	203	74.1	370	67.3	77	60.6
Never	143	21.0	46	17.0	52	19.0	166	30.2	36	28.7
No Response	5	0.7	2	0.7	1	0.4	1	0.2	3	2.4
			178							

Table 9.16 Frequency of Running Up Flight of Stairs

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	43	6.3	10	3.7	9	3.3	16	2.9	7	5.5
Often	214	31.4	82	30.3	70	25.5	69	12.5	35	27.6
Rarely	342	50.1	152	56.1	168	61.3	320	58.2	65	51.2
Never	80	11.7	24	8.9	24	8.8	144	26.2	17	13.4
No Response	3	0.4	3	1.1	3	1.1	1	0.2	3	2.4
			179							

Table 9.17 Frequency of Pushing a Stalled Car by Hand

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	50	7.3	20	7.4	31	11.3	44	8.0	1	0.8
Often	170	24.9	82	30.3	103	37.6	196	35.6	42	33.7
Rarely	305	44.7	121	44.6	108	39.4	270	49.1	54	42.5
Never	152	22.3	46	17.0	32	11.7	39	7.1	26	20.3
No Response	5	0.7	2	0.7	-	-	1	0.2	4	3.1
			180							

Table 9.18 Frequency of Lifting a Sick/Injured Person

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	34	5.0	21	7.7	30	10.9	48	8.7	4	3.1
Often	189	27.7	88	32.5	117	42.7	235	42.7	52	40.9
Rarely	357	52.3	140	51.7	112	40.9	233	42.4	53	41.7
Never	96	14.1	21	7.7	14	5.1	33	6.0	15	11.8
No Response	6	0.9	1	0.4	1	0.4	1	0.2	3	2.4
				181						

Table 9.19 Frequency of Struggling With Suspect

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	51	7.5	15	5.5	24	8.8	16	2.9	8	6.
Often	233	34.2	98	36.2	104	38.0	103	18.7	41	32.3
Rarely	329	48.2	142	52.4	130	47.4	385	70.0	64	50.
Never	64	9.4	15	5.5	13	4.7	44	8.0	12	9.4
No Response	5	0.7	1	0.4	3	1.1	2	0.4	2	1.0
			182							

Table 9.20 Frequency of Separating Fighters

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	27	4.0	10	3.7	12	4.4	5	0.9	1	0.8
Often	169	24.8	64	23.6	82	29.9	49	8.9	32	25.2
Rarely	391	57.3	172	63.5	159	58.0	406	73.8	75	59.1
Never	91	13.3	23	8.5	19	6.9	87	15.8	16	12.6
No Response	4	.6	2	0.7	2	0.7	3	0.5	3	2.4
				183						

Table 9.21 Frequency of Climbing a Ladder

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	8	1.2	-	-	9	3.3	6	1.1	1	0.6
Often	56	8.2	19	7.0	24	8.8	27	4.9	11	8.7
Rarely	437	64.1	184	67.9	182	66.4	321	58.4	81	63.1
Never	175	25.7	65	24.0	54	19.7	194	35.3	31	24.4
No Response	6	0.9	3	1.1	5	1.8	2	0.4	3	2.4
				184						

Table 9.22 Frequency of Lifting a Heavy Object

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very Often	28	4.1	6	2.2	17	6.2	28	5.1	6	4.7
Often	155	22.7	56	20.7	72	26.3	160	29.1	29	22.8
Rarely	415	60.9	172	63.5	168	61.3	322	58.5	73	57.5
Never	77	11.3	34	12.5	15	5.5	39	7.1	16	12.6
No Response	7	1.0	3	1.1	2	0.7	1	0.2	3	2.4
				185						

Table 9.23 Rate of Speed Compared to Age Group

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very fast	51	7.5	21	7.7	28	10.2	46	8.4	12	9.4
Faster than average	236	34.6	98	36.2	82	29.9	192	34.9	48	37.8
About average	332	48.7	134	49.4	141	51.5	271	49.3	55	43.3
Slower than average	51	7.5	13	4.8	18	6.6	35	6.4	7	5.5
Very slow	10	1.5	3	1.1	2	0.7	2	0.4	1	0.8
No response	2	0.3	2	0.7	3	1.1	4	0.7	4	3.1
				186						

Table 9.24 Endurance Compared to Age Group

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very good	83	12.2	33	12.2	39	14.2	15	13.6	16	12.6
Better than average	217	31.8	98	36.2	68	24.8	185	33.6	40	31.5
About average	314	46.0	115	42.4	144	52.6	248	45.1	56	44.1
Less than average	58	8.5	19	7.0	13	4.7	33	6.0	10	7.9
Limited	8	1.2	4	1.5	7	2.6	5	0.9	1	0.8
No Response	2	0.3	2	0.7	3	1.1	4	0.7	4	3.1
				187						

Table 9.25 Agility Compared to Age Group

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very high	79	11.6	35	12.9	35	12.8	74	13.5	17	13.4
Better than average	268	39.3	117	43.2	99	36.1	217	39.5	42	33.1
About average	291	42.7	104	38.4	123	44.9	232	42.2	60	47.2
Less than average	31	4.5	13	4.8	9	3.3	22	4.0	4	3.1
Very low	10	1.5	1	0.4	4	1.5	1	0.2	-	-
No Response	3	0.4	1	0.4	4	1.5	4	0.7	4	3.1

[illegible]

Table 9.27 Physical Combat Skills Compared to Age Group

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very high	80	11.7	27	10.0	33	12.0	55	10.0	17	13.4
Better than average	238	34.9	100	36.9	85	31.0	174	31.6	45	35.4
About average	329	48.2	132	48.7	143	52.2	285	51.8	56	44.1
Less than average	30	4.4	11	4.1	10	3.6	34	6.2	5	3.9
Very low	3	0.4	-	-	-	-	-	-	-	-
No response	2	0.3	1	0.4	3	1.1	2	0.4	4	3.1
				190						

Table 9.28 Rate Present Required Physical Standards
(recruit training for new officers)

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very easy	84	12.3	49	18.1	45	16.4	31	5.6	28	22.0
Easy	230	33.7	92	33.9	106	38.7	119	21.6	59	46.5
Difficult	248	36.4	79	29.2	57	20.8	258	46.9	19	15.0
Very difficult	49	7.2	14	5.2	12	4.4	97	17.6	2	1.6
Don't know what standards are	69	10.1	35	12.9	51	18.6	43	7.8	14	11.0
No response	2	0.3	2	0.7	3	1.1	2	0.4	5	3.9
				191						

Table 9.29 Ability to Pass Present Physical Standards for Recruit Training

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Definitely yes	286	41.9	142	52.6	138	50.4	192	34.9	57.5	73.0
Probably yes	250	36.7	84	31.1	91	33.2	229	41.6	44.0	34.6
Probably no	110	16.1	30	11.1	27	9.9	102	18.5	4.0	3.1
Definitely no	21	3.1	5	1.9	4	1.5	26	4.7	-	-
No response	15	2.2	9	3.3	14	5.1	1	0.2	6.0	4.7
				192						

Table 9.30 Rate Own Physical Condition

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very high	74	10.9	29	10.7	35	12.8	55	10.0	10	7.9
Better than average	287	42.1	139	51.3	100	36.5	264	48.0	58	45.7
About average	271	39.7	90	33.2	122	44.5	204	37.1	48	37.8
Less than average	45	6.6	11	4.1	13	4.7	22	4.0	8	6.3
Very low	-	-	1	0.4	-	-	4	0.7	1	0.8
No response	5	0.7	1	0.4	4	1.5	1	0.2	2	1.6
			193							

Table 9.31 Physical Condition of Officers with Whom You Most Closely Work

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very high	18	2.6	5	1.8	16	5.8	17	3.1	5	3.9
High	193	28.3	49	33.2	79	28.8	180	32.7	42	33.1
Moderate	412	60.4	149	55.0	148	54.0	305	55.5	67	52.8
Low	49	7.2	24	8.9	24	8.8	40	7.3	10	7.9
Very low	5	0.7	1	0.4	2	0.7	6	1.1	1	0.8
No response	5	0.7	2	0.7	5	1.8	2	0.4	2	1.6
				194						

Table 9.32 Physical Condition of All Sworn Personnel

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Very high	7	1.0	4	1.5	12	4.4	10	1.8	2	1.6
High	135	19.8	53	19.6	58	21.2	160	29.1	23	18.1
Moderate	357	52.3	160	59.0	157	57.3	289	52.5	71	55.9
Low	158	23.2	52	19.2	36	13.1	83	15.1	25	19.7
Very low	18	2.6	1	0.4	6	2.2	6	1.1	4	3.1
No response	7	1.0	1	0.4	5	1.8	2	0.4	2	1.6
				195						

other public safety occupations (Tables 8.33 and 8.34).

These perceptions of the respondents toward their physical ability and their fellow officers' capabilities are probably overrates.

The officers involved in the physical fitness program conducted by Aerobics Research reported similar perceptions of themselves and their fellow officers prior to completing the initial physical ability tests and engaging in a conditioning program. These attitudes changed, however, once the officers were tested and their actual capabilities were known. Based upon the infrequency the majority of officers are required to demonstrate their physical abilities even to themselves, they are likely to believe that they can perform satisfactorily. The number of police agencies which require officers to demonstrate physical skills on a regular basis are rare. Therefore, their point of reference is possibly the last time they were required to exert themselves which may have been in the distant past. If entrance-level fitness requirements were required when they entered police work, and they have been employed for five years, their point of reference may be the condition and ability demonstrated at that time. Periodic physical testing would perhaps provide the officer with a proper assessment and become an incentive to maintain proper physical conditioning.

Participation in Physical Fitness Programs

It was believed that an explanation of the reasons for nonparticipation in physical fitness programs would provide us with negative forms of information which could be utilized in changing attitudes and motivating police officers to exercise. A series of responses was solicited to learn the reasons for nonparticipation. The majority of persons stated that their passive role was because they engaged in their own program, there was no departmental incentive, or it would interfere with their off-duty responsibilities.

Table 9.33 Comparison of Police Work to Other Public Service Organizations in Terms of Emotional Danger

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Much less dangerous	-	-	-	-	-	-	3	0.5	1	0.8
Less dangerous	5	0.7	-	-	5	1.8	2	0.4	1	0.8
Slightly less dangerous	5	0.7	6	2.2	6	2.2	5	0.9	2	1.6
Slightly more dangerous	69	10.1	33	12.2	37	13.5	57	10.4	23	18.1
More dangerous	232	34.0	110	40.6	102	37.2	245	44.5	45	35.4
Much more dangerous	365	53.5	122	45.0	119	43.4	237	43.1	53	41.7
No response	6	0.9	-	-	5	1.8	1	0.2	2	1.6
				197						

Comparison of Police Work to Other Public Service Organizations in Terms of Emotional Danger

197

Table 9.34 Comparison of Police Work to Other Public Service Organizations in Terms of Physical Danger

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Much less dangerous	4	0.6	2	0.7	1	0.4	2	0.4	-	-
Less dangerous	5	0.7	3	1.1	5	1.8	5	0.9	2	1.6
Slightly less dangerous	8	1.2	5	1.8	3	1.1	4	0.7	1	0.8
Slightly more dangerous	77	11.3	48	17.7	44	16.1	64	11.6	21	16.5
More dangerous	300	44.0	115	42.4	113	41.2	244	44.4	50	39.4
Much more dangerous	280	41.1	97	35.8	103	37.6	230	41.8	52	40.9
No response	8	1.2	1	0.4	5	1.8	1	0.2	1	0.8
				198						

We likewise inquired of those who do participate and their reasons for doing so. The greatest number of persons indicated they engaged in physical fitness to improve their physical and medical condition or to maintain their present physical condition. Compensatory time off was not a major cause for participation, and no response indicated additional pay as reason for participation. The majority in each stratum did indicate that participation was personally enjoyable to them.

The question, "Do you believe that your police agency should provide a physical fitness program for sworn police personnel?", received an overwhelming, affirmative response. Table 9.35 shows that 90% of the respondents in all strata were in favor of department-sponsored physical fitness programs. Less than 10% of the respondents replied that departments should not provide physical fitness programs. These officers indicated: (1) it was the individual's responsibility to maintain proper physical condition, (2) participation would interfere with the officers' off-duty responsibilities and, (3) they currently engaged in a personal fitness program to their own likeness and did not desire departmental interference.

In general, the officers appeared to be serious about the prospect of a physical fitness program. Over 90% of the officers in each strata indicated they would participate if their department provided such a program, Table 9.36. In addition, 73% or more of the officers in each strata thought that participation in physical fitness training should be mandatory. The data, shown in Table 9.36, is somewhat surprising since only about half of the eligible officers reported they participated in the few physical training programs currently offered.

Table 9.35 Should Agency Provide Physical Fitness Training Program?

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	634	93.0	251	93.0	241	88.3	470	85.5	121	95.3
No	38	5.6	18	6.7	26	9.5	76	13.8	4	3.1
No response	10	1.5	7	0.4	6	2.2	4	0.7	2	1.6
			200							

Table 9.36 Would You Participate in a Physical Fitness Training Program if Offered by Your Department?

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	622	91.2	248	91.5	258	94.2	518	94.2	123	96.9
No	56	8.2	20	7.4	14	5.1	28	5.1	2	1.6
No response	4	0.6	3	1.1	2	0.7	4	0.7	2	1.6
			201							

Table 9.37 Should a Physical Fitness Training Program be Mandatory?

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	511	74.9	201	74.2	201	73.4	404	73.5	102	80.3
No	169	24.8	69	25.5	71	25.9	144	26.2	23	18.1
No response	2	0.3	1	0.4	2	0.7	2	0.4	2	1.6
				202						

The officers were then asked to respond "yes" or "no" to several statements which would most likely stimulate interest in physical fitness programs for police officers. Table 9.38 shows their responses. Orientation and information, publication of the medical/physical condition of police officers, and participation by first-line supervisors and administrators all received majority responses. However, over 85% of the respondents indicated that officer involvement in program development would be most likely to stimulate interest.

As might be expected, Tables 9.39 and 9.40 show that compensatory time off and additional salary were listed as incentives which would encourage officer participation in physical fitness programs. Salary increases and extra points on promotional exams, Tables 9.41 and 9.42, were listed as incentives by about half of the respondents. Formal recognition and preference in special assignments received less response, Tables 9.43 and 9.44.

One of the most frequent questions asked by department administrators considering the implementation of a physical fitness program is what type of disciplinary action should be taken against those officers who refuse to participate in physical fitness programs. We asked the officers responding to the survey to indicate "yes" or "no" to several administrative actions common to police discipline. Among these were: loss of annual leave days, monetary fine, suspension; dismissal, reassignment, transfer, ineligibility for promotion, verbal reprimand; letter in personnel file, individual counseling to develop a remedial program, and no administrative action should be taken. While approximately 25% of the officers in each stratum indicated that no action should be taken, there was no mandate for any of the given disciplinary actions. However, individual

Table 9.38 Number and Percent of Officers in Each Stratum Who Felt That Interest in Physical Fitness Programs Would be Stimulated by the Following

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Information and orientation for police officers	439	64.4	183	67.5	154	56.2	372	67.6	68	53.5
Information and orientation for police officers' spouses	204	29.9	85	31.4	77	28.1	186	33.8	34	26.8
Newsletter	210	30.8	75	27.7	56	20.4	166	30.2	43	33.9
Publication of statistics on the medical/physical condition of police officers	402	58.9	165	60.9	164	60.1	342	62.3	79	62.2
Participation by the chief/sheriff	363	53.2	146	53.9	142	51.8	306	55.6	81	63.8
Participation by first-line supervisors	509	74.6	201	74.2	179	65.3	404	73.5	88	69.3
Participation in the development of the program by interested officers	584	85.6	241	88.9	232	84.7	482	87.6	113	89.0
				204						

Table 9.39 Compensatory Time Off Would be an Incentive for Participation

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	468	68.6	178	65.7	147	53.6	291	52.9	64	50.4
No	211	30.9	93	34.3	125	45.6	259	47.1	59	46.3
No response	3	0.4	-	-	2	0.7	-	-	4	3.1
				205						

Table 9.41 Salary Increase Would Encourage Participation

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	432	63.3	179	66.1	162	59.1	339	61.6	73	57.1
No	246	36.1	92	33.9	110	40.1	211	38.4	50	39.4
No response	4	0.6	-	-	2	0.7	-	-	4	3.1
			207							

Table 9.43 Formal Recognition or Commendation Would Encourage Participation

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	229	33.6	107	39.5	107	39.1	224	40.7	60	47.1
No	450	66.0	164	60.5	165	60.2	326	59.3	63	49.6
No response	3	0.4	-	-	2	0.7	-	-	4	3.1
			209							

Table 9.44 Preference in Special Assignments Would Encourage Participation

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	305	44.7	133	49.1	134	48.9	244	44.4	66	52.0
o	374	54.8	138	50.9	138	50.4	306	55.6	57	44.9
o response	3	0.4	-	-	2	0.7	-	-	4	3.1
			210							

counseling to develop a remedial program was preferred by more than half of the respondents in all strata, Table 9.45 .

More police officers think that participation in a physical fitness program should be more than once per week, but less than daily, and for sessions of approximately 60 minutes. (Tables 9.46 and 9.47 .)

The type of exercise facility that is preferred is as varied as the personalities of each of the respondents. Table 9.48 indicates that officers have no particular preference toward the facilities to be utilized. The responses do indicate the need for some type of facility other than the officer's home.

The activities which the officers preferred were quite varied: jogging/running, calisthenics or gymnastics, and self-defense were listed most often by the majority of officers, although almost any traditional physical fitness program activity would have support, Table 9.49 . The majority of officers also indicated (Table 9.50) that calisthenics and running/jogging were best for creating and maintaining good physical condition.

The majority of the respondents reported that personal benefits gained by participation in fitness programs are: greater overall fitness for the individual and his fellow officers, increased feelings of well-being, and greater confidence in one's partner and other officers. Additional benefits indicated by at least 75% of respondents are: decreased number of heart attacks, decrease in injury rate and sick time, and decreased feelings of tension with the increased ability to relax. (Table 9.51 .)

The problems perceived most often by the officers in the establishment of a physical fitness program were obtaining the interest and motivating the police

Table 9.45 Administrative Action Suggested for Non-Participation

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Loss of Annual Leave Days	54	7.9	33	12.2	25	9.1	64	11.6	16	12.6
Monetary Fine	46	6.7	22	8.1	19	6.9	42	7.6	17	13.4
Suspension	115	16.9	56	20.7	63	23.0	100	18.2	30	23.6
Dismissal	58	8.5	27	10.0	38	13.9	56	10.2	22	17.3
Reassignment	224	32.8	84	31.0	68	24.8	104	18.9	54	42.5
Transfer	191	28.0	56	20.7	41	15.0	57	10.4	39	30.7
Ineligibility for Promotion	237	34.8	100	36.9	107	39.1	245	44.5	49	38.6
Verbal Reprimand	235	34.5	110	40.6	115	42.0	243	44.3	52	40.9
Letter in Personnel File	283	41.5	133	49.1	134	48.9	300	54.6	68	53.5
Counseling for Remedial Program	382	56.0	150	55.4	121	44.2	316	57.5	64	50.4
Action Should be Taken	178	26.1	87	32.1	81	29.6	156	28.4	21	16.5
			212							

Table 9.46 Frequency of Participation in Physical Fitness Training Program

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Once a month	23	3.4	17	6.3	29	10.6	33	6.0	11	8.
More than once a month, but less than weekly	69	10.1	30	11.1	34	12.4	51	9.3	17	13.
Once a week	178	26.1	74	27.3	77	28.1	146	26.5	31	24..
More than once a week, but less than daily	325	47.7	122	45.0	94	34.3	244	44.4	53	41.7
Daily	45	6.6	11	4.1	26	9.5	43	7.8	5	3.
Other	36	5.3	14	5.2	11	4.0	32	5.8	6	4.
No response	6	0.9	3	1.1	3	1.1	1	0.2	4	3..
				213						

Table 9.47 Length of Time of Each Physical Fitness Training Session

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
out 10 min. or less	7	1.0	1	0.4	7	2.6	3	0.5	1	0.8
out 15-20 minutes	41	6.0	16	5.9	13	4.7	50	9.1	4	3.1
out 30 minutes	135	19.8	64	23.6	63	23.0	138	25.1	27	21.3
out 45 minutes	70	10.3	37	13.7	16	5.8	59	10.7	12	9.4
out 60 minutes	294	43.1	103	38.0	111	40.5	223	40.5	52	40.9
out 90 minutes	93	13.6	37	13.7	45	16.4	51	9.3	26	20.5
re than 90 minutes	33	4.8	10	3.7	13	4.7	23	4.2	1	0.8
o response	9	1.3	3	1.1	6	2.2	3	0.5	4	3.1
			214							

Table 9.48 Number and Percent of Officers in Each Stratum Who Indicated the Following Types of Facilities Should be Utilized for Department Physical Fitness Programs

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Department headquarters	261	38.3	133	49.1	94	34.3	136	24.7	35	27.
Substations or district station	303	44.4	82	30.3	62	22.6	267	48.5	31	27.
Academy or training facilities	499	73.2	157	57.9	151	55.1	360	65.5	78	61.
Local YMCA or similar facility	376	55.1	179	66.1	157	57.3	417	75.8	78	61.
Public facilities, e.g., parks, schools	280	41.4	152	56.1	159	58.0	344	62.5	61	48.
Personal facilities	173	25.4	63	23.2	87	31.8	218	39.6	34	26.
			215							

Table 9.49 Number and Percent of Officers in Each Stratum Who Would Prefer a Physical Fitness Program Involving the Listed Activities

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Bicycling	375	55.0	168	62.2	160	58.4	330	60.0	64	50.4
Gymnastics/slimnastics	572	83.9	226	83.4	204	74.5	467	84.9	101	79.5
Golf	104	20.5	59	21.8	64	23.4	151	27.5	28	2.2
Handball or racquet sports	468	68.6	185	68.3	178	65.0	381	69.4	86	67.7
Hiking/backpacking	184	27.0	69	25.5	81	29.6	169	30.7	37	29.1
Individual sports (e.g., swimming, bowling, skating)	382	56.0	172	63.5	164	59.9	350	63.8	80	63.0
Jogging/running	590	86.5	230	84.9	216	78.8	489	88.9	104	81.9
Self-defense - physical combat skills	539	79.0	219	80.8	226	82.5	435	79.1	106	83.5
Team sports	488	71.6	205	75.6	198	72.3	426	77.5	86	67.7
Weight lifting	520	76.2	209	77.1	212	77.4	401	72.9	100	78.7
			216							

Table 9.50 Number and Percent of Officers in Each Stratum Who Believe the Activities Listed are Best Creating and Maintaining Physical Fitness

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Bicycling	417	61.1	181	66.8	183	67.0	372	67.8	69	54
Calisthenics/slimnastics	582	85.3	229	84.5	218	79.6	480	87.3	104	81.
Golf	108	15.9	36	13.3	44	16.1	99	18.0	22	17.
Handball or racquet sports	502	73.6	203	74.9	180	65.7	410	74.5	90	70
Hiking/backpacking	248	36.4	99	36.5	108	39.4	219	39.8	46	36.
Individual sports (e.g., swimming, bowling, skating)	422	62	179	65.7	177	64.6	379	68.9	81	63..
Jogging/running	617	90.5	244	90.0	233	85.0	506	92.0	110	86.
Self-defense - physical combat	474	69.5	187	69.0	204	74.5	372	67.6	91	71
Team sports	492	72.1	190	70.1	190	69.3	44	75.3	86	67
Weightlifting	516	75.7	218	80.4	210	76.6	416	75.6	98	77.
			217							

Table 9.51 Number and Percent of Officers in Each Stratum Who Indicated the Following Benefits Would be Gained by Establishing a Physical Fitness Training Program in Their Agency

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Greater overall physical fitness in me	631	92.5	254	93.7	245	89.4	513	93.3	113	89.0
Greater overall physical fitness among all officers	658	96.5	264	97.4	255	93.1	530	96.4	122	96.1
Decrease in injury rate	537	78.7	207	76.4	192	70.1	421	76.5	85	66.9
Decrease in amount of sick leave	502	73.6	178	65.7	172	62.8	389	70.7	80	63.0
Greater confidence in partners or other officers	581	85.2	242	89.3	231	84.3	468	85.1	105	82.7
Increased feeling of well-being	626	91.8	251	92.6	235	85.8	512	93.1	108	85.0
Increased social contacts and friendships	306	44.9	118	43.5	119	43.6	275	50.0	47	37.0
Decreased number of heart attacks	586	85.9	230	84.9	203	74.4	475	86.4	105	82.7
Fewer early retirements	329	48.2	129	47.6	110	40.3	238	43.3	51	40.2
Better labor - management relations	200	29.3	74	27.3	86	31.4	178	32.4	35	27.6
Greater management awareness of physical nature and demands of your job	452	66.3	193	71.2	179	65.3	359	65.3	85	66.9
Increased ability to relax	533	78.2	198	73.1	179	65.3	428	77.8	92	72.4
Decreased feelings of tension and stress	535	78.4	209	77.1	194	70.8	443	80.5	98	77.2
Greater responsiveness to the needs of community	264	38.7	110	40.6	108	39.4	235	42.7	48	37.8
Better public relations	295	43.3	122	45.0	125	45.6	282	51.3	59	49.5
			218							

officers. Surprisingly, establishing rewards for participation and penalties for nonparticipation were not seen as major obstacles by 50% of the officers responding. (Table 9.52.)

Table 9.53 shows that 69% or more of the officers in each stratum favor periodic requalification of physical fitness testing, and Table 9.54 shows that the majority indicate that requalification should be conducted every 12 months. Periodic requalification on proportional weight to height standards was also favored by the majority of the officers, Tables 9.55 and 9.56.

Table 9.52 Number and Percent of Officers in Each Stratum Who Indicated that Solutions to the Below Problems Would be Necessary before a Physical Fitness Program could be Implemented

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Scheduling of personnel	490	71.8	188	69.4	168	61.3	446	81.1	71	56.3
Motivating officers	638	93.5	251	92.6	233	85.0	473	86.0	102	80.3
Obtaining interest and cooperation of management	573	84.0	223	82.3	186	67.9	448	81.5	89	70.1
Obtaining the interest of officers	596	87.4	242	89.3	220	80.3	472	85.8	104	81.9
Possibility of injuries	212	31.1	92	33.9	86	31.4	220	40.0	28	22.0
Obtaining financial support	524	76.8	202	74.5	195	71.2	369	67.1	86	67.7
Obtaining equipment	538	78.9	210	77.5	207	75.5	431	78.4	91	71.7
Finding facilities	416	61.0	167	61.6	164	59.9	393	71.5	82	64.6
Obtaining instructors	299	43.8	126	46.5	125	45.6	232	42.2	52	40.9
Establishing standards	474	69.5	188	69.4	156	56.9	385	70.0	76	59.8
Establishing rewards	353	51.8	143	52.8	111	40.5	234	42.5	56	44.1
Establishing penalties for nonparticipation	319	46.8	130	48.0	117	42.7	258	46.9	50	39.4
Obtaining consent from labor union	126	18.5	51	18.8	44	16.1	73	13.3	5	3.9
Obtaining consent from insurance agency	224	35.8	104	38.4	84	30.7	142	25.8	21	16.5
Obtaining legal consent	188	27.6	73	26.9	60	21.9	105	19.1	20	15.7
Obtaining support from local government	382	56.0	158	58.3	151	55.1	139	25.3	58	45.7
Obtaining support from civil service or central personnel officer	270	39.6	91	33.6	66	24.1	157	28.5	31	24.4
Obtaining community support	167	24.5	57	21.0	60	21.9	87	15.8	27	21.3
			220							

Table 9.53 Periodic Requalification on a Physical Fitness Test for Police Officers

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	507	74.3	198	73.1	190	69.3	417	75.8	101	79.
No	169	24.8	70	25.8	80	29.2	130	23.6	24	18
No response	6	0.9	3	1.1	4	1.5	3	0.5	2	1.

Table 9.54 Frequency of Requalifying on a Physical Fitness Test

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
more often than every 6 months	43	8.4	14	7.0	9	4.7	23	5.5	8	7.8
every 6 months	131	25.7	61	30.7	62	31.1	131	31.3	42	40.8
every year	251	49.2	84	42.2	86	44.6	196	46.9	46	44.7
every 18 months	8	1.6	5	2.5	2	1.0	7	1.7	1	1.0
every 2 years	57	11.2	28	14.1	19	9.8	42	10.0	2	1.9
only when a particular problem arises	6	1.2	3	1.5	10	5.2	7	1.7	-	-
only at time of promotion	2	0.4	1	0.5	1	0.5	5	1.2	2	1.9
never	6	1.2	-	-	-	-	3	0.7	-	-
no response	6	1.2	3	1.5	4	2.1	4	1.0	2	1.9
			222							

Table 9.55 Favor Periodic Requalification on Proportional Weight
to Height Standards

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Yes	519	76.1	202	74.5	195	71.2	455	82.7	98	77.
No	156	22.9	66	24.4	75	27.4	92	16.7	27	21.2
No response	7	1.0	3	1.1	4	1.5	3	0.5	2	1.5
			223							

Table 9.56 Frequency in Which Officers Should "Weigh-In" to Meet Weight/Height Standards

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
More often than every 6 months	52	9.9	28	13.8	20	10.1	67	14.7	19	19.0
Every 6 months	204	39.0	66	32.5	84	42.4	181	39.7	48	48.0
Every year	213	40.7	79	38.9	67	33.8	162	35.5	23	23.0
Every 18 months	4	0.8	2	1.0	2	1.0	-	-	2	2.0
Every 2 years	25	4.8	16	7.9	13	6.6	15	3.3	1	1.0
Only when a particular problem	14	2.7	7	3.4	7	3.5	7	1.5	2	2.0
Only at time of promotion	-	-	-	-	-	-	2	0.4	-	-
Other	7	1.3	3	1.5	2	1.0	18	3.9	1	1.0
No response	4	0.8	2	1.0	3	1.5	4	0.9	4	4.0
			224							

CHAPTER 10

SUMMARY OF PHYSICAL FITNESS DATA AND PROGRAMS IN STATE AND LOCAL POLICE AGENCIES

One of the major aspects of the current physical fitness project consisted of the determination of the extent to which various types of physical and medical fitness or conditioning programs are available to police officers at the present time. This task was accomplished by means of a survey administered to a nationally representative sample of police agencies. This chapter discusses the results of this survey.

Questionnaire Returns

As can be seen in Table 10.1, response rates varied widely among the five strata of police agencies. Response rate was highest for state police agencies (Stratum IV), followed by the largest municipal agencies (Stratum I). Very low response rates occurred among the smallest municipal agencies (Stratum III) and county police or sheriff agencies (Stratum V). The overall response rate of 46.1% is low for surveys of this nature and probably resulted, at least in part, from the length and complexity of the questionnaire. Nevertheless, the sample size is considered adequate for analysis of responses from three of the strata; data from Strata III and V, however, should be treated with caution.

Appendix H presents additional data on the number of respondents by state. The total number of respondents indicated in this table (N=306) is larger than the total number included in the statistical analysis presented in this chapter. Several surveys were not included in the statistical analysis because they were not a part of the original random sample group or they were received too late in the survey analysis process. It should also be noted here that data from

Table 10.1 Response Rate of Agencies Within Each of the Five Strata

Stratum	Questionnaires Forwarded	Questionnaires Returned	
	Number	Number	Percent
I. Cities over 100,000	153	98	64.1
II. Cities between 25,000 and 99,999	146	73	50.0
III. Cities between 2,500 and 24,999	162	62	38.3
IV. States	49	41	83.7
V. Counties	145	28	19.3
Total	655	302	46.1

New York City were eliminated to prevent widely skewed responses on numerical items.

Appendices G through H provide a list of all those agencies from whom surveys are received.

Screening Questions

To facilitate responses to the survey instrument, eleven initial screening questions were devised. These questions concerned primarily the presence or absence of a variety of fitness-related programs on which more detailed information was obtained in later sections of the questionnaire. Data resulting from these screening questions are presented in Tables 10.2, 10.3, and 10.4.

Table 10.2 presents the number and percent of responding agencies in each stratum which currently provide any of five types of fitness-related programs for sworn police personnel. Police agencies in the largest cities are more likely to provide a physical fitness training program (N=23 or 23.5%) and organized individual or team sports programs (N=32 or 32.7%) than agencies in the other four strata. State police agencies, on the other hand, more frequently indicated provision of a weight maintenance program and a periodic medical examination (N=22 or 53.7% for both) than agencies in the other four strata, although over 50% of the large city agencies also indicated that periodic medical examinations are provided for sworn police personnel. Such medical exams were the most frequently reported type of program among agencies in Strata I, II, and IV.

In general, it can be seen that as the size of the city decreases, the likelihood of having any of these five programs also decreases, with the exception of periodic physical performance tests, which are most frequently reported by agencies in Stratum II. Additionally, county police and sheriff agencies are

Table 10.2 Number and Percent of Agencies in Each of Five Strata
Currently Providing a Variety of Programs for Sworn
Police Personnel

Type of Program	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Physical fitness training program	23	23.5	10	13.7	4	6.4	6	14.6	0	-
Organized team/racket sports	32	32.7	17	23.3	12	19.4	7	17.1	5	17.9
Weight maintenance program	20	20.4	11	15.1	6	9.7	22	53.7	1	3.
Periodic medical examinations	50	51.0	29	39.7	12	19.4	22	53.7	1	3.
Periodic physical performance tests	5	5.1	8	11.0	1	1.6	2	4.9	0	-
			228							

least likely to provide any of these programs for sworn personnel.

Table 10.3 indicates the number and percent of responding agencies in each stratum which require entrance level medical and physical performance (i.e., agility, strength, endurance) tests for applicants, as well as some form of basic training or academy courses for recruits. Entrance medical examinations are required by all responding agencies in Strata I, II, and IV; these three strata also reported the largest percentages requiring entrance physical performance tests. Over 90% of state agencies and city agencies of all sizes require new sworn personnel to complete basic training/academy courses. Again, agencies in Stratum V are least likely to require any of these entrance tests and recruit-level courses.

Table 10.4 presents information from the three remaining screening questions. It can be seen that 5% or more of the responding agencies in Strata I, II, and IV have had physical fitness training programs in the past which have subsequently been discontinued for one reason or another. In addition, these three strata more frequently reported having requested financial assistance from an outside agency for physical fitness programs and/or equipment. County agencies are slightly more likely than small municipal agencies to have requested such financial assistance. And, finally, special group rates for the use of "outside" fitness or health facilities were reported in nearly 25% of the large city agencies, more than 10% of medium and small city agencies, and less than 10% of state and county agencies.

Taken together, these three tables may be summarized with several obvious statements. It is clear, for example, that the number of programs for assessing the medical conditions and physical abilities of potential officers (i.e., applicants),

Table 10.3 Number and Percent of Agencies in Each of Five Strata
Requiring Entrance Level Medical and Physical Tests
and Basic Training or Academy Courses

Requirements	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Entrance-level medical examination	98	100	73	100	55	88.7	41	100	13	46.4
Entrance-level physical performance test	75	76.5	50	68.5	20	32.3	29	70.7	4	14.3
Basic training or academy	97	99.0	71	97.3	57	91.9	41	100	19	67.9

Table 10.4 Additional Information Concerning Physical Fitness
Related Activities for Agencies in Five Strata

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Have had physical fitness training program in past	5	5.1	6	8.2	1	1.6	3	7.3	0	-
Have requested funding for program or equipment	35	35.7	17	23.3	3	4.8	8	19.5	2	7.1
Receive special group rates for outside facilities	24	24.5	10	13.7	7	11.3	3	7.3	1	3.6

is far in excess of the number of programs for the assessment, improvement, and/or maintenance of medical and physical condition of current officers. The single most frequently reported program for the implementation of these latter functions involves organized individual or team sports. Further, the largest of departments, both large city departments and state agencies, tend to provide programs with greater frequency and greater variability than do either the smaller city departments or the county agencies. Whether these conditions reflect the rather small number of agencies across all strata which have requested funding for programs and/or equipment is difficult to determine, but there is probably at least some connection between financial assistance and program establishment.

What is most surprising about the data, however, is the large number of agencies that do not provide any specific type of physical or medical fitness programs for their personnel. Certain of the data from Table 10.2 can be used to illustrate this point.

If the category of "organized team/racket sports" is eliminated and the data from the other four types of programs are combined within each stratum, the following data for the total number of programs indicated result:

Stratum I	=	98
Stratum II	=	58
Stratum III	=	23
Stratum IV	=	52
Stratum V	=	2

Further, if individual survey returns are examined for determination of the kind or kinds of programs existing in each, the following data for the total number of police agencies involved result:

Stratum I	=	64
Stratum II	=	39
Stratum III	=	16
Stratum IV	=	28
Stratum V	=	2

It is clear from these data that many of the responding agencies are providing more than one type of program for their personnel. In fact, the 223 total number of programs indicated in the first set of data above can be accounted for by only 149 of the responding agencies. Thus, of the original 302 total respondents, over 50% (N=153) provide no such programs at all for sworn police personnel. This last figure gives an indication of the extent of the problem addressed in the total project, i.e., the general lack of existing programs concerning the medical and physical well-being of police officers nationwide.

Physical Fitness Training Programs

Existing physical fitness training programs were reported by 43 of the 302 responding agencies. As indicated in Table 10.1, these programs are distributed as follows:

Stratum I	=	23
Stratum II	=	10
Stratum III	=	4
Stratum IV	=	6
Stratum V	=	0

A number of detailed questions concerning the development, administration, content, and evaluation of these programs were asked. This chapter discusses the major results within these areas. A note of caution is warranted here. While reading these discussions, it should be remembered that because the number of programs involved is small, the data are descriptive of the kinds of conditions and results which apply to this sample only.

Development

The most frequently indicated reasons for implementing a physical fitness training program were "administrative decision to improve overall physical fitness,"

and "desire to improve overall job performance." More specific conditions within the department, including obese appearance, evidence of stress, and high injury rate, were cited with less frequency across all strata. The number of heart attacks is fairly low on the list, while "lack of fitness relative to citizens" is surprisingly high.

It is apparent that these programs have been implemented primarily through the use of top administrative-level decisions based more on appearance and "general feelings " than on specific studies of conditions within the department. Outside impetus from either local civil service commissions or local governments has not been a factor.

Administration

Items included under the general heading "administration " primarily concern the way in which these programs are run and the types of requirements which are associated with them.

The majority of physical fitness training programs are voluntary rather than mandatory. Most of the exemptions allowed are for medical reasons, which generally mean anything the doctor will certify as an incapacity. Why medical exemptions would be needed for voluntary programs, as among Stratum I agencies, is unclear.

Regardless of whether programs are voluntary or mandatory, less than half of them require that an officer satisfactorily complete a medical exam before participating. Those agencies which do require such exams generally utilize several medical measurements, including blood pressure, resting EKG, blood series, and pulmonary measures. "Other" responses consisted primarily of a general medical exam by the individual's doctor.

Instruction in the program content and/or the use of equipment is usually provided for participants. These Instructors most often are academy or other police training personnel, rather than outside individuals. Several agencies indicated that orientation and instruction are provided merely through the posting of the departmental policy statement and specific written guidelines for equipment use.

Due to the voluntary nature of the majority of these programs, very few require officers to participate a minimum number of hours per week. Only two agencies in Stratum I and one agency in Stratum III regulate minimum participation. Officers in these three agencies must complete between one and three hours of physical fitness training per week.

Records of participation are maintained, however, in many of these agencies. Over 60% of the Stratum I agencies and half of the Stratum III agencies keep records of participation in these physical fitness training programs. Most frequently used mechanisms among Stratum I agencies include simple sign-in, sign-out procedures and a more complete exercise activity log.

Although most of these programs are voluntary, the maintenance of participation records allowed some of the agencies to provide estimates of the number of regular participants per month. While great variety in per agency average data is to be expected because of the sample stratification, it is apparent that there is no direct relationship between size of agency and number of participants on an individual department basis. For example, among Stratum I agencies, one department reported two regular participants per month, while another reported approximately 2,000 regular participants. Ranges of participants are considerably smaller in the other three strata.

The most striking figures, however, concern the percent of officers participating in each individual program. The range of percent per agency (calculated on an individual department basis) indicates the great variability of participation rates among agencies of similar size. Among the nineteen Stratum I agencies providing data, participation rates range from less than 1% to nearly 37% of the total number of sworn personnel. Among Stratum II agencies, participation rates range from 5% to over 50% of sworn personnel. One agency in Stratum III and two agencies in Stratum IV reported total participation, i.e., all of the sworn personnel are regular participants.

In addition, the average percent per agency data suggest that there is an inverse relationship between size of municipality and participation rate. Small city agencies reported the highest average percent per agency, (i.e., 62.4%), followed by state agencies (49.5%), medium-sized city agencies (21.6%), and large city agencies (14.1%). The effects of the small number of agencies providing data and the stratification by size of jurisdiction rather than by size of agency cannot be determined, but larger participation rates among smaller agencies are reasonable results, at least in terms of the feasibility of program organization and management.

Content

The content of these physical fitness training programs involves the types of program emphasis, equipment, and facilities utilized. Diversity in all three of these areas was found among the responding agencies.

The majority of programs consist of running/jogging, weightlifting, and/or calisthenics, although self-defense skills and organized sports are also mentioned with some frequency. It is apparent that many departments offer several types of activities to their program participants.

The equipment available to participants does not differ to as great an extent as content emphasis, perhaps because programs involving running or calisthenics do not require special equipment. While a variety of equipment may be utilized, most of the equipment focuses on weight and strength training. State agency programs, which more frequently involve calisthenics, tend not to use any special equipment. "Other" equipment available to participants include jump ropes, track and field equipment, and saunas.

State agencies and large city departments tend to use academy or other training facilities most often, medium-sized city departments reported more frequent use of departmental headquarters, and small city departments cited local schools most often. Local YMCA's appear more often among state agency programs than among any sized city department programs. Most of these facilities are open 24 hours per day. Four Stratum I agencies and one Stratum II agency reported that their physical fitness training facilities are open to participants less than twelve hours per day. Shorter hours of facility and equipment availability may result in lower participation rates.

Evaluation

When asked if the physical fitness training program had ever been formally evaluated for effectiveness and/or job relatedness, only one of the 43 responding agencies indicated "yes." All agencies in Strata II, III, and IV and all but one Stratum I agency reported that no formal evaluations have been conducted on these programs. Under these conditions, it is difficult to assess the overall value of these programs.

Some indications of effectiveness, however, can be obtained by examination of the types of problems which these agencies have faced in relation to their physical fitness training programs.

Less than half of the responding agencies indicated that problems have resulted from the implementation of physical fitness training programs; most of the agencies reporting problems consisted of large and medium-sized city police departments.

The single most frequently reported problem was "lack of interest or participation in this program by sworn personnel." Additional problems occurring in agencies in several strata involved inadequate funding, inadequate facilities, and increased absenteeism due to injuries suffered as a result of participation in the programs. "Other" problems mentioned by Stratum I agencies concerned objections from individual officers and difficulties in attempting to schedule male and female officers separately.

Due to the possible deleterious effects of injuries suffered in these programs on the overall operation of the police agency, the number and extent of participant injuries were explored in greater detail. Tables 10.5 and 10.6 present data from these questions.

It can be seen that less than one-third of the agencies reported the occurrence of injuries to physical fitness training program participants over the previous twelve months. However, nearly all of these agencies indicated that the loss of working time and the filing of insurance claims resulted from one or more of the injuries suffered.

Nearly all of the injuries reported by Stratum I agencies occurred in a single police department (see Table 10.6). It should be noted that these 223 injuries occurred in the department that reported 2,000 regular participants. The two Stratum II agencies indicated that injuries had been suffered by four and ten officers and that these injuries resulted in losses of 50 and 95 total working days.

Table 10.5 Injuries to Participants in Physical Fitness Training Programs

	I		II		III		IV	
	N	%	N	%	N	%	N	%
Have injuries occurred?								
Yes	6	26.1	2	20.0	0	-	2	33.3
No	17	73.9	8	80.0	4	100.	4	66.7
Did working time lost result?								
Yes	6	100	2	100	-	-	2	100
No	0	-	0	-	-	-	0	-
Were insurance claims filed?								
Yes	5	83.3	1	50.0	-	-	2	100
No	1	16.7	1	50.0	-	-	0	-
			239					

Table 10.6 Number and Range of Officers Injured and Time Lost

	I	II	IV
	N = 6	N = 2	N = 2
Total number of officers injured	256	14	2
Range	1-223	4-10	1-1
Total number of days lost	808	145	93
Range	4-620	50-95	2-91

Both of the state agencies reported single injuries, but one injury resulted in loss of two days while the other required 91 days.

Information on the types of injuries was also received. Great variety was found among the reporting agencies, but the majority of injuries involved sprains (e.g., ankle, knee, back, shoulder, hand, etc.) and contusions (e.g., leg, elbow, head, neck, face, back, etc.). Other types of injuries mentioned much less frequently included broken bones, torn ligaments, hemotoma, eye injury, foot injuries, stroke, and heart attack. It is not possible to determine the seriousness of each of these injuries. Sprains, however, can range from minor, temporary injuries (e.g., sprained ankle) to quite serious, prolonged injuries (e.g., sprained back).

Additional Information

The preceding discussion of the responses to specific survey items presents interesting and informative descriptions of various segments of physical fitness training programs in operation within police agencies of differing size and type. Great variety exists in all phases of these programs, particularly in the administrative and content-related aspects. Due to the limitations of the survey technique, however, these data cannot provide a full picture of the programs.

To supplement these data, however, several site visits to specific responding police agencies were conducted during the course of this project. Such visits are useful because they yield more detailed and complete information on the actual functioning program and thus present a more unified picture of the program from an organizational viewpoint.

The reasons cited for discontinuing these programs were lack of interest on the part of sworn personnel and inadequate funding, facilities, and/or equipment,

but lack of support from command-level personnel was indicated by two agencies each in Strata II and IV. The number of injuries to participants was a factor in the decision of only one agency. "Other" reasons concerned facilities (e.g., time conflict with regularly scheduled high school activities and too widely scattered facilities) and the amount of time required (i.e., taking officers off the street).

Weight Maintenance Programs

Weight maintenance programs for current sworn personnel were reported by 60 of the 302 responding agencies; these 60 agencies are distributed as follows:

Stratum I	=	20
Stratum II	=	11
Stratum III	=	6
Stratum IV	=	22
Stratum V	=	1

The greatest aid in the development of weight maintenance programs came from medical examiners or doctors and police academy or training personnel. Stratum III agencies used the widest variety of sources of assistance. Other people and agencies playing a role in the establishment of these programs included the chief, the police and fire commission, planning and research personnel, city personnel department, and other police agencies.

In contrast to the physical fitness training programs, the majority of weight maintenance programs are mandatory, and few exemptions are allowed. Between one-third and one-half of the programs in city and state agencies require annual weigh-ins, although some of the large city and state agencies demand more frequent weigh-ins. Other answers were supplied primarily by those agencies in which programs are voluntary; here weigh-ins can be ordered at the discretion of the police physician or program leader. Several agencies responded that weigh-ins are not required at any specific time.

Periodic Medical Examinations

Over one-third of the 302 responding agencies require medical examinations at some time during an officer's career other than on return to duty following illness or injury. The following distribution by stratum resulted:

Stratum I	=	50
Stratum II	=	29
Stratum III	=	12
Stratum IV	=	22
Stratum V	=	1

Nearly all examinations are mandatory in all five strata. Many of the exemptions granted are based on the officer's age; requirements vary in these agencies, as officers may be exempted up to the age of 40, depending upon the department. Large city agencies require medical examinations for eligibility for promotion 72% of the time; small city agencies require exams for promotion nearly 60% of the time; and medium-sized city departments and state agencies require exams for promotion less than 50% of the time. Although over 40% of the large and medium-sized city departments indicated the use of annual medical exams, the largest single category of response was "other"; most of these "other" responses stated that medical exams are required at the time of promotion only.

Seventy-five percent or more of the agencies in each stratum indicated that the periodic medical exams include tests of vision. Relatively few of these exams, however, utilize standards which have been based on either age or job analysis. Thus, all officers within a department presumably obtain the same type of medical exam, without regard to the officer's age or job activities. None of these exams has been evaluated for effectiveness or job relatedness.

Periodic Physical Performance Examinations

Only 16 of the 302 responding agencies provide for periodic tests of the

physical performance of their sworn personnel; these agencies are distributed as follows:

Stratum I	=	5
Stratum II	=	8
Stratum III	=	1
Stratum IV	=	2
Stratum V	=	0

The majority of these testing programs are mandatory, and over half grant exemptions, typically for doctor-certified medical incapacities. Stratum I agencies are least likely to require these tests for promotional eligibility. Although three agencies in both Stratum I and Stratum II utilize standards that differ according to the age of the officer, no agencies have based the standards on job/task analyses. Two agencies indicated that their programs have been formally evaluated.

Typically, these tests are conducted by academy/training personnel or a combination of academy personnel and departmental physicians. Most such tests are given every six months, every year, or on promotion.

Most of these agencies provided descriptions of the actual content of the periodic physical performance tests. From these descriptions, it is apparent that the majority of periodic tests for current sworn personnel are similar to the more traditional entrance-level physical tests, i.e., they emphasize tests of agility, strength, and endurance primarily through various calisthenics and running. Three agencies specifically mentioned the Cooper 12-minute run or similar treadmill aerobic testing.

Sports Programs

A total of 73 agencies indicated that they provide some form of organized team or individual sports programs for sworn personnel; the distribution by stratum is as follows:

Stratum I	=	32
Stratum II	=	17
Stratum III	=	12
Stratum IV	=	7
Stratum V	=	5

Types of sports activities are quite varied. It is not surprising that larger agencies tend to be more diversified in the programs offered, nor are the most "popular" sports indicated (i.e., baseball, basketball, bowling, and football) unusual. "Other" sports offered include racketball, golf, volleyball, ping-pong, wrestling, and weightlifting.

Facilities for these programs are also varied, although most programs utilize areas or rooms of departmental or academy buildings for at least some sports activities. The other responses consisted primarily of city and county parks and other recreational areas. Few agencies indicated that no special facilities are available to participants.

Special Group Rates

Only 45 of 302 agencies reported receiving any special group rates at local, commercial facilities outside the police agency. Not surprisingly, over half of these are large city agencies; the distribution is as follows:

Stratum I	=	24
Stratum II	=	10
Stratum III	=	7
Stratum IV	=	3
Stratum V	=	1

Some differences among the five strata emerged from the question concerning specific special rate programs. Stratum I agencies, for example, mentioned discount membership rates at local YMCA's much more frequently than agencies in the other four strata. Generally, the responses from these other four strata concerned local health or racket clubs and/or city recreational facilities. Additional,

infrequently mentioned facilities included high school, military, or community gyms, pools, etc., which are provided free of charge to anyone who wishes to use them.

Most of the responding agencies had no way of knowing how many officers utilize these group rates on a regular basis.

Funding

Responses to the screening question concerning requests for funding revealed that the majority of agencies in each stratum have not requested financial support for physical fitness related programs and/or equipment over the past ten years. The distribution of both affirmative and negative responses was as follows:

	<u>Have Requested</u>	<u>Have Not Requested</u>
Stratum I	35	63
Stratum II	17	56
Stratum III	3	59
Stratum IV	8	33
Stratum V	2	26

A single follow-up question sought to determine the reasons for not having requested financial assistance. Perhaps because of the physical placement of this question in the survey instrument, a number of agencies failed to respond to this item.

Fairly even distribution among the possible response categories was found for each of the five strata. "Low on the list of priorities", and "lack of interest" seem to be the most frequently indicated reasons, but "local government would never approve the request" was also cited by substantial percentages of agencies in Strata II, III, IV, and V. Although availability of equipment/facilities within the department was affirmed by over 20% of the large city agencies, access to equipment/facilities outside the agency is apparently sufficient for many police agencies.

"Other" responses to this question were equally varied. Some of these reasons included the following:

- "It's already included in the corporate budget. "
- "Problem has just recently surfaced."
- "Will be included in next year's budget."
- "Don't have enough officers to take any off the street for such a program."
- "Department is too small to justify such a request. "
- "Geographic dispersion across entire state would make such a program difficult to administer. "
- "Didn't know funding was available for such programs."

All of these responses suggest rather clearly that there is no single reason or problem which discourages agencies from requesting financial assistance for physical fitness related programs and/or equipment. Some problems are local (e.g., "government would never approve"), while others are specific to certain types of agencies (e.g., "since personnel are scattered across state, the administration of a program would be very difficult"). It would seem, however, that the two most frequently mentioned reasons (i.e., "low on the list of priorities" and "lack of interest") are interrelated internal departmental problems which could be dealt with at the command or administrative level. It is difficult to assess what the effects of a concerted departmental effort to establish a program with outside funding might be on the funding sources themselves.

Additional follow-up questions were asked of those agencies which have requested financial assistance for physical fitness related programs and/or

equipment over the past ten years. The majority of these requests were made to local government or the Law Enforcement Assistance Administration. Local businesses and community organizations have been approached by a few city agencies, but no state police agency has requested funding from the state planning association. Other sources of possible funding consisted of, surprisingly, police officer associations.

The substance of the overwhelming majority of these requests for financial assistance consisted of universal gym sets and other weight training equipment. Less frequently mentioned equipment included rowing machines, exercycles, mats, jump ropes, softball and basketball equipment, and uniforms. Less than five agencies indicated that funding was requested for program development or implementation.

Entrance-Level Medical Examinations

As can be seen from the following figures, nearly all of the responding agencies in Strata I, II, III, and IV, but less than half of those in Stratum V, require applicants to complete an entrance-level medical examination:

Stratum I	=	.98
Stratum II	=	.73
Stratum III	=	.55
Stratum IV	=	.41
Stratum V	=	.13

A variety of agencies and personnel were mentioned as having responsibility for establishment of specific disqualifying factors on these entrance medical exams. Not surprisingly, the two most frequently cited responsible organizations are the local civil service commission and the police department policy, rules, and regulations; the percentages of agencies indicating these two organizations vary across the five strata. For example, while 63% of the large city agencies

indicated "local civil service commission," 63% of state agencies indicated "police department."

State or local law and central personnel agencies play a role in medical exam establishment to varying degrees across the five strata of agencies. Among the other responses were similar types of organizations such as merit commission, police and fire commission, state training council/commission, and police pension board; authority apparently rests with the chief of police in a number of additional agencies.

Most noteworthy here, however, is the large number of agencies which responded that no specific disqualifying standards exist and, therefore, applicant medical examinations are left to the discretion of the examining physician. Over half of the small city agencies chose this alternative, and between approximately 25% and 40% of agencies in Strata II, IV, and V responded in this manner.

In the overwhelming majority of agencies, medical examinations are used as a qualifying standard only. This means, of course, that regardless of how the test itself is scored, the final result is presented in terms of pass/fail distinctions. Few agencies use medical exam results as part of the final eligibility weighting or ranking procedures.

Applicants are allowed retests in 60% or more of agencies in all but Stratum III. The conditions for retest vary widely; some of the common ones include through successful appeal to civil service commission or similar agency, after waiting a period of time (e.g., 1 month, 2 months, etc.), after correcting the deficiency (e.g., overweight), if applicant is willing to pay for a second exam, and only during the next applicant testing session.

Entrance-Level Physical Performance Tests

A total of 178 of the 302 responding agencies require physical performance (i.e., agility, strength, endurance, etc.) tests at the entrance or selection stage. The agencies are distributed among the five strata as follows:

Stratum I	=	75
Stratum II	=	50
Stratum III	=	20
Stratum IV	=	29
Stratum V	=	4

Similar to the situation with regard to medical examinations, responsibility for the establishment of specific standards for these physical performance tests rests primarily with local civil service commissions and police departments. Academy and/or training personnel have particular importance in large city, state, and county agency tests, while departmental policy is somewhat more important in medium and small city agencies. State or local law is considerably less significant to development of physical performance tests than of medical examination disqualifiers. Among the "other" responses were police and fire commissions, state training councils/commissions, university instructors, and personnel departments.

Agencies in Strata I, IV, and V tend to administer entrance physical performance tests in academy or departmental facilities; local school gyms and/or tracks are used much more frequently by agencies in Strata II and III. Other responses consisted of city recreational facilities, fire department facilities, and such local clubs as Elks Club facilities.

Although the majority of entrance tests given by agencies in Strata I, III, and V require applicants to complete successfully every event, 25% or more of agencies in all strata require attainment of a minimum total score only.

With the exception of Stratum II, the great majority of agencies in all strata use the results of these tests as qualifying standards only, i.e., applicants either pass or fail. Weighing the results in the total eligibility score is a more common practice among the responding agencies in Strata II and III.

Entrance-level physical performance tests are identical for male and female applicants in a range of from 50% of the county agencies to 90% of the smallest city agencies. A variety of explanations of the differences between tests for men and women were provided; the most common ones included the following:

- ① women are not required to take physical agility tests
- ② women do modified, fewer pushups, pullups, and/or chin-ups
- ③ wall climb tests involve walls of different heights
- ④ timed course allows longer time for women

Within the total selection process, physical performance tests are given after medical examinations in less than half of the agencies in each stratum; and medical personnel (i.e., emergency medical technicians, doctors, and paramedics) are in attendance in 25% or less of agencies in each stratum.

Although it would appear that applicants are most frequently allowed retests in state, county, and large city agencies, the conditions specified for retesting change this picture somewhat. One of the most often cited conditions is that applicants must wait until the next selection cycle; in many of these cases, it is not possible to determine whether or not applicants may retest on this phase without having to complete the entire selection process again. Some agencies indicated, however, that applicants are allowed retests if weather conditions were bad or if a medical problem existed at the time of original testing; one retest is automatically provided in a few agencies.

Twenty-eight of the agencies reported that their entrance-level physical performance tests have been validated. Since little specific validation information was received, the quality of these studies and/or their results cannot be determined.

Recruit Training

Of all the topics covered in the screening questions, the requirement of academy or other training for recruits is a provision of the largest percentage of responding agencies. The following number of agencies by stratum require recruit training:

Stratum I	=	97
Stratum II	=	71
Stratum III	=	57
Stratum IV	=	41
Stratum V	=	19

The primary concern in the follow-up questions on recruit training involved the amount and kind of physical fitness training provided for recruit officers.

In terms of average total hours, state agencies require more recruit training than other agencies; averages range from 763 hours in Stratum IV to 284 hours in Stratum V. Although the number of departments reporting data varies within strata, it is clear that the number of hours devoted to physical fitness training averages less than 10% of the total training time among agencies in all five strata.

However, in 50% or more of agencies in Strata I, II, and IV, physical fitness training is a part of a recruit's daily routine. Many other agencies indicated such training occurred two or three times a week. Physical fitness is specifically evaluated in a majority of agencies in only two strata, i.e., Stratum I and Stratum IV.

Among those agencies in which recruit fitness is evaluated, great diversity is apparent in the frequency of these evaluations. Largest percentages of agencies in each stratum report such evaluations are conducted weekly or only at the end of the training time. Other responses most often consisted of every three weeks or at pre-, mid-, and post-academy times. Typically, evaluations involve supervisor/instructor appraisals and/or recruit performance on calisthenics or similar events. Performance on job/work samples is utilized in less than 15% of agencies in each stratum.

Loss of Personnel

Many of the responding agencies were able to provide a variety of statistical information on both current employees and those personnel who left the department during the previous 12 months. Of particular interest in relation to physical fitness are available statistics on the number of officers who died, retired early, or were placed on limited duty (for medical/health reasons) during this 12-month period. Before examining these data, however, it may be useful to look at the general employment picture in the responding agencies.

Table 10.7 presents data on the number of full-time male and female sworn and nonsworn personnel employed by those agencies responding to the survey. Since the five strata were originally defined on the basis of type of agency and size of jurisdiction, differences in numbers of employees are to be expected, e.g., decreasing value from Stratum I through Stratum III. It should be noted, however, that there is considerable overlap in number of employees across strata, as indicated by the ranges. This product of basing the random sample on size of jurisdiction, rather than on size of agency, tends to confound the data in this chapter, and perhaps, throughout this report.

Table 10.7 Patterns of Employment of Full-time Sworn and Nonsworn Male and Female Personnel in the Five Strata

	I	II	III	IV	V
<u>Full-time Sworn Males</u>					
Number of departments	96	73	60	41	25
Number of officers	86,891	6052	1016	34317	1486
Per agency average	905.1	82.9	16.9	837.0	59.4
Range	107- 12,939	28- 302	3- 63	95- 3,932	2- 548
<u>Full-time Sworn Females</u>					
Number of departments	95	73	60	41	24
Number of officers	2157	109	10	110	86
Per agency average	22.7	1.5	0.2	2.7	3.6
Range	0-336	0-10	0-3	0-26	0-21
<u>Full-time Nonsworn Males</u>					
Number of departments	90	72	60	38	24
Number of employees	7223	292	47	5223	97
Per agency average	80.3	4.1	0.8	137.4	4.0
Range	0-1398	0-17	0-8	0-587	0-65
<u>Full-time Nonsworn Females</u>					
Number of departments	90	71	60	38	24
Number of employees	10,722	872	137	4557	196
Per agency average	119.1	12.3	2.3	119.9	8.2
Range	0- 1,563	0-72	0-9	0- 454	0-94

A second expected result here is the fact that large city agencies tend to employ more full-time female sworn officers, on the average, than any other stratum of agencies. County and state agencies have higher per agency average numbers of female sworn personnel than the other two strata of city agencies, and the smallest city agencies are the only stratum with less than one female officer per agency (on the average).

Table 10.8 presents a categorization of total number of sworn officers by rank. Taking into consideration the diversity in personnel titles and departmental organization, the similarities across strata are striking. Certainly it is not surprising, however, that the largest percentages of officers in each stratum are patrol officers and sergeants. The high percentage of "other" responses in Stratum V reflects positions such as matron and bailiff which generally are unique to county police and sheriff agencies.

An overall distribution of sworn personnel by age group, presented in Table 10.9, indicates somewhat greater variability. The percentages of officers in each age group are quite similar for agencies in Strata I, II, and V; between one-third and two-fifths of officers in these agencies are found in each of the two categories of under 30 and from 30 to 40 years of age. The smallest city agencies have a larger percentage of officers under age 30, while officers in state agencies are more highly concentrated between the ages of 30 and 50. Over 10% of the large city agency sworn personnel, and nearly 10% of the county agency sworn personnel, are aged 51 and over.

Tables 10.10 through 10.14 present percentage breakdowns of sworn personnel by age and rank for responding agencies in each of the five strata. These background data on the number and distribution of sworn employees may help to make the following information on retirement more meaningful.

Table 10.8 Number and Percent of Officers by Rank for Agencies Within Each Stratum

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Control Officer	40394	65.5	3583	65.5	610	63.5	15202	70.1	786	72.8
Sergeant	2679	4.3	78	1.4	12	1.2	1102	5.1	13	1.2
Investigator/Detective	7257	11.8	516	9.4	58	6.0	1156	5.3	44	4.1
Sergeant	7420	12.0	632	11.6	139	14.5	2525	11.6	72	6.7
Lieutenant	2271	3.7	334	6.1	42	4.4	841	3.9	48	4.4
Captain	930	1.5	168	3.1	21	2.2	435	2.0	13	1.2
Major/Inspector	291	0.5	18	0.3	2	0.2	113	0.5	5	0.5
Deputy Chief	194	0.3	37	0.7	9	0.9	42	0.2	14	1.3
Chief	68	0.1	65	1.2	58	6.0	31	0.1	20	1.8
Other	169	0.3	38	0.7	10	1.0	242	1.1	65	6.0
Total	61673	100	5469	100	961	99.9	21689	99.9	1080	100
			256							

Table 10.9 Distribution of Officers by Age in Each of Five Strata

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Under 30	19897	32.3	1918	35.1	407	42.4	6265	28.9	415	38.4
30 to 40	23106	37.5	2172	39.7	332	34.5	9385	43.3	400	37.0
41 to 50	12111	19.6	973	17.8	147	15.3	4639	21.4	161	14.3
51 and over	6559	10.6	406	7.4	75	7.8	1400	6.4	104	9.6
Total	61673	100	5469	100	961	100	21689	100	1080	99.9
			257							

Table 10.10 Distribution of Officers by Rank and Age for Responding Agencies in Stratum I

Rank	Under 30		30 to 40		41 to 50		51 and Over	
	Total	Average	Total	Average	Total	Average	Total	Average
Patrol Officer	17,661	271.7	14,089	216.7	5512	34.8	3132	48.2
Corporal	932	14.3	1,475	22.7	165	2.5	107	1.6
Investigator/Detective	926	14.2	3,444	53.0	1919	29.5	968	14.9
Sergeant	338	5.2	3,171	48.8	2701	41.6	1210	18.6
Lieutenant	10	0.2	674	10.4	1034	15.9	553	8.5
Captain	2	0.0	154	2.3	476	7.2	298	4.5
Major/Inspector	0	-	32	0.5	135	2.0	124	1.9
Deputy Chief	0	-	16	0.2	95	1.4	83	1.2
Chief	0	-	4	0.1	33	0.5	31	0.5
Other	28	0.4	47	0.7	41	0.6	53	0.8

Table 10.41 Distribution of Officers by Rank and Age for Responding Agencies in Stratum II

Rank	Under 30		30 to 40		41 to 50		51 and Over	
	Total	Avg.	Total	Avg.	Total	Avg.	Total	Avg.
Patrol Officer	1745	26.0	1368	20.1	335	4.9	135	2.0
Corporal	24	0.4	46	0.7	6	0.1	2	0.0
Investigator/Detective	86	1.3	258	3.8	133	2.0	39	0.6
Sergeant	49	0.7	306	4.5	221	3.3	56	0.8
Lieutenant	7	0.1	110	1.6	149	2.2	68	1.0
Captain	0	-	48	0.7	73	1.1	47	0.7
Major/Inspector	0	-	2	0.0	8	0.1	8	0.1
Deputy Chief	0	-	4	0.1	17	0.3	16	0.2
Chief	1	0.0	9	0.1	25	0.4	30	0.4
Other	6	0.1	21	0.3	6	0.1	5	0.1
			259					

Table 10.12 Distribution of Officers by Rank and Age for Responding Agencies in Stratum III

Rank	Under 30		30 to 40		41 to 50		51 and Over	
	Total	Avg.	Total	Avg.	Total	Avg.	Total	Avg.
Patrol Officer	343	5.8	195	3.3	52	0.9	20	0.3
Corporal	7	0.1	4	0.1	0	-	1	0.0
Investigator/Detective	20	0.3	24	0.4	13	0.2	1	0.0
Sergeant	24	0.4	69	1.2	32	0.5	14	0.2
Lieutenant	2	0.0	15	0.3	18	0.3	7	0.1
Captain	2	0.0	5	0.1	11	0.2	3	0.1
Major/Inspector	0	-	0	-	0	-	2	0.0
Deputy Chief	1	0.0	5	0.1	2	0.0	1	0.0
Chief	3	0.1	15	0.3	17	0.3	23	0.4
Other	5	0.1	0	-	2	0.0	3	0.1
			260					

Table 10.13 Distribution of Officers by Rank and Age for Responding Agencies in Stratum IV

Rank	Under 30		30 to 40		41 to 50		51 and Over	
	Total	Avg.	Total	Avg.	Total	Avg.	Total	Avg.
Patrol Officer	5985	193.1	6875	221.8	1898	61.2	444	14.3
Corporal	84	2.7	616	19.9	345	11.1	57	1.8
Investigator/Detective	115	3.8	544	18.1	423	14.1	74	2.5
Sergeant	58	1.9	1044	33.7	1110	35.8	313	10.1
Lieutenant	5	0.2	164	5.1	470	14.7	202	6.3
Captain	0	-	36	1.1	236	7.4	163	5.1
Major/Inspector	0	-	5	0.2	54	1.7	54	1.7
Deputy Chief	0	-	0	-	18	0.6	24	0.8
Chief	1	0.0	1	0.0	10	0.3	19	0.6
Other	17	0.5	100	3.1	75	2.3	50	1.6
			261					

Table 10.14 Distribution of Officers by Rank and Age for Responding Agencies in Stratum V

Rank	Under 30		30 to 40		41 to 50		51 and Over	
	Total	Avg.	Total	Avg.	Total	Avg.	Total	Avg.
Control Officer	383	17.4	296	13.5	68	3.1	39	1.8
Corporal	3	0.1	9	0.4	1	0.0	0	-
Investigator/Detective	3	0.1	26	1.2	13	0.6	2	0.1
Sergeant	4	0.2	33	1.5	22	1.0	13	0.6
Lieutenant	1	0.0	10	0.5	23	1.0	14	0.6
Captain	0	-	7	0.3	2	0.1	4	0.2
Major/Inspector	0	-	1	0.0	3	0.1	1	0.0
Deputy Chief	3	0.1	2	0.1	4	0.2	5	0.2
Chief	2	0.1	4	0.2	5	0.2	9	0.4
Other	16	0.7	12	0.5	20	0.9	17	0.8
			262					

It can be seen that state and large city agencies are fairly similar in terms of per agency average number of deaths both in line of duty and off-duty. For this sample, one police officer died in line of duty for every two large city and state agencies, and approximately two police officers died off-duty for every state and large city agency. Fewer on-duty and off-duty deaths were reported by agencies in Strata II, III, and V, in which death claimed a total of 17, 4, and 7 officers respectively. (See Table 10.15)

Great variability is apparent in the figures for early retirement, i.e., retirement before the scheduled time by reason of age or length of service. Early retirement affected 647 officers in Stratum I, or an average of seven police officers for every large city agency providing data, and 99 officers in Stratum IV, for an average of over two officers in every state agency providing data. Again, per agency averages are much lower in the other three strata of agencies, in which a total of 26, 4, and 6 officers, respectively, retired early.

Table 10.16 addresses the causes of the deaths reported in terms of two categories, i.e., accidental (shootings, traffic accidents, etc.) and medical/health (heart attack, terminal disease, etc.). It can be seen that although the majority of deaths in line of duty in Strata I, II, and IV resulted from accidents, the majority of deaths off-duty in all strata resulted from medical/health conditions.

Considering deaths for medical/health reasons only, Table 10.17 presents data on the ages of the officers. Medical/health deaths in line of duty appear to involve officers of all ages rather than any particular age group. Those medical/health deaths which occurred among off-duty officers, on the other hand, primarily involved officers over the age of 40. This age group constitutes some 23% to 30%

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Table 10.15 Total and Per Agency Average Number of Sworn Police Personnel
Who Left Police Agencies for Various Reasons

	I	II	III	IV	V
	N=92	N=72	N=61	N=40	N=25
<u>Death In Line of Duty</u>					
Number of officers	45	6	0	18	1
Per agency average	0.5	0.1	0	0.5	0.4
Range	0-4	0-1	0	0-2	0-1
<u>Death Off-Duty</u>					
Number of officers	206	11	4	64	6
Per agency average	2.2	0.2	0.1	1.6	0.2
Range	0-59	0-2	0-1	0-11	0-3
<u>Scheduled Retirement-Age</u>					
Number of officers	404	22	5	170	14
Per agency average	4.4	0.3	0.1	4.3	0.6
Range	0-77	0-6	0-3	0-72	0-12
<u>Scheduled Retirement-Service</u>					
Number of officers	918	60	1	232	16
Per agency average	10.0	0.8	0.0	5.8	0.6
Range	0-167	0-8	0-1	0-42	0-16
<u>Early Retirement</u>					
Number of officers	647	26	4	99	6
Per agency average	7.0	0.4	0.1	2.5	0.2
Range	0-85	0-4	0-1	0-12	0-4
<u>Other</u>					
Number of officers	1640	220	72	547	80
Per agency average	17.8	3.1	1.2	13.7	3.2
Range	0-148	0-24	0-10	0-79	0-20

Table 10.16 Number and Percent of Deaths In Line of Duty and Off-Duty Which Resulted from Accidents and Medical/Health Reasons

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
<u>Deaths in Line of Duty</u>										
Accidental	30	66.7	6	100	0	-	16	88.9	0	-
Medical/Health	12	26.7	0	-	0	-	2	11.1	1	100
No Explanation	3	6.7	0	-	0	-	0	-	0	-
Total	45	100.1	6	100	0	-	18	100	1	100
<u>Deaths Off-Duty</u>										
Accidental	30	14.6	2	18.2	1	25.0	12	18.8	1	16.7
Medical/Health	106	51.4	9	81.8	3	75.0	51	79.7	5	83.3
No Explanation	70	34.0	0	-	0	-	1	1.6	0	-
Total	206	100	11	100	4	100	64	100.1	6	100
			265							

Table 10.17 Number and Percent of Medical/Health Deaths In Line of Duty and Off-Duty by Age of Officer

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
<u>Medical/Health Deaths in</u> <u>Line of Duty</u>										
Under 30	4	33.3	0	-	0	-	0	-	0	-
30 to 40	3	25.0	0	-	0	-	1	50.0	0	-
41 to 50	3	25.0	0	-	0	-	1	50.0	0	-
51 and over	2	16.7	0	-	0	-	0	-	1	100
Total	12	100	0	-	0	-	2	100	1	100
<u>Medical/Health Deaths</u> <u>Off-Duty</u>										
Under 30	3	2.8	0	-	0	-	3	5.9	1	20.0
30 to 40	15	14.2	0	-	0	-	9	17.6	0	-
41 to 50	37	34.9	7	77.8	2	66.7	19	37.3	1	20.0
51 and over	51	48.1	2	22.2	1	33.3	20	39.2	3	60.0
Total	106	100	9	100	3	100	51	100	5	100

266

of the personnel in each stratum of agencies (see Table 10.9). Seventeen percent or more of the medical/health deaths off-duty in Strata I, IV, and V occurred among officers 40 years old or less, the age group constituting 70% or more of the personnel in this study (see Table 10.9).

Turning to the subject of early retirement, Table 10.18 presents data indicative of the variety of causes of loss of personnel prior to reaching retirement age or length of service. The column totals for each stratum are not always the same as the total number of early retirees given in Table 10.15. Agencies in Strata III and V only were able to provide specific reasons for all of their early retiring officers; the total numbers of early retirements in these two strata are quite small. Agencies in the other three strata indicated that the information requested on early retirees was not available. Nevertheless, for comparative purposes, percentages have been based upon the available data, i.e., the strata totals in Table 10.18.

It is apparent that back trouble, permanent injury suffered in line of duty, and heart attacks were responsible for nearly half of the early retirements for which reasons were provided by agencies in each stratum. Back trouble alone accounted for 23% of the early retirees in Strata I and IV and 16% of those in Stratum II. Permanent injury suffered in line of duty caused between 20% and 25% of early retirements (for which reasons are provided) in city agencies of all sizes and in state agencies. Early retirement resulting from heart attacks ranged from 8% in Stratum II to 50% in Stratum III.

Table 10.18 Number and Percent of Officers Who Retired Early
for a Variety of Reasons

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Back Trouble	90	22.6	4	16.0	0	-	20	22.7	0	-
Permanent Injury In Line of Duty	88	22.1	6	24.0	1	25.0	18	20.4	0	-
Heart Attack	70	17.6	2	8.0	2	50.0	13	14.8	2	33.3
Psychological/Psychiatric Reasons	35	8.8	3	12.0	1	25.0	7	8.0	1	16.7
High Blood Pressure	23	5.8	1	4.0	0	-	4	4.5	0	-
Terminal Disease	12	3.0	0	-	0	-	4	4.5	2	33.3
Permanent Injury Off-Duty	14	3.5	1	4.0	0	-	0	-	0	-
Circulatory Disease	11	2.8	1	4.0	0	-	2	2.3	0	-
Arthritis	6	1.5	1	4.0	0	-	5	5.7	0	-
Lung Disease	8	2.0	1	4.0	0	-	2	2.3	0	-
Stroke	2	0.5	0	-	0	-	1	1.1	0	-
Diabetes	1	0.2	0	-	0	-	1	1.1	1	16.7
Peptic Ulcer	1	0.2	1	4.0	0	-	0	-	0	-
Liver Disease	0	-	0	-	0	-	1	1.1	0	-
Other	37	9.3	4	16.0	0	-	10	11.4	0	-
Total	398	99.9	25	100	4	100	88	99.9	6	100
			268							

Psychological and/or psychiatric reasons accounted for an additional 8% (Stratum IV) to 25% (Stratum III) of early retirements. High blood pressure was reportedly the cause of between 4% and 6% of the early retirements for which reasons are given in Strata I, II and IV. The other alternatives are cited with much less frequency, although, with the exception of arthritis, these reasons caused similar percentages of early retirements among Strata I, II, and IV agencies.

Table 10.19 presents data on the ages of the officers who retired early for any of the reasons stipulated in Table 10.18. Again, these figures represent only those early retirements for which these data were available. Although comparatively few of these early retiring officers were under the age of 30, they represent some 9% of the early retirees in Stratum I, 8% of those in Stratum II, and 25% of all early retirees in Stratum III. Other patterns emerge which show differences among the five strata. The largest single group of officers retiring early was 30 to 40 years old in Stratum II, 41 to 50 years old in Strata I, IV, and V, and 51 years or older in Stratum III. Only 12% of the early retirees in Stratum II were 51 years of age or older, while 28% to 50% of officers in the other four strata were in this age category. None of the early retirees from county agencies was less than 41 years of age.

Data similar to those in Tables 10.18 and 10.19 are presented in the next two tables in relation to officers placed on limited duty at any time during the previous 12 months.

An examination of Table 10.20 reveals that the largest single cause of limited duty assignments was something other than the specific conditions listed; this "other" category consisted primarily of temporary injuries suffered both on- and

Table 10.19 Age Group of Officers Who Retired Early for Any Reason

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Under 30	36	9.0	2	8.0	1	25.0	1	1.1	0	-
30 to 40	98	24.6	12	48.0	0	-	25	28.4	0	-
41 to 50	154	38.7	8	32.0	1	25.0	34	38.6	4	66.7
51 and Over	110	27.6	3	12.0	2	50.0	28	31.8	2	33.3
Total	398	99.9	25	100	4	100	88	100	6	100
			270							

Table 10.20 Number and Percent of Officers Who Were Placed on Limited Duty for a Variety of Reasons

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Back Trouble	301	33.2	13	17.8	1	11.1	31	36.5	0	-
Heart Attack	107	11.8	5	6.8	0	-	5	5.9	1	33.3
Permanent Injury In Line of Duty	106	11.7	6	8.2	1	11.1	4	4.7	0	-
High Blood Pressure	51	5.6	3	4.1	0	-	7	8.2	0	-
Circulatory Disease	47	5.2	3	4.1	1	11.1	0	-	0	-
Permanent Injury Off Duty	37	4.1	2	2.7	0	-	1	1.2	0	-
Psychological/Psychiatric Reasons	34	3.8	2	2.7	0	-	0	-	1	33.3
Peptic Ulcer	29	3.2	1	1.4	0	-	2	2.4	0	-
Arthritis	18	2.0	0	-	1	11.1	0	-	0	-
Terminal Disease	13	1.4	0	-	0	-	1	1.2	0	-
Stroke	6	0.7	1	1.4	0	-	3	3.5	0	-
Lung Disease	9	1.0	0	-	0	-	0	-	0	-
Liver Disease	5	0.6	0	-	0	-	0	-	0	-
Diabetes	3	0.3	0	-	0	-	0	-	0	-
Other	139	15.4	37	50.7	5	55.6	31	36.5	1	33.3
Total	905	100	73	99.9	9	100	85	100.1	3	99.9
				271						

off-duty. However, of the specific conditions listed, it is immediately apparent that the three most frequently mentioned causes of limited duty assignment are also the three most frequently mentioned causes of early retirement indicated in Table 10.18, i.e., back trouble, heart attacks, and permanent injury suffered in line of duty. High blood pressure and circulatory disease account for substantial numbers of limited duty assignments, while psychological/psychiatric reasons are not quite as prevalent here as they were regarding early retirement.

Table 10.21 indicates the ages of these officers placed on limited duty. As with the data on early retirement, some differences among strata are apparent here. The largest single group of officers placed on limited duty was under 30 years of age in Stratum III, 30 to 40 years old in Strata I, II, and V, and 51 years or older in Stratum IV. The smallest percentage (above 0) of officers, on the other hand, was under 30 in Strata I and IV, 41 to 50 years in Stratum III, and 51 years and older in Strata II and V. No limited duty assignments were given to officers between 30 and 40 years of age among Stratum III agencies and to officers under 30 or between 41 and 50 years of age among Stratum V agencies.

Finally, Table 10.22 presents additional information on the retirement policies of these agencies. Seventy-four percent or more of the agencies in Strata I, II, III, and IV specify retirement ages, while 73% or more of agencies in Strata I, II, and IV require retirement after a certain number of years on the force. Specific ages and length of service varied a great deal among responding agencies. It is apparent that county police and sheriff agencies are least likely to have specific retirement provisions.

Only three of the responding agencies indicated that their retirement policies were based on studies of the medical/physical condition of older officers.

Table 10.21 Age Group of Officers Who Were Placed on Limited Duty for Any Reason

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Under 30	146	16.1	23	31.5	6	66.7	13	15.3	0	-
30 to 40	278	30.7	25	34.2	0	-	16	18.8	2	66.7
41 to 50	245	27.1	20	27.4	1	11.1	16	18.8	0	-
51 and Over	236	26.1	5	6.8	2	22.2	40	47.1	1	33.3
Total	905	100	73	99.9	9	100	85	100	3	100
			273							

Table 10.22 Number and Percent of Agencies Having Specific Retirement Age or Length of Service

	I		II		III		IV		V	
	N	%	N	%	N	%	N	%	N	%
Laws stipulate retirement age	87	88.8	65	89.0	46	74.2	37	90.2	10	35.7
Laws stipulate retirement after specific length of service	83	84.7	59	80.8	32	51.6	30	73.2	6	21.4
Retirement policies are based on studies of medical/physical condition of officers	1	1.0	0	-	2	3.2	0	-	0	-
			274							

Summary

It is useful to examine data on loss of personnel for a variety of reasons directly related to the purposes of this study. It is equally helpful to summarize these data in broader terms than were used in discussion of the individual tables.

Off-duty deaths exceeded deaths in line of duty in every stratum of agencies. For these off-duty deaths, medical/health conditions were the cause of more deaths than were accidental occurrences. In fact, medical/health caused deaths off-duty far exceeded accidental deaths in line of duty in terms of raw numbers. For all deaths which occurred in the previous twelve months, both in line of duty and off-duty, officers in all age groups were victims, although among off-duty deaths, officers 41 years of age and older were victims more often than younger officers.

These statements indicate the prevalence of medical/health conditions as the causes of death of police officers in the agencies surveyed. No specific information was obtained on the exact medical/health conditions involved here, but it is clear that accidental occurrences are less frequent than medical/health caused deaths. In addition, medical/health conditions may affect police officers of any age, just as, of course, may accidents. Medical/health caused deaths are not a concern for only older officers.

At the same time, medical/health conditions cause the majority of the progressively less severe results of early retirement and limited duty assignment. Striking similarities in the reasons cited for these two occurrences were found in the present study, particularly in the three reasons mentioned most frequently, i.e., back trouble, permanent injury in line of duty, and heart attack. Although injuries suffered in line of duty are most probably unpredictable occurrences,

back trouble and heart attacks oftentimes are both predictable and preventable. Certainly, back trouble can be predicted in any occupation requiring large percentages of the incumbent's time spent in driving automobiles; and heart attacks have been shown to be directly related to amount of job stress. The amount of stress attendant upon the job of police officer has been documented elsewhere (see, for example, Kroes and Hurrell (Eds.), Job Stress and the Police Officer: Identifying Stress Reduction Techniques.).

Data presented on the ages of officers who retired early or were placed on limited duty indicated that both results may affect officers of any age. Officers under the age of 30 retired early in agencies in four of the five strata. The majority of early retirees were over the age of 40, but retirement in the early 40's represents a loss of perhaps ten to fifteen years at least of active service on the police force. Limited duty assignments seemed to have been more evenly distributed across age groups than were early retirements.

Some further interesting statistics may be gained from combining the available data on heart-related conditions, i.e., heart attack, high blood pressure, circulatory disease, and stroke. Table 10.22 presents data on the number of officers who were retired early or given limited duty assignments for these four reasons. These data indicate that heart-related conditions were the single greatest cause of early retirement and the second greatest cause of limited duty assignments among the agencies responding to this survey. Further, Table 10.23 presents data which indicate that heart-related conditions may cause both early retirement and limited duty assignments among officers of any age.

These data, then, suggest the seriousness of medical/health conditions in

Table 10.22 Number of Officers Who Retired Early or Were Placed on Limited Duty because of Heart Related Conditions

	I	II	III	IV	V
<u>Early Retirement</u>					
Heart Attack	70	2	2	13	2
High Blood Pressure	23	1	0	4	0
Circulatory Disease	11	1	0	2	0
Stroke	2	0	0	1	0
Total	106	4	2	20	2
<u>Limited Duty</u>					
Heart Attack	107	5	0	5	1
High Blood Pressure	51	3	0	7	0
Circulatory Disease	47	3	1	0	0
Stroke	6	1	0	3	0
Total	211	12	1	15	1

Table 10.23 Number of Officers in Each Age Group Who Retired Early or Were Placed on Limited Duty Assignment for Heart-Related Reasons

	I	II	III	IV	V
<u>Early Retirement</u>					
Under 30	13	0	0	0	0
30 to 40	16	1	0	4	0
41 to 50	35	2	1	6	2
51 and over	42	1	1	10	0
Total	106	4	2	20	2
<u>Limited Duty</u>					
Under 30	4	0	0	1	0
30 to 40	29	3	0	0	0
41 to 50	75	5	0	5	0
51 and over	103	4	1	9	1
Total	211	12	1	15	1

general and heart-related conditions in particular in terms of the numbers of officers who die or are retired early or are placed on limited duty assignment among the agencies responding to this survey.

CHAPTER 11

RECOMMENDATIONS

Based on the results of our studies, the following recommendations are made:

1. There is a definite need for a preventive medicine program for police officers of all ages. Educational information on good health habits, exercise programs, and proper diet is required.
2. The needs of young and middle-aged officers clearly differ. The young patrolman needs adequate strength and endurance to meet the physical challenges presented during his daily tasks. A combination weight training and running program is recommended for young officers. On the other hand, the needs of the middle-aged, executive police officer fall more into the preventive health category. A general aerobics program is recommended for them to reduce the risk of coronary heart disease and improve total health.
3. Where facilities, equipment, and budgets are limited, it is recommended that a program similar to the low-budget programs described in Part II of this manual be implemented. Extensive facilities, equipment, and budgets are not needed to successfully test physical fitness and implement a fitness program in a small department.

4. Where facilities, equipment, and budgets are relatively unlimited, a combination of weight training and continuous running is recommended for young police officers to improve both strength and cardiovascular-respiratory fitness.
5. If continual supervision of exercise is not available, it is recommended that complete indoctrination of exercise principles and practices be practiced for at least four weeks before an individual is released to his own personal program.
6. Part II of this manual provides information concerning the evaluation and implementation of physical fitness programs.

PART II

CHAPTER 12

MEDICAL SCREENING AND FITNESS EVALUATION

Importance and Need for Medical Screening and Fitness Evaluation

Several reasons exist for evaluating the physical fitness level of police officers before they start an exercise program. The most obvious reason is perhaps explained from a medical safety standpoint and is best summarized by the American College of Sports Medicine:

For the sedentary individual there is a serious risk in the sudden, unregulated and injudicious use of strenuous exercise. But it is a risk that can be minimized and perhaps even eliminated through proper preliminary testing and the individualized prescribing of exercise programs (1).

The minimization of such risk is achieved in part by undergoing a medical screening examination. Medical screening includes a record of personal health history, family health history, present medication and treatment, diet analysis, smoking history, and physical activity patterns in order to assess the risk of testing and exercising. The procedure identifies past and present health status and determines if a person is a high risk for coronary heart disease (CHD) (22). A high-risk individual is classified as one who is older than 35 years and has a majority of risk factors established by the American Heart Association (2, 12, 13). The risk factors include high blood pressure, elevated blood fats (cholesterol and triglycerides), cigarette smoking, obesity, physical inactivity, elevated blood sugar and uric acid, family history, and excessive emotional stress. Medical screening is an obvious protective practice for both the exercise participant and program director in preventing medical complications and injury during activity. This is particularly important for officers older

than 40 years of age since they have been found to be at higher-than-average risk (19). The officers under age 40 appear to be of average risk; however, medical screening is of no less importance with young officers.

In addition to medical screening, fitness evaluation tests are required prior to initiating an exercise program. Fitness evaluation is primarily the assessment of the functional capacity of the body through testing the cardio-respiratory system during exercise stress. The evaluation also includes the determination of body composition, flexibility, muscular strength and endurance, and pulmonary function. The results of the fitness evaluation are used to determine the present medical-health and level of fitness status of the individual police officer and as a basis for exercise prescription. Also, the results are used as a baseline for future comparisons. With respect to this latter statement, physical fitness tests are excellent motivators for individuals in that they provide objective measures of benefits reaped from regular exercise programs.

Medical Screening

A thorough and detailed explanation of the medical examination is available in the textbook edited by Larson (16). Generally, the medical examination should include the following:

1. Comprehensive medical history questionnaire covering family health history and current health habits such as smoking, alcohol intake, physical activity, and medications. Special emphasis should be placed on primary risk factors of coronary heart disease (CHD), i.e., high blood pressure, smoking, high blood fat levels (cholesterol and triglycerides), obesity, physical inactivity, and family history of CHD. An example of the questionnaire used by

the Institute of Aerobics Research is presented in Appendix A .

2. The following laboratory tests are recommended if the budget is adequate:

- a. Chest X-ray
- b. Physical inspection of the spine and limbs for bone and joint abnormalities and of the neck, chest, abdomen, eyes, ears, nose, and throat
- c. Auscultation (listening) of heart and lung sounds for identification of possible cardiac murmurs, dysrhythmias, or chronic lung disease
- d. Measurement of resting heart rate, blood pressure, and respiration
- e. Chemical analysis of blood for levels of serum cholesterol, triglycerides, glucose, and uric acid
- f. Resting 12-lead electrocardiogram (ECG)
- g. Exercise stress ECG
- h. Height and weight

3. The following tests are suggested as minimal medical screening devices if the budget is limited:

- a. Physical inspection for limitations and handicaps
- b. Heart rate and blood pressure measurement.
- c. Resting 12-lead ECG
- d. Height and weight.

Guidelines for Fitness Testing

Informed Consent

An explanation of all tests and exercise procedures to the participant is mandatory before administering a fitness evaluation; the participant must be aware of what is required and potential risks. An informed consent form explains these factors, and a participant must sign this form prior to any testing. An example of an informed consent document is included in Appendix B.

Emergency Procedures

The knowledge of emergency procedures is essential when conducting fitness evaluations. All personnel involved with the program must be informed of such procedures, be trained in cardiopulmonary resuscitation and basic first aid, and be able to determine the severity of the emergency and the appropriate response. All personnel should have assigned duties in an emergency and should practice these duties regularly to insure teamwork and reduce confusion during an actual emergency. The procedures for action during an emergency should be typed and posted and should be continually updated. The most recent information concerning cardiopulmonary resuscitation and first aid procedures should be reviewed frequently with the staff. The equipment on hand for emergencies should include a resuscitator, a defibrillator, and a basic first aid kit. A telephone code system is recommended to expedite communication with the referring physician, hospital, or clinic personnel.

Contraindications to Exercise Testing

Certain absolute conditions exist under which persons should not be exercise stress tested. If through the medical history questionnaire or any

other means a non-physician discovers that an officer has any of the conditions listed below, the officer should be referred to a physician:

1. Circulatory insufficiency (congestive heart failure)
2. Myocardial infarction (heart attack)
3. Myocarditis (inflammation of heart muscle)
4. Angina pectoris (chest pain)
5. Pulmonary embolism (blood clot in lungs)
6. Aneurysm (weak spot in wall of artery or heart)
7. Infectious disease
8. Vein inflammation
9. Heart arrhythmias
10. Heart valve disease

Other relative conditions exist under which persons may be tested with certain precautions. These conditions are listed and discussed elsewhere (1). In general, officers with a questionable medical history and/or medical problem also should be referred to a physician prior to beginning an exercise program. The same procedure should be followed for persons over 35 years of age and those under 35 who are considered a high risk for CHD.

Types of Tests

The types of tests given in a fitness evaluation depend on four major factors:

1. Time - If large numbers of officers must be tested in a short period of time, the tests are limited to the field type. If adequate time is available, then more sophisticated laboratory tests can be administered.

2. Funds - The equipment required in laboratory testing is usually complex and expensive. Therefore, only a limited amount of equipment is usually available.

3. Personnel - Ideally, only qualified individuals trained in exercise testing such as physical educators and exercise physiologists should administer laboratory stress tests. However, certain field tests can be administered by police personnel if the exercise participants are low risk and under the age of 35.

4. Population - Young officers under the age of 35 are generally healthy and may be tested in a variety of ways with low risk. Caution must be emphasized with persons over age 35 or participants found to be high risk through medical screening.

The major categories of fitness evaluations described in this chapter include the following:

1. Cardiovascular - Respiratory

a. Resting

- (1) heart rate (sitting)
- (2) blood pressure (sitting)
- (3) 12-lead electrocardiogram

b. Submaximal - three minute step test

c. Maximal stress test

- (1) oxygen intake
- (2) treadmill time
- (3) electrocardiogram
- (4) heart rate

2. Pulmonary Function (spirometry)
 - a. Vital capacity
 - b. Forced expiratory volume for one second
3. Body Composition
 - a. Height and weight
 - b. Skinfold fat
 - c. Percent body fat
 - d. Lean body weight
 - e. Girth measures
4. Blood (serum)
 - a. Cholesterol
 - b. Triglycerides
 - c. Glucose
 - d. Uric Acid
5. Motor Ability
 - a. Flexibility
 - b. Muscular strength
 - c. Muscular endurance
 - d. Power
 - e. Agility

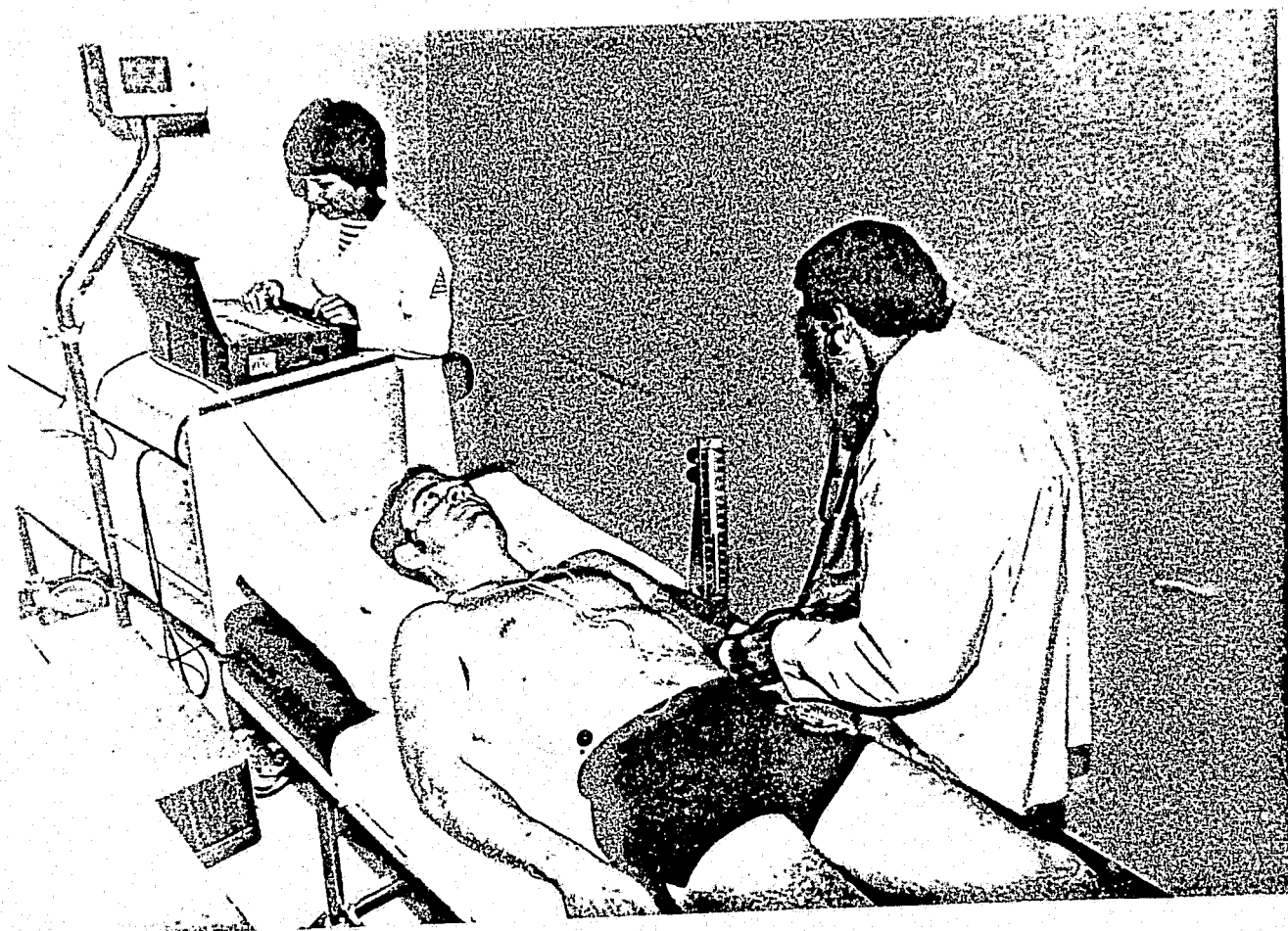
Some of the fitness tests such as resting heart rate, resting blood pressure, 12-lead ECG, stress ECG, height, weight and blood analysis are also included within the medical screening. The following descriptions of the physical fitness tests are divided into laboratory and field procedures for the purpose of providing moderate to high- and low-budget recommendations.

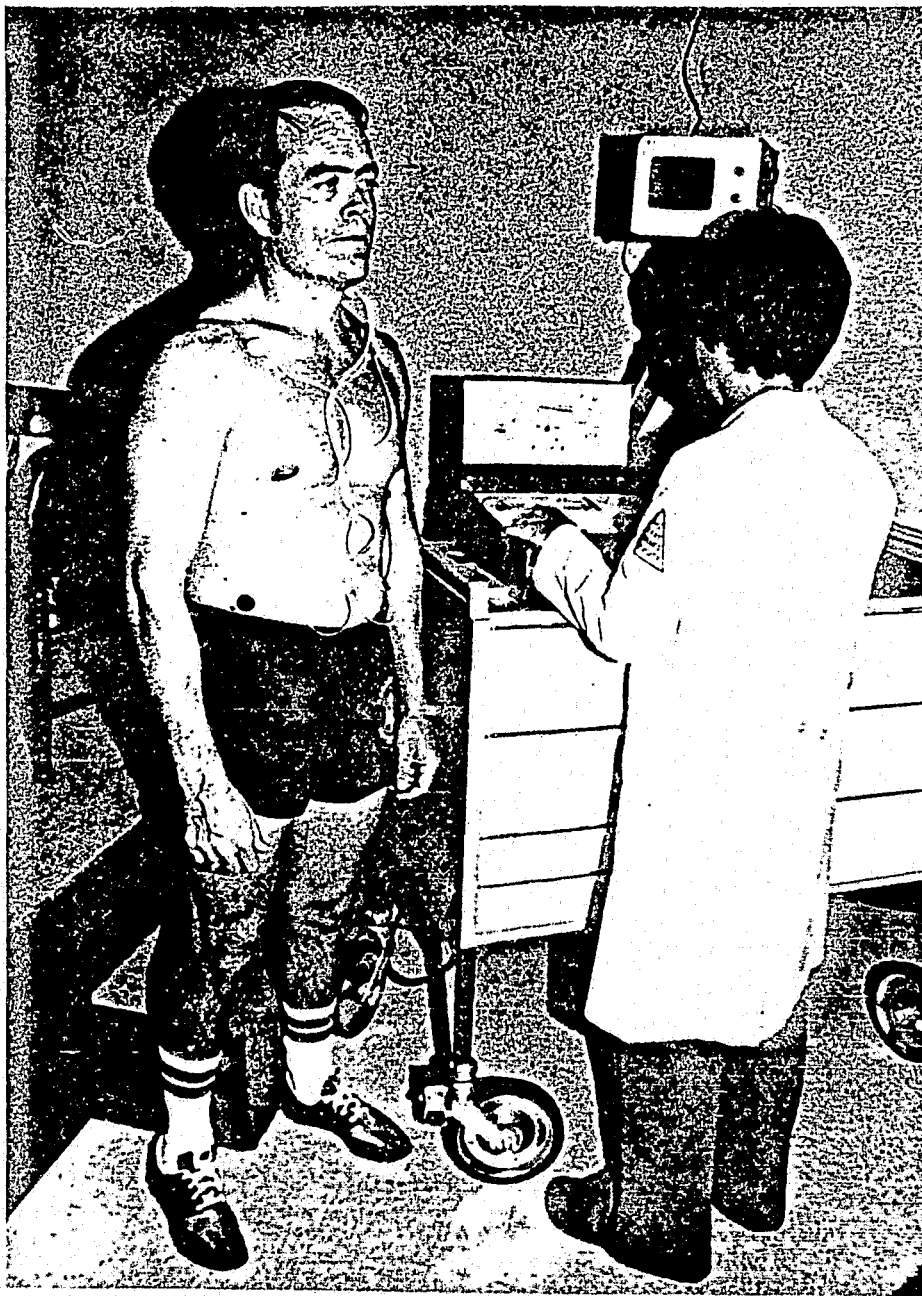
Laboratory Procedures

Cardiovascular-Respiratory Tests

The required procedures before administering a maximum cardiovascular-respiratory (CR) stress test involve the monitoring of resting electrocardiogram, heart rate, and blood pressure. The equipment for such procedures includes an electrocardiogram recorder with patient cables, a stethoscope, sphygmomanometer (blood pressure recorder), stretcher bed, and arm chair. Resting measurements including a standard 12-lead electrocardiogram, heart rate, and blood pressure should be made in the supine, standing, and sitting positions before giving an exercise test. The monitoring of such tests is illustrated in Photographs 1 and 2. Norms for resting heart rate and blood pressure measured 10 minutes after being seated in a quiet room are presented in Tables 12.1 and 12.2, respectively.)

The exercise stress test follows the resting measures, and special reference is made to the publication (1) by the American College of Sports Medicine (ACSM) for guidelines on graded exercise stress testing. The exercise test may employ treadmill (high expense), bicycle ergometer (medium expense), or bench stepping (low cost) procedures. For low-risk officers under age 35, the 1.5 mile field test may be used as the CR stress test; however, for individuals over 35 and/or high risk, the laboratory tests are recommended. The laboratory CR test should be a maximal test of a graded, multistage design; i.e., the test should start at a low level of intensity and progress gradually to high levels of intensity until the participant reaches a voluntary maximal endpoint. The electrocardiogram, heart rate, and blood pressure must be monitored throughout the exercise test (see Photograph 3) and during a recovery period of at least





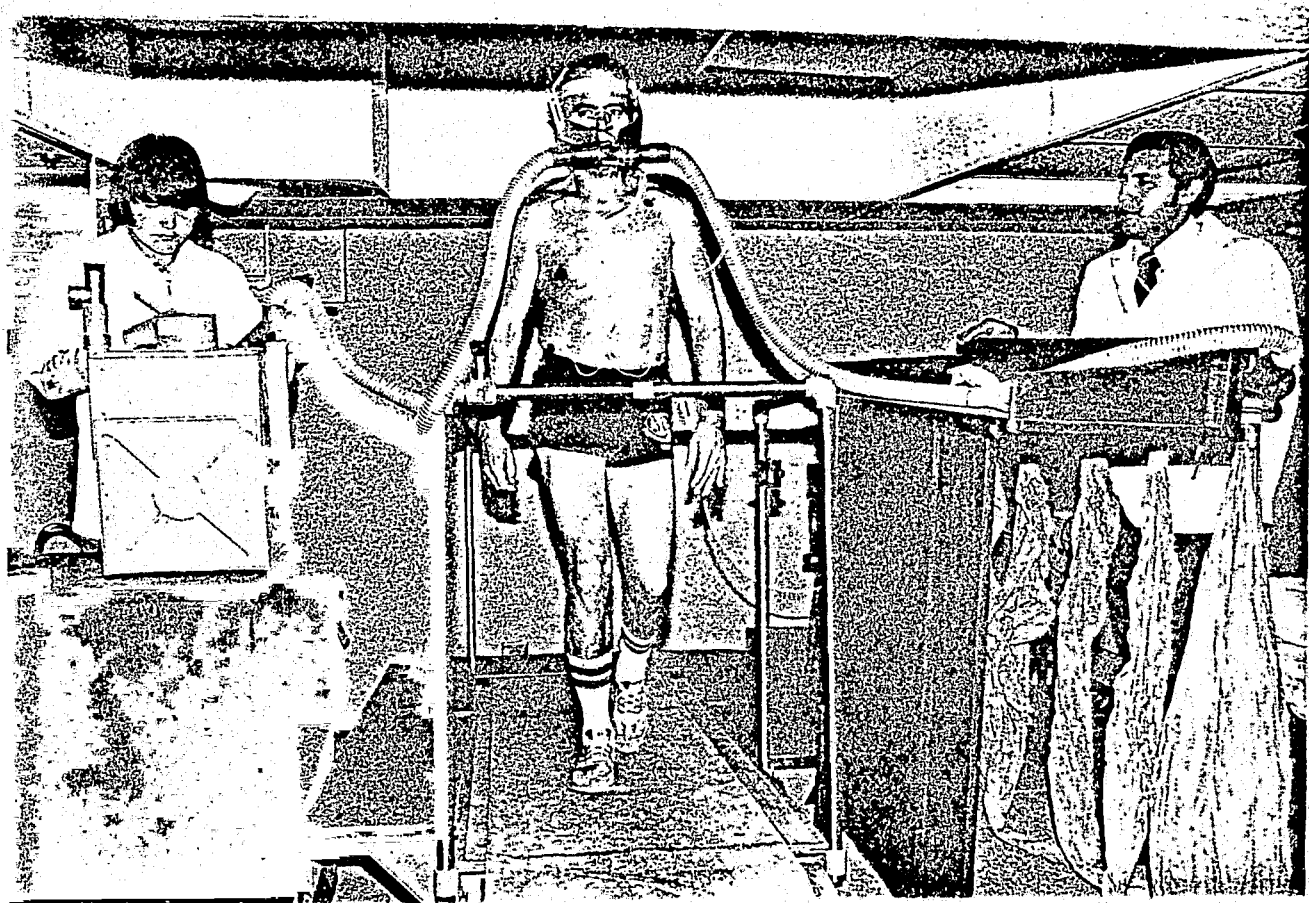


Table 12.1 Police officer standards for resting heart rate*

Fitness Category	Age Groups		
	20-29 yrs (n=88) Heart Rate (beats/min)	30-39 yrs (n=85) Heart Rate (beats/min)	40-52 yrs (n=30) Heart Rate (beats/min)
Excellent	44 and below	44 and below	48 and below
Good	45 to 58	45 to 61	49 to 62
Average	59 to 66	62 to 69	63 to 69
Below Average	67 to 69	70 to 85	70 to 83
Poor	80 and above	86 and above	84 and above

* Measured 10 minutes after being seated in a quiet room.

Table 12.2 Police officer standards for resting blood pressure*

Fitness Category	Age Groups					
	20-29 yrs (n=88)		30-39 yrs (n=85)		40-52 yrs (n=30)	
	Systolic BP (mmHg)	Diastolic BP (mmHg)	Systolic BP (mmHg)	Diastolic BP (mmHg)	Systolic BP (mmHg)	Diastolic BP (mmHg)
Excellent	105 and below	67 and below	98 and below	63 and below	101 and below	69 and below
Good	106 to 118	68 to 78	99 to 116	64 to 78	102 to 117	70 to 81
Average	119 to 124	79 to 83	117 to 125	79 to 86	118 to 124	82 to 87
Below Average	125 to 137	84 to 94	126 to 143	87 to 100	125 to 140	88 to 99
Poor	138 and above	95 and above	144 and above	101 and above	141 and above	100 and above

* Measured 10 minutes after being seated in a quiet room.

five minutes following the exercise. The test is continued until the individual reaches a voluntary maximal endpoint or until contraindications dictate that he stop. Those contraindications are the following (1):

1. Dizziness
2. Chest pain
3. Intolerable fatigue or pain
4. Mental confusion
5. Pallor
6. Distressful breathing
7. Nausea
8. Definite fall in systolic blood pressure
9. ECG changes:
 - a. S-T segment depression
 - b. Arrhythmias

The most popular stress tests involve walking and/or running on a motorized treadmill. The treadmill is preferred because walking and running are familiar activities and minimal time is required to adjust to the treadmill. Cycling and climbing stairs (bench stepping), strangely enough, are unfamiliar activities to Americans, and local pain in the leg muscles often causes a participant to stop prematurely.

A recommended procedure for treadmill stress testing is the Bruce protocol (6). The protocol is presented in Figure 1 and involves starting at a low level of intensity (1.7 mph and 10 percent grade) and gradually progressing in speed and grade every three minutes. When large numbers of officers are to be tested, this protocol is quite practical because it is a short efficient test. This

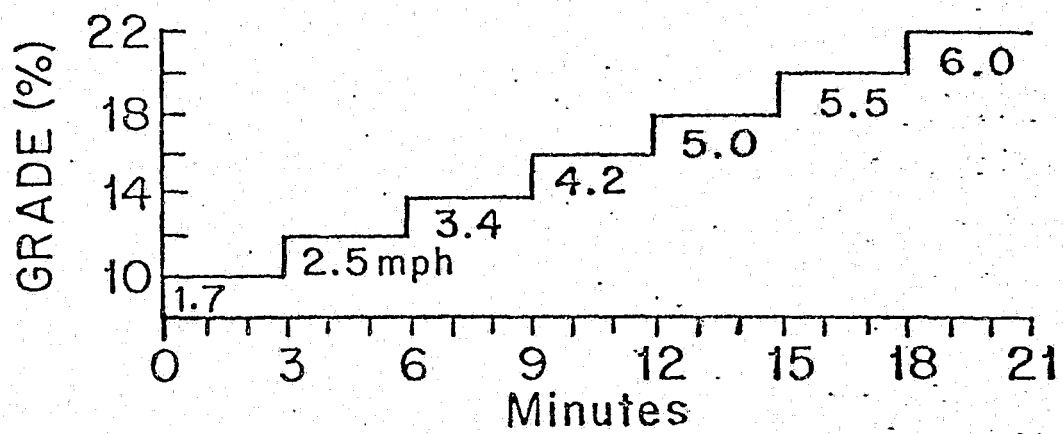


Figure 1. The Bruce protocol for treadmill stress testing (6)

test also can be used as a timed performance test and has a good relationship with maximum oxygen intake (VO_2 max).

An optional, but important, evaluation of CR function is the measurement of VO_2 max or aerobic capacity. Optimal fitness ultimately depends on the ability of the body to take in, transport, deliver, and use oxygen. This ability obviously involves the lungs, blood, heart, and the muscles performing the work. The VO_2 max test is sophisticated and requires complex equipment (see Photograph 4), but is recommended if budgets are adequate and qualified personnel are available to conduct the test. Astrand and Rodahl (3) and Consolazio et al. (8) have explained in detail the principles of measuring oxygen intake.

Maximum oxygen intake can be measured during the Bruce protocol described previously, or, from a practical standpoint, can be estimated from the performance time on the Bruce treadmill test as shown in Table 12.3. Results from the study conducted on police officers are presented by age decades. For example, if an officer 32 years of age continued for 10:37 on the Bruce test his predicted VO_2 max would be 40.2 ml/kg·min and this would place him in the "good" fitness category for his age group. Other and more practical tests like the step test, 1.5-mile run, and 12-minute run also can be used to predict maximum oxygen intake. Thus, the Bruce test and other similar tests can be used as an electrocardiogram stress test, a physical performance time test, and a measure of functional capacity (maximum oxygen intake prediction).

Submaximal Cardiovascular-Respiratory Tests

Less sophisticated than treadmill stress tests, but still valuable as CR

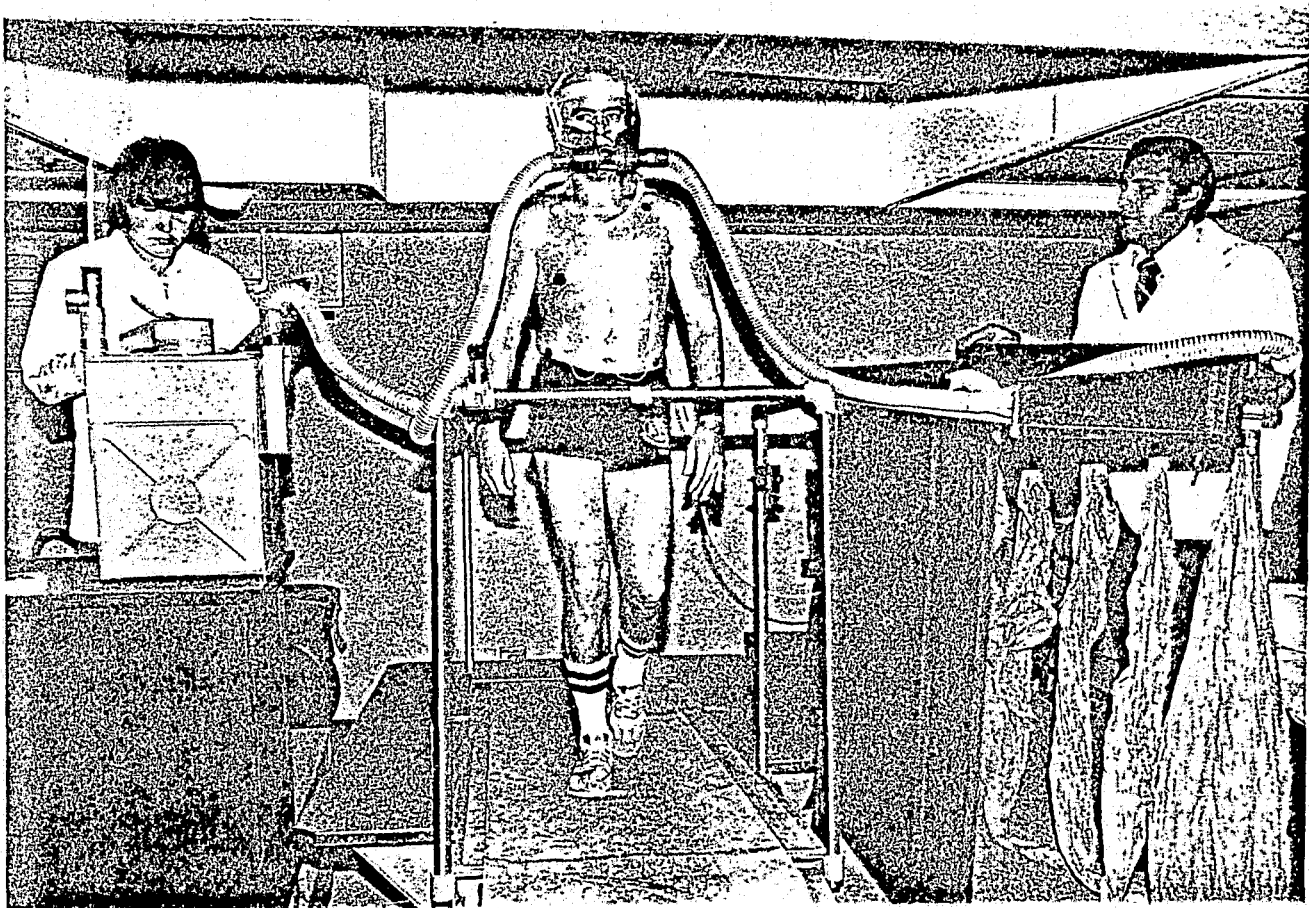


Table 12.3 Estimation of maximum oxygen intake (VO_2 max) fitness classifications from Bruce treadmill performance test (6).

Fitness	Age Groups					
	20-29 yrs (n=88)		30-39 yrs (n=85)		40-52 yrs (n=47)	
	Treadmill Time (min:sec)	VO_2 max (ml/kg·min)	Treadmill Time (min:sec)	VO_2 max (ml/kg·min)	Treadmill Time (min:sec)	VO_2 max (ml/kg·min)
Excellent	13:12 & above	52.9 & above	12:22 & above	47.4 & above	11:02 & above	40.1 & above
Good	11:24 to 13:11	44.8 to 52.8	10:37 to 12:21	40.2 to 47.3	9:34 to 11:01	34.3 to 40.0
Average	10:30 to 11:23	40.8 to 44.7	9:44 to 10:36	36.6 to 40.1	8:49 to 9:33	31.4 to 34.2
Below Average	8:42 to 10:29	32.8 to 40.7	7:59 to 9:43	29.3 to 36.5	7:21 to 8:48	25.6 to 31.3
Poor	8:41 & below	32.7 & below	7:58 & below	29.2 & below	7:20 & below	25.5 & below

function tests are the submaximal bicycle ergometer and bench step protocols. The purpose of the submaximal work capacity test on the bicycle ergometer is to assess the response of the heart to different workloads. Heart rate is measured at two or three different workloads, and the amount of work that an individual is capable of doing at heart rates of 150 and 170 beats per minute are determined. This physical work capacity (PWC) test is described by Ribisl (21) and is called the PWC-150 or PWC-170. In addition to assessing physical working capacity, the bicycle test also can be used to predict maximum oxygen intake as explained by Astrand and Rodahl (3). The advantages of this test are that equipment needs are minimal (bicycle ergometer, metronome, timer, and stethoscope), the equipment is inexpensive and portable, and the protocol is easy to administer. If possible, this test should also be ECG and blood pressure monitored.

Low budgets in many cases will prohibit the purchase of treadmills and bicycle ergometers. In these instances, CR function can be assessed by using a very practical, low-cost step test protocol. Kasch and Boyer (14) have developed a three-minute step test that requires the following minimum equipment:

1. A 12-inch bench for stepping
2. Clock with sweep second hand or stopwatch for timing test and counting heart rate
3. A metronome to help subject maintain cadence in proper stepping rate
4. Stethoscope to count heart rate during recovery period

The purpose of the step test is to measure the heart rate in the recovery period following three minutes of stepping; the results can be used to estimate maximum oxygen intake as shown in Table 12.4. The rate of stepping is 24 steps

Table 12.4 Estimation of maximum oxygen intake (VO_2 max) fitness classifications from Kasch and Boyer's three minute step test (14).

Fitness	Age Groups					
	20-29 yrs (n=87)		30-39 yrs (n=85)		40-52 yrs (n=29)	
	Step Test HR (beats/min)	VO_2 max (ml/kg·min)	Step Test HR (beats/min)	VO_2 max (ml/kg·min)	Step Test HR (beats/min)	VO_2 max (ml/kg·min)
Excellent	69 & below	52.9 & above	73 & below	47.4 & above	71 & below	40.1 & above
Good	97 to 70	44.8 to 52.8	102 to 74	40.2 to 47.3	103 to 72	34.3 to 40.0
Average	111 to 98	40.8 to 44.7	117 to 103	36.6 to 40.1	117 to 102	31.4 to 34.2
Below Average	139 to 112	32.8 to 40.7	147 to 118	29.3 to 36.5	148 to 118	25.6 to 31.3
Poor	140 & above	32.7 & below	148 & above	29.2 & below	149 & above	25.5 & below

per minute. Immediately after the three minutes of stepping, the officer sits down. A 60-second heart rate starting five seconds after the completion of stepping is counted. The average heart rate ranges for the different age groups of police officers are shown in Table 12.4. For an officer 32 years of age with a step test heart rate of 102 beats/min, the VO_2 max prediction would be 40.2 ml/kg·min which would classify the officer in the "good" fitness category. Although the step test is easy to administer and results are easily obtained, its estimation of VO_2 max is less accurate when compared to other exercise tests such as the bicycle and treadmill tests.

Sharkey (23) has developed a five-minute step test to estimate maximum oxygen intake and, therefore, to assess fitness and physical working capacity. Recovery heart rate is counted for 15 seconds after the step test and a calculator chart is used to determine the fitness score. The calculator chart is very convenient to use, and, in fact, is designed so that an individual may administer and score the test himself. The calculator chart is available through the U.S. Department of Agriculture: Forest Service.

Pulmonary Function Tests

Basic lung function and capacity are assessed by measures of vital capacity (VC) and forced expiratory volume for one second (FEV_1). Spirometry equipment of medium expense is needed for such assessment, and procedures outlined by W.E. Collins, Inc. (7) and Kory et al. (15) are recommended. Norms by decade for VC and FEV_1 are presented in Table 12.5. Vital capacity is related to body size; therefore, lung function is evaluated with more emphasis on FEV_1 (%). For example, a relatively small 32-year-old officer may have a small vital capacity

Table 12.5 Police officer standards for pulmonary function tests.

Fitness Category	Age Groups								
	20-29 yrs (n=89)			30-39 yrs (n=85)			40-52 yrs (n=29)		
	Vital Capacity (L)	FEV ₁ * (L)	FEV ÷ VC** (%)	Vital Capacity (L)	FEV ₁ (L)	FEV ÷ VC (%)	Vital Capacity (L)	FEV ₁ (L)	FEV ÷ VC (%)
Excellent	7.69 and above	6.58 and above	86 and above	7.32 and above	6.13 and above	84 and above	6.29 and above	5.03 and above	80 and above
Good	6.26 to 7.68	5.06 to 6.57	81 to 85	5.87 to 7.31	4.74 to 6.12	81 to 83	5.26 to 6.28	4.09 to 5.02	78 to 79
Average	5.55 to 6.25	4.31 to 5.05	78 to 80	5.14 to 5.86	4.05 to 4.73	79 to 80	4.75 to 5.25	3.62 to 4.08	76 to 77
Below Average	4.13 to 5.54	2.80 to 4.30	68 to 77	3.68 to 5.13	2.66 to 4.04	72 to 78	3.72 to 4.74	2.69 to 3.61	72 to 75
Poor	4.12 and below	2.79 and below	67 and below	3.67 and below	2.65 and below	71 and below	3.71 and below	2.68 and below	71 and below

* FEV₁ (L) = liters of forced expiratory volume for one second.

** FEV₁ ÷ VC (%) = percentage of FEV₁ to vital capacity (VC).

of 3.5 liters yet have a "good" rating of 83% for FEV_1 (%). Care must be taken when using these pulmonary measures as fitness tests.

Blood

If feasible, it is desirable to obtain a 15 ml blood sample from the antecubital vein for analysis of serum lipids (cholesterol and triglycerides), glucose, and uric acid. The sample should be drawn after a standard 14 hour fast during which no food is allowed except water. These variables have been related both to levels of fitness and coronary heart disease risk (10). Norms for police officers are presented in Table 12.6. Unless a department already has the blood analysis equipment or is large enough to make the cost feasible, it is recommended that the blood be analyzed at a local medical laboratory.

Field Test Procedures

Cardiovascular-Respiratory Tests

The best field tests of CR function are the 1.5-mile and 12-minute run tests described by Cooper (9). The time required to run 1.5 miles or the distance covered in 12 minutes is recorded in the tests and then evaluated using Table 12.7. In addition, VO_2 max can be predicted from the test results. For example, a 32-year-old officer who runs the 1.5 mile test in 11:01 or 1.64 miles in the 12-minute test would have a predicted VO_2 max of 48.0 ml/kg·min and would be classified in the "good" fitness category. Advantages of these field tests are that large groups of officers can be tested in a short period of time and the tests are highly correlated with aerobic capacity (9). The disadvantage is that a track or large running area of known distance is required.

Table 12.6 Police officer standards for blood variables*

Fitness Category	Age Groups											
	20-29 yrs (n=89)				30-39 yrs (n=85)				40-52 yrs (n=30)			
	Chol. (mg%)	Trig. (mg%)	Glu. (mg%)	UA (mg%)	Chol. (mg%)	Trig. (mg%)	Glu. (mg%)	UA (mg%)	Chol. (mg%)	Trig. (mg%)	Glu. (mg%)	UA (mg%)
Excellent	<102	28	67	3.7	<116	35	67	3.6	<143	33	66	3.8
Good	103-167	29-66	68-78	3.8-5.6	117-194	36-104	68-80	3.7-5.8	144-218	34-78	67-80	3.9-5.6
Average	168-199	67-104	79-83	5.7-6.5	195-233	105-173	81-86	5.9-6.9	219-255	79-209	81-87	5.7-6.5
Below Average	200-264	105-181	84-93	6.6-8.4	234-311	174-311	87-98	7.0-9.1	256-329	210-341	88-102	6.6-8.4
Poor	>265	182	94	8.5	> 312	312	99	9.2	>330	342	103	8.5

* Sample drawn after a standard 14-hour fast during which no food is allowed except water.

a = Cholesterol

b = Triglycerides

c = Glucose

d = Uric Acid

Table 12.7 Estimation of maximum oxygen intake ($\text{VO}_2 \text{ max}$) and fitness classifications from Cooper's 1.5 mile and 12 minute run tests (9). *

Fitness Category	Age Groups								
	Under 30 yrs			30-39 yrs			40-49 yrs		
	1.5 mile (min:sec)	12-min (miles)	$\text{VO}_2 \text{ max}$ (ml/kg·min)	1.5 mile (min:sec)	12-min (miles)	$\text{VO}_2 \text{ max}$ (ml/kg·min)	1.5 mile (min:sec)	12-min (miles)	$\text{VO}_2 \text{ max}$ (ml/kg·min)
Excellent	Below 10:15	Above 1.75	Above 51.6	Below 11:00	Above 1.65	Above 48.1	Below 11:30	Above 1.55	Above 45.1
Good	12:00 to 10:16	1.50 to 1.74	42.6 to 51.5	13:00 to 11:01	1.40 to 1.64	39.2 to 48.0	14:00 to 11:31	1.30 to 1.54	35.5 to 45.0
Average	14:30 to 12:01	1.25 to 1.49	33.8 to 42.5	15:30 to 13:01	1.15 to 1.39	30.2 to 39.1	16:30 to 14:01	1.05 to 1.29	26.5 to 35.4
Below Average	16:30 to 14:31	1.0 to 1.24	25.0 to 33.7	17:30 to 15:31	0.95 to 1.14	25.0 to 30.1	18:30 to 16:31	0.85 to 1.04	25.0 to 26.4
Poor	16:31 and Above	0.9 and Below	24.9 and Below	17:31 and Above	0.94 and Below	24.9 and Below	18:31 and Above	0.84 and Below	24.9 and Below

* Table adapted from Cooper (9), pages 28-31.

These field tests are not recommended for high-risk persons or as initial screening tests for officers over the age of 35. After these types of individuals have been screened and medically cleared by a physician, the above field tests can be used as additional fitness tests and as motivators to show progress through an exercise program. A six-week starter program is recommended prior to the administration of a 1.5-mile or 12-minute test. The starter program gives the officers a chance to get their legs partially conditioned and learn to pace themselves. Starter programs are described in Chapter 13.

Body Composition

Body composition assessment refers to the classification of the total body weight into two main components - fat weight and lean weight. The amount of fat (percent of total body weight) in the body is related to heart disease, diabetes, cirrhosis of the liver, hernia, intestinal obstruction, and other health hazards. Thus it is recommended that percent body fat be maintained at a reasonable standard. The standard for men over age 35 is below 19 percent and for men under age 35, below 16 percent. Body composition is measured most accurately by underwater weighing. Through this technique, body density is calculated and converted to percent fat. The technique is a complex, expensive system with sophisticated procedures and is impractical for most situations. Thus, body composition must be estimated from simple field tests involving skinfold fat or body dimension measures. Specific recommendations on the exact locations for obtaining skinfold and girth measures are shown by Behnke and Wilmore (4).

Skinfold fat determinations involve the measurement of a double layer of skin and the underlying layer of fat by using special calipers that are calibrated to provide a constant tension throughout their range of motion. The Lange caliper (available through Sambridge Scientific Industries, Cambridge, Maryland) meets this specification and is relatively inexpensive. In measuring skinfold thicknesses, it is important to locate the exact site, pinch the skinfold firmly with the thumb and forefinger, and place the caliper at a constant distance from the thumb and forefinger holding the site (see Photograph 5). Small differences among individuals exist in the thickness of skin; therefore, the above technique actually estimates individual differences in the fat layer.

A common formula used to estimate percent body fat for young men from three skinfold sites has been reported by Pascale et al. (18). A conversion table is presented in Table 12.8. The scoring of percent fat is summarized as follows:

1. The three skinfold sites are measured to the nearest 0.5 millimeter.
2. The axilla measurement is a vertical skinfold at the middle of the side, level of the fifth rib, and directly in line with the middle of the armpit.
3. The chest location is found over the lateral border of the pectoralis major muscle midway between the nipple and shoulder crease and on a line running diagonally between the shoulder and opposite hip.
4. The triceps site is located on the back of the arm, over the belly of the triceps muscle, and midway between the top of the shoulder and the elbow joint.



310 Photo 5

Table 12.8 Skinfold conversion table for prediction of percent body fat in males (18)

mm	Axilla	Chest	Tricep	Density	%Fat (3)	Density	% Fat (3)
1	.00071	.00048	.00055	1.0000	42.8	1.0525	20.0
2	.00142	.00097	.00110	1.0025	41.7	1.0550	19.0
3	.00214	.00145	.00165	1.0050	40.5	1.0575	17.9
4	.00285	.00193	.00220	1.0075	39.4	1.0600	16.9
5	.00356	.00242	.00276	1.0100	38.3	1.0625	15.9
6	.00427	.00290	.00331	1.0125	37.2	1.0650	14.9
7	.00499	.00338	.00386	1.0150	36.0	1.0675	13.9
8	.00570	.00387	.00441	1.0175	34.9	1.0700	12.9
9	.00641	.00435	.00496	1.0200	33.8	1.0725	11.9
10	.00712	.00483	.00551	1.0225	32.7	1.0750	10.9
11	.00783	.00532	.00606	1.0250	31.6	1.0775	9.9
12	.00855	.00580	.00662	1.0275	30.6	1.0800	8.9
13	.00926	.00628	.00717	1.0300	29.5	1.0825	8.0
14	.00997	.00677	.00772	1.0325	28.4	1.0850	7.0
15	.01068	.00725	.00827	1.0350	27.3	1.0875	6.0
16	.01140	.00773	.00882	1.0375	26.3	1.0900	5.1
17	.01211	.00822	.00937	1.0400	25.2	1.0925	4.1
18	.01282	.00870	.00992	1.0425	24.2	1.0950	3.2
19	.01353	.00918	.01048	1.0450	23.1	1.0975	2.2
20	.01425	.00967	.01103	1.0475	22.0	1.1000	1.2
21	.01496	.01015	.01158	1.0500	21.0		
22	.01567	.01063	.01213				
23	.01638	.01112	.01268				
24	.01710	.01160	.01323				
25	.01781	.01208	.01378				
26	.01852	.01257	.01433				
27	.01923	.01305	.01489				
28	.01994	.01354	.01544				
29	.02066	.01402	.01599				
30	.02137	.01450	.01654				
31	.02208	.01498	.01709				
32	.02279	.01547	.01764				
33	.02351	.01595	.01819				
34	.02422	.01644	.01874				
35	.02493	.01692	.01930				
36	.02564	.01740	.01985				
37	.02636	.01788	.02040				
38	.02707	.01837	.02095				
39	.02778	.01885	.02150				
40	.02849	.01934	.02205				
41	.02920	.01982	.02260				
42	.02992	.02030	.02316				
43	.03063	.02079	.02371				
44	.03134	.02127	.02426				
45	.03205	.02175	.02481				
46	.03277	.02244	.02436				
47	.03348	.02272	.02591				
48	.03419	.02320	.02648				
49	.03490	.02369	.02701				
50	.03562	.02417	.02756				

Skinfolds in millimeters

Axilla _____ 10 _____ mm
 Chest _____ 11 _____ mm
 Triceps _____ 12 _____ mm

Skinfold Conversions

Axilla _____ .00712 _____
 Chest + _____ .00532 _____
 Triceps + _____ .00662 _____
 Total _____ .01906 _____

Subtract above total from 1.08847 to get
 body density

1. 0 8 8 4 7
 - .01906 _____ Total
 = 1.06941 _____ Density

Circle percent fat corresponding to
 density on table above.

5. All measures are taken on the right side of the body.
6. The conversion factors for the three measurements are found in Table 12.8, and are summed. The total is subtracted from the constant 1.08847 to obtain density.
7. The density is converted to percent fat by using the values noted on Table 12.8 in the inset, which are based on the formula by Brozek et al. (5).

Another practical method for estimating percent fat for young men is presented in Table 12.9. Wilmore and Behnke (25) have reported a simple formula using body weight and waist girth measured at the umbilicus level. A metal or cloth tape measure is used to determine waist girth measured to the nearest half inch. The conversion factors are found for both body weight and waist girth and are added and subtracted to obtain lean body weight. Fat weight and percent body fat then are calculated as shown in the example in Table 12.9.

Pollock et al. (20) have reported a more accurate formula for predicting the body fat of middle-aged men using skinfold and girth measures. A conversion table for this formula is presented in Table 12.10. The chest and axilla skinfolds are taken to the nearest 0.5 mm and the gluteal and forearm girths are taken to the nearest 0.1 cm. The scoring for percent fat is summarized as follows:

1. The axilla skinfold conversion is subtracted from the chest skinfold conversion to result in answer "a."
2. The gluteal girth conversion is subtracted from answer "a" to result in answer "b."
3. The forearm girth conversion is added to answer "b" to result in answer "c."

Table 12.9 Conversion table for estimation of percent fat (25)

$$\text{Lean Body Weight (LBW)} = 98.42 = [1.082 (\text{Body Weight}) - 4.15 (\text{Waist Girth})]$$

$$\% \text{ Fat} = [\text{Body Weight} - \text{Lean Body Weight} \times 100] \div \text{Body Weight}$$

NAME	EXAMPLE	DATE
ACTUAL MEASUREMENTS		
1. Body Weight	166 lb	
2. Waist Girth	33 in	
CONVERSION		
Add the Constant to the Body Weight conversion factor (cf); subtract the Waist Girth conversion factor (cf) from the subtotal to get Lean Body Weight (LBW); subtract the LBW from Body Weight to get Fat Weight. Finally calculate percent fat from the formula below.		
CALCULATION		
Constant +	98.42	
1. Body Weight cf +	178.53	
Subtotal =	276.95	
2. Waist Girth cf -	136.95	
LBW =	140.00	
3. Body Weight =	166.00	
LBW -	140.00	
Fat Weight =	26.00	
4. Percent Fat =	$\frac{(\text{Fat Wt} \times 100)}{(\text{Body Wt})}$	
Percent Fat =	$\frac{(26.00 \times 100)}{(166)}$	
Percent Fat =	15.6	

BODY WEIGHT	cf	WAIST GIRTH	cf
100	- 108.20	25.0	- 103.75
105	- 113.61	25.5	- 105.83
110	- 119.02	26.0	- 107.90
115	- 124.43	26.5	- 109.98
120	- 129.84	27.0	- 112.05
125	- 135.25	27.5	- 114.13
130	- 140.66	28.0	- 116.20
135	- 146.07	28.5	- 118.28
140	- 151.48	29.0	- 120.35
145	- 156.89	29.5	- 122.43
150	- 162.30	30.0	- 124.50
155	- 167.71	30.5	- 126.58
160	- 173.12	31.0	- 128.65
165	- 178.53	31.5	- 130.73
170	- 183.94	32.0	- 132.80
175	- 189.36	32.5	- 134.88
180	- 194.76	33.0	- 136.95
185	- 200.17	33.5	- 139.03
190	- 205.58	34.0	- 141.10
195	- 210.99	34.5	- 143.18
200	- 216.40	35.0	- 145.25
205	- 221.81	35.5	- 147.33
210	- 227.22	36.0	- 149.40
215	- 232.63	36.5	- 151.48
220	- 238.04	37.0	- 153.55
225	- 243.45	37.5	- 155.63
230	- 248.86	38.0	- 157.70
235	- 254.27	38.5	- 159.78
240	- 259.68	39.0	- 161.85
245	- 265.09	39.5	- 163.93
250	- 270.50	40.0	- 166.00

Table 12.10 Conversion Table for Prediction of Percent Body Fat (20)

NAME	EXAMPLE						
CHEST SKNFLD mm	CONV. FACTOR	AXILLA SKNFLD mm	CONV. FACTOR	GLUTEAL mm	CONV. FACTOR	FOREARM mm	CONV. FACTOR
1	1.10113	1	.00046	75	.075	17.5	.03973
2	1.10041	2	.00092	76	.076	18.0	.04086
3	1.09969	3	.00138	77	.077	18.5	.04200
4	1.09897	4	.00184	78	.078	19.0	.04313
5	1.09825	5	.00230	79	.079	19.5	.04427
6	1.09753	6	.00276	80	.080	20.0	.04540
7	1.09681	7	.00322	81	.081	20.5	.04654
8	1.09609	8	.00368	82	.082	21.0	.04767
9	1.09537	9	.00414	83	.083	21.5	.04881
10	1.09465	10	.00460	84	.084	22.0	.04994
11	1.09393	11	.00506	85	.085	22.5	.05108
12	1.09321	12	.00552	86	.086	23.0	.05221
13	1.09249	13	.00598	87	.087	23.5	.05335
14	1.09177	14	.00644	88	.088	24.0	.05448
15	1.09105	15	.00690	89	.089	24.5	.05562
16	1.09033	16	.00736	90	.090	25.0	.05675
17	1.08961	17	.00782	91	.091	25.5	.05789
18	1.08889	18	.00828	92	.092	26.0	.05902
19	1.08817	19	.00874	93	.093	26.5	.06016
20	1.08745	20	.00920	94	.094	27.0	.06129
21	1.08673	21	.00966	95	.095	27.5	.06243
22	1.08601	22	.01012	96	.096	28.0	.06356
23	1.08529	23	.01058	97	.097	28.5	.06470
24	1.08457	24	.01104	98	.098	29.0	.06583
25	1.08385	25	.01150	99	.099	29.5	.06697
26	1.08313	26	.01196	100	.100	30.0	.06810
27	1.08241	27	.01242	101	.101	30.5	.06924
28	1.08169	28	.01288	102	.102	31.0	.07037
29	1.08097	29	.01334	103	.103	31.5	.07151
30	1.08025	30	.01380	104	.104	32.0	.07264
31	1.07953	31	.01426	105	.105	32.5	.07378
32	1.07881	32	.01472	106	.106	33.0	.07491
33	1.07809	33	.01518	107	.107	33.5	.07605
34	1.07737	34	.01564	108	.108	34.0	.07718
35	1.07665	35	.01610	109	.109	34.5	.07832
36	1.07593	36	.01656	110	.110	35.0	.07945
37	1.07521	37	.01702	111	.111	35.5	.08059
38	1.07449	38	.01748	112	.112	36.0	.08172
39	1.07377	39	.01794	113	.113	36.5	.08286
40	1.07305	40	.01840	114	.114	37.0	.08399
41	1.07233	41	.01886	115	.115	37.5	.08513
42	1.07161	42	.01932	116	.116	38.0	.08626
43	1.07089	43	.01978	117	.117	38.5	.08740
44	1.07017	44	.02024	118	.118	39.0	.08853
45	1.06945	45	.02070	119	.119	39.5	.08967
46	1.06873	46	.02116	120	.120	40.0	.09080
47	1.06801	47	.02162	121	.121	40.5	.09194
48	1.06729	48	.02208	122	.122	41.0	.09307
49	1.06657	49	.02254	123	.123	41.5	.09421
50	1.06685	50	.02300	124	.124	42.0	.09534

MIDDLE-AGED MENPersonal MeasurementsCHEST 15 mmAXILLA 12 mmGLUTEAL 95 cmFOREARM 25 cmConversionsCHEST 1.09105

-

AXILLA 0.00552

-

GLUTEAL 0.095

+

FOREARM 0.05675

=

DENSITY 1.04728

$$* \% \text{ Fat} = \frac{4.95}{D} - 4.5$$

Example:

$$\% \text{ Fat} = \frac{4.95}{1.04728} - 4.5$$

$$\% \text{ Fat} = 22.6$$

* Formula from Siri (24)

$$\text{DENSITY} = 1.10185 - 0.00072 * \text{CHEST} - 0.00046 * \text{AXILLA} - 0.001 * \text{GLUTEAL} + 0.00227 * \text{FOREARM}$$

4. Answer "c" value is actually equal to body density (D).
5. Density is then converted to percent body fat using the Siri Formula (24):

$$\% \text{ Fat} = \frac{4.95}{D} - 4.5 \times 100$$

In the example on Table 12.10, the calculated percent body fat was 22.6.

Percent body fat norms by decade for police officers are presented in Table 12.11. The underwater weight technique was used to calculate the values for men 20 to 29 years of age and the Pollock et al. (20) formula was used for men over 30 years of age. The values for men over age 30 are much higher within each fitness category when compared to men under age 30. The desirable percent body fat standards recommended for men under age 30 and over age 30 are 16% and 19% or lower, respectively.

Motor Ability

Flexibility - Flexibility is included in total fitness assessment because of the widespread problems of low back pain and joint soreness. Many of these problems are related to sedentary living. Flexibility is defined as the range of possible movement in a joint or group of joints. It is necessary to determine the functional ability of the joints to move through a full range of motion.

No general flexibility test measures the flexibility of all joints; however, the trunk flexion or the sit and reach test serves as an important measure of hip and back flexibility. Primarily, the elasticity of the muscles in the back of the legs and trunk is tested in the sit and reach position. The subject sits on the floor or mat with legs extended at right angles to a taped line or box as shown in Figure 2. The heels touch the near edge of the

Table 12.11 Police officer standards for percent body fat.

Fitness Category	Age Groups		
	20-29 yrs (n=89)* Body Fat ^a (%)	30-39 yrs (n=85)** Body Fat ^b (%)	40-52 yrs (n=30)** Body Fat ^b (%)
Excellent	6.7 and below	13.8 and below	16.8 and below
Good	6.8 to 17.3	13.9 to 21.5	16.9 to 22.9
Average	17.4 to 22.6	21.6 to 25.4	23.0 to 26.0
Below Average	22.7 to 33.2	25.5 to 33.0	26.1 to 32.2
Poor	33.3 and above	33.1 and above	32.3 and above

* Desirable body fat = 16% or lower

** Desirable body fat = 19% or lower

a = Body fat measured by underwater weight technique

b = Body fat estimated by Pollock et al. (20) formula

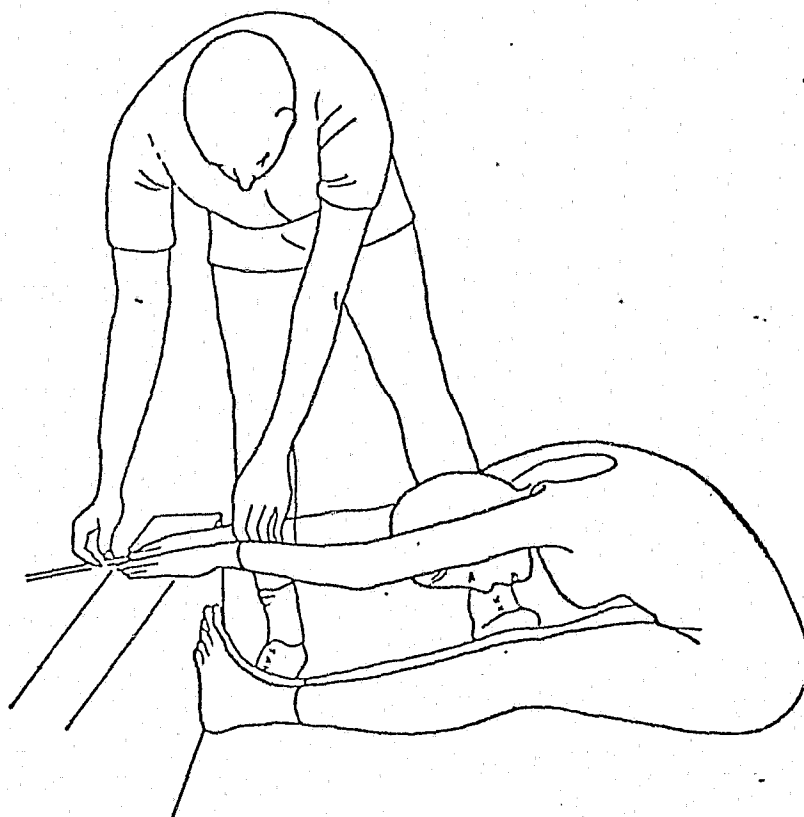


Figure 2. The sit and reach test for **hip** and back flexibility

tape or box and are eight inches apart. A yardstick is placed between the legs of the subject and rests on the floor with the 15-inch mark on the edge of the box. The subject slowly reaches forward with both hands as far as possible and holds the position momentarily. The distance reached on the yardstick by the fingertips is recorded. The best of three trials is considered as the flexibility score and can be compared to the norms in Table 12.12 prior to actual test administration, the officer should warm-up slowly by practicing the test.

Strength - Muscular strength is defined as the amount of tension a muscle can exhibit in one maximal contraction. The true measurement of total body muscular strength is difficult since so many muscle groups as well as different methods of testing strength are involved. A dynamic strength test through the full range of motion which correlates well with a total body strength criterion is the one repetition maximum bench press. The equipment required includes either a barbell set with a special bench or the bench press station on a Universal Gym apparatus. The procedures for this test involve the following.

1. Estimate the weight that an individual can press in one maximal effort.
2. Load the weights to about two-thirds of the estimated maximum weight.
3. Instruct the individual to press this weight once for an easy warm-up.
4. Increase the loading of the weights in ten pound increments to maximum. If barbells are used, five pound increments are

Table 12.12 Police officer standards for flexibility*

Fitness Category	Age Groups		
	20-29 yrs (n=81) Flexibility (in)	30-39 yrs (n=84) Flexibility (in)	40-52 yrs (n=28) Flexibility (in)
Excellent	25.9 and above	26.4 and above	23.3 and above
Good	19.7 to 25.8	19.2 to 26.3	16.3 to 23.2
Average	16.6 to 19.6	15.6 to 19.1	12.8 to 16.2
Below Average	10.5 to 16.5	8.4 to 15.5	5.7 to 12.7
Poor	10.4 and below	8.3 and below	5.6 and below

* Sit and reach test (17)

recommended as the individual gets closer to maximum. Instruct the person to lift each additional weight increment for one repetition and then load the next increment. The first three to four repetitions serve as warm-up lifts in order to prevent muscle injury and to prepare the person for a maximal lift on the fifth or sixth effort.

5. The score for this test is the maximum number of pounds lifted in one repetition.

Norms for police officers on the one repetition maximum bench press are presented in Table 12.13. Because body weight is related to strength, additional norms on young men are provided in Table 12.14, according to body weight classifications. For example, a person weighing 166 pounds and bench pressing 180 pounds is rated in the good category. Norms in Table 12.14 are based on results from college-aged males and would apply primarily to police officers under age 30.

Muscular Endurance - Muscular endurance is defined as the ability to contract the muscle repeatedly over a period of time. Low levels of muscular endurance indicate inefficiency in movement and a low capacity to perform work. Two tests of muscular endurance which are easy to administer are the pushup and one-minute timed situp tests. The correct technique for administering the pushup test is demonstrated in Photographs 6 and 7. The administrator places his fist on the floor below the officer's chest. The officer must keep his back straight at all times and from the up position lower himself to the floor until his chest touches the administrator's hand and then push to the up position again. The total number of correct pushups are recorded and compared

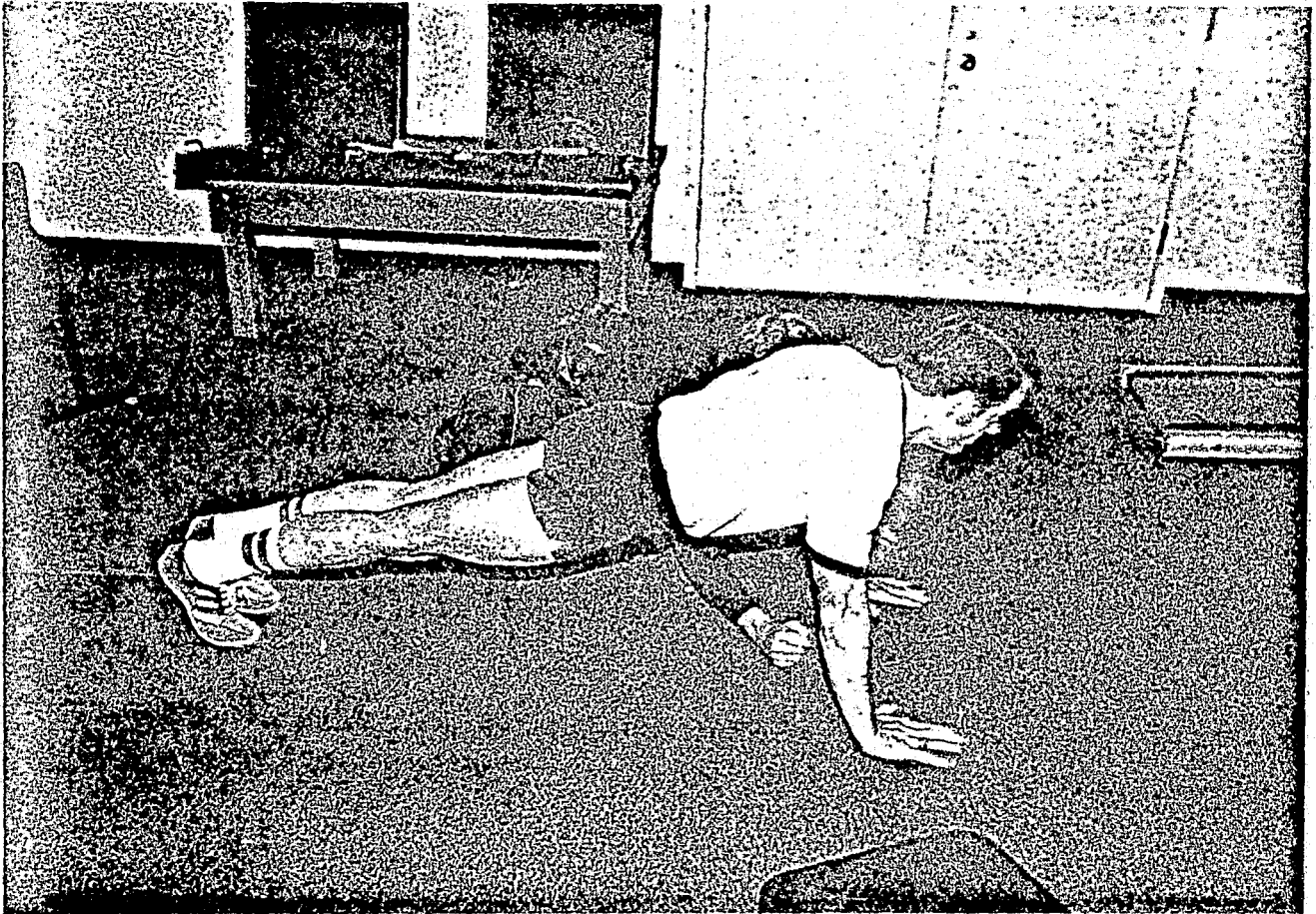
Table 12.13 Police officer standards for one-repetition maximum bench press

Fitness Category	Age Groups		
	20-29 yrs (n=81) Bench Press (1b)	30-39 yrs (n=83) Bench Press (1b)	40-52 yrs (n=28) Bench Press (1b)
Excellent	227 and above	201 and above	188 and above
Good	174 to 226	161 to 200	150 to 187
Average	147 to 173	141 to 160	132 to 149
Below Average	94 to 146	100 to 140	95 to 131
Poor	93 and below	99 and below	94 and below

Table 12.14 One repetition maximum bench press norms* for college-aged men.

Fitness Category	Body weight classifications (lbs)							
	120- 129	130- 139	140- 149	150- 159	160- 169	170- 179	180- 189	190- above
	Pounds Lifted							
Excellent	170- 150	175- 155	185- 165	195- 175	205- 185	215- 195	225- 205	235- 215
Good	145- 130	150- 135	160- 145	170- 155	180- 165	190- 175	200- 185	210- 195
Average	125- 110	130- 115	140- 125	150- 135	160- 145	170- 155	180- 165	190- 175
Below Average	105- 90	110- 95	120- 105	130- 115	140- 125	150- 135	160- 145	170- 155
Poor	85- 70	90- 75	100- 85	110- 95	120- 105	130- 115	140- 125	150- 135

* Adapted from data provided by R.A. Berger, Temple University.



323 Photo 6



to the police officer standards shown in Table 12.15.

In the situp test, the officer starts by lying on his back, knees bent, heels flat on the floor, and hands interlocked behind the neck. A partner holds the feet down. The officer then performs as many correct situps (see Figure 3) as possible in one minute. In the up position, the officer should touch his elbows to his knees and then return to a full lying position before starting the next situp. This test indicates the endurance of the abdominal muscle group, an area of important concern to the middle-aged male. Norms for this test are shown in Table 12.16.

Power - Power, in physical fitness terms, is defined as the ability to release maximum force in the fastest possible time. The vertical jump test has been used commonly as a measure of power. A yardstick, measuring tape, smooth wall or a specially made vertical jump board are required for the test. Chalk dust is placed on the fingers of one hand as a means for marking the jump. The officer stands with one side toward the measuring device and reaches upward as high as possible. This is recorded as the "reach" distance. The performer then jumps as high as possible and touches the measuring device at the height of his jump. The test is scored as the number of inches, measured to the nearest half-inch, between the "reach" and jump marks. The best of three trials is recorded as the score. Standards for young officers are presented in Table 12.17. The test was not given to officers over age 35.

Table 12.15 Police officer standards for the pushup test

Fitness Category	Age Groups		
	20-29 yrs (n=79) Pushups (repetitions)	30-39 yrs (n=83) Pushups (repetitions)	40-52 yrs (n=28) Pushups (repetitions)
Excellent	43 and above	37 and above	28 and above
Good	28 to 42	23 to 36	18 to 27
Average	20 to 27	17 to 22	13 to 17
Below Average	5 to 19	3 to 16	2 to 12
Poor	4 and below	2 and below	1 and below

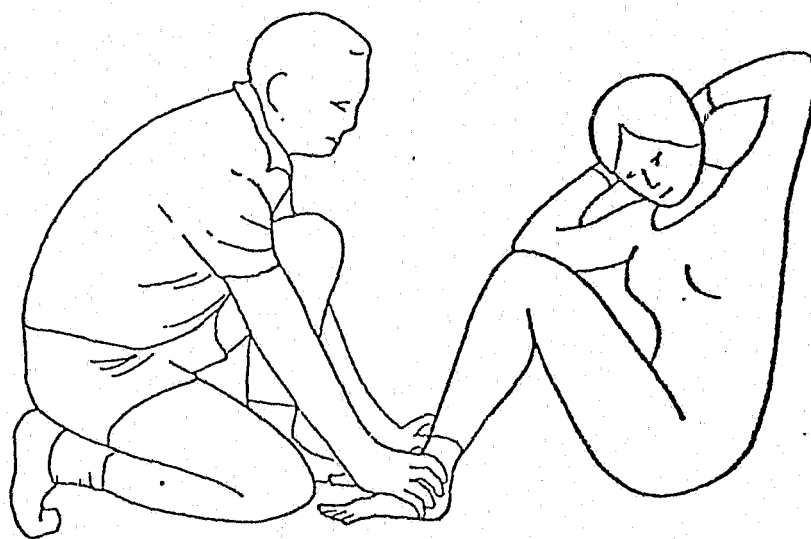


Figure 3. One minute situp test

Table 12.16 Police officer standards for the one-minute situp test

Fitness Category	Age Groups		
	20-29 yrs (n=81) Situps (reps/min)	30-39 yrs (n=83) Situps (reps/min)	40-52 yrs (n=28) Situps (reps/min)
Excellent	51 and above	45 and above	39 and above
Good	40 to 50	34 to 44	26 to 38
Average	35 to 39	29 to 33	19 to 25
Below Average	24 to 34	18 to 28	6 to 18
Poor	23 and below	17 and below	5 and below

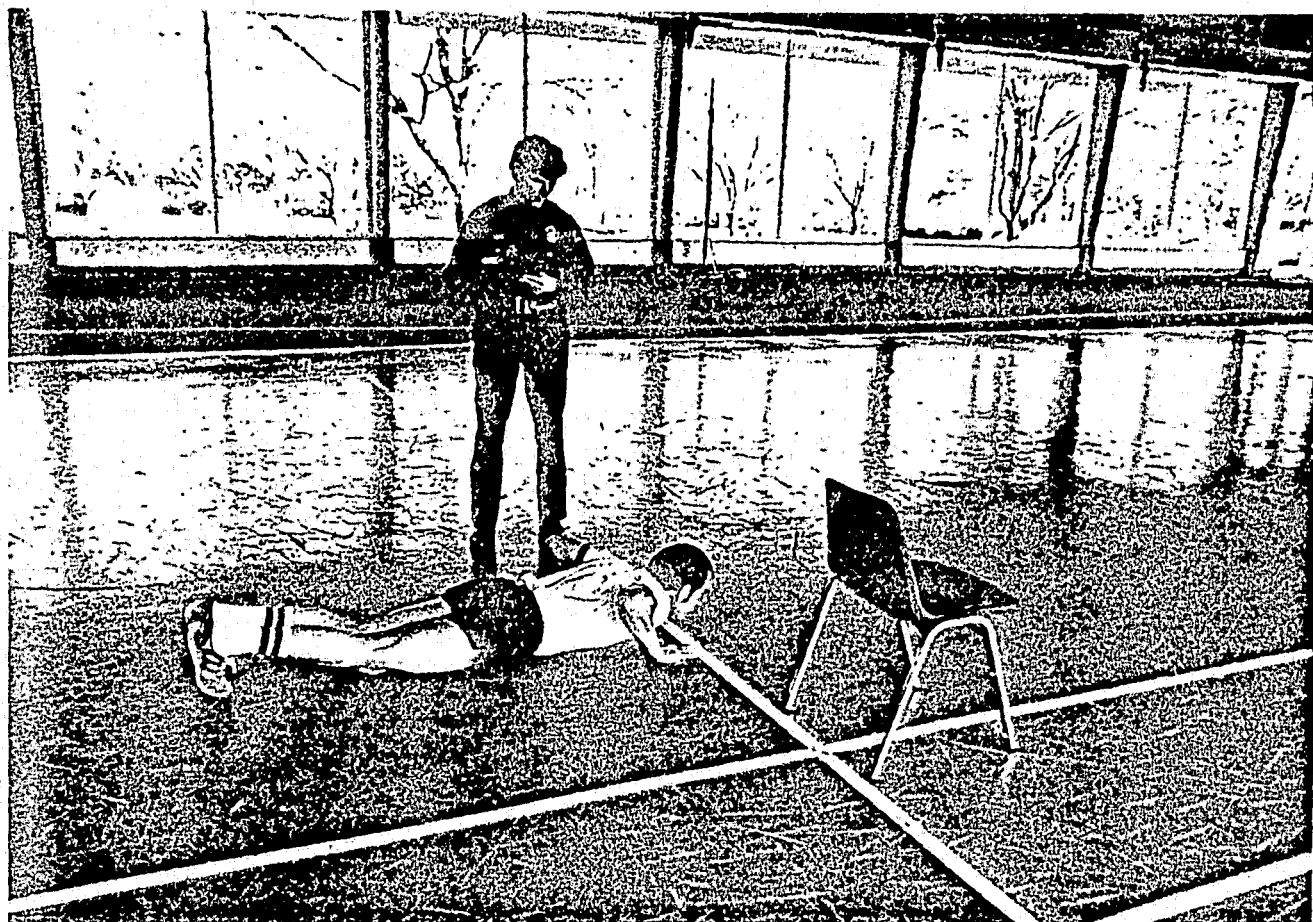
Table 12.17 Police officer standards for vertical jump power test.

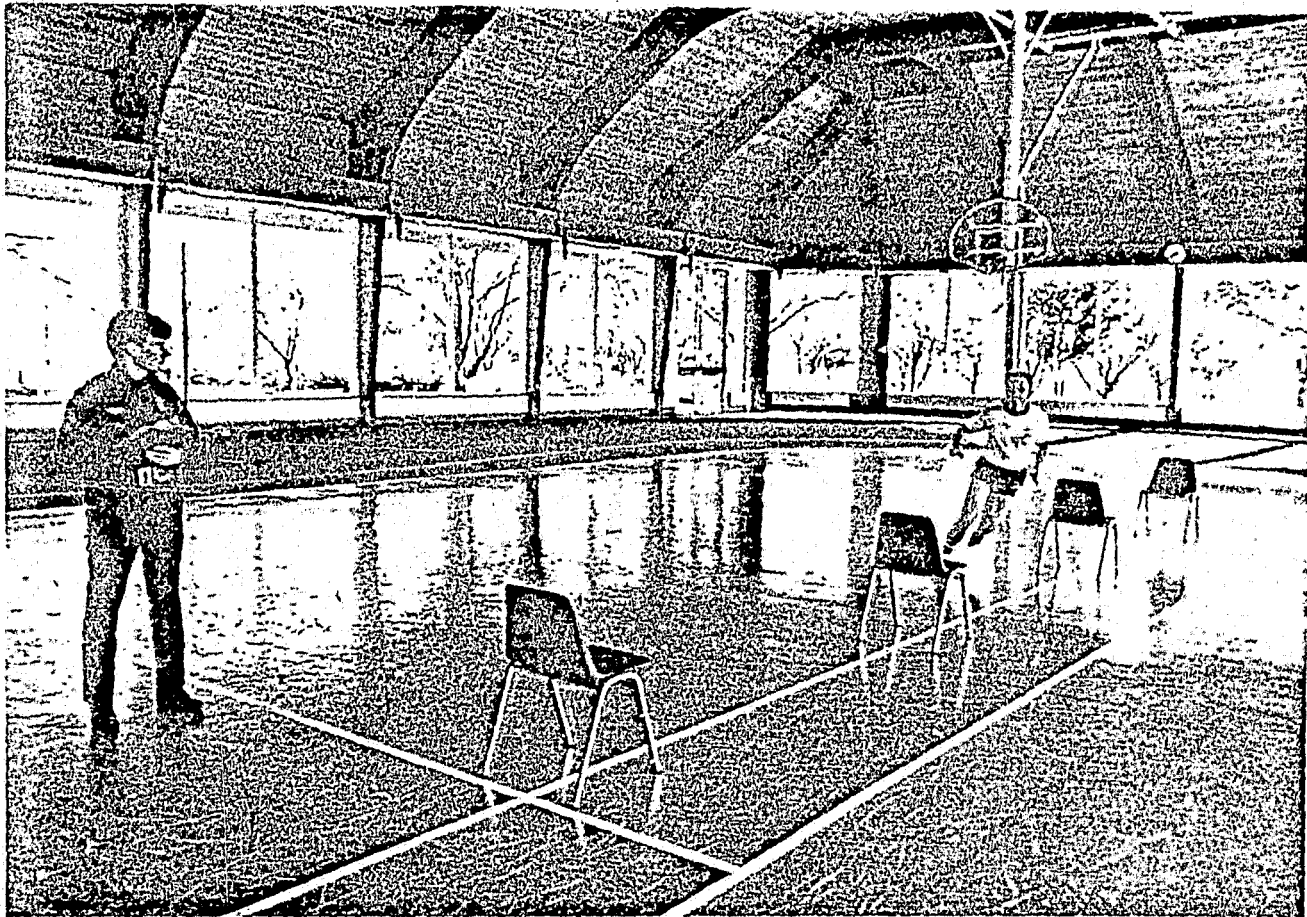
Fitness Category	Age Groups	
	20-29 yrs (n=80) Vertical Jump (ins)	30-35 yrs (n=64) Vertical Jump (ins)
Excellent	25.0 and above	26.0 and above
Good	20.0 to 24.5	20.0 to 25.5
Average	17.5 to 19.5	16.5 to 19.5
Below Average	12.5 to 17.0	10.0 to 16.0
Poor	12.0 and below	9.5 and below

Agility - An agility run test reflects the ability to change directions and speed quickly. Several basic movements have been combined into one test in the figure-eight Illinois Agility Run. The test is described in detail by Cureton (11).

As shown in Photograph 8, the officer starts from a flat prone position with hands on the starting line and then reacts to the starting signal. The course consists of the following:

1. Sprint 30 feet, stride stop and place at least one foot over the boundary line, turn and sprint back 30 feet.
2. Left turn around chair on starting line and zig-zag in a figure-eight fashion around the chairs up and back (see Photograph 9).
3. Sprint 30 feet up and back as described in Step 1 above except finish with a dash over the starting line.





331 Photo 9

The total time to negotiate the course is recorded to the nearest 0.1 second. Gym shoes must be worn for the test and a warmup is required. Practicing the course by a slow jog is recommended as a warmup procedure. The best of two time trials is used as the agility score with at least five minutes of rest allowed between trials.

Norms on the agility run test for police officers are presented in Table 12.18. The test was not given to officers over age 35.

Table 12.18 Police officer standards for Illinois Agility Run Test (11)

Fitness Category	Age Groups	
	20-29 yrs (n=75) Agility Time (sec)	30-35 yrs (n=60) Agility Time (sec)
Excellent	16.1 and below	16.2 and below
Good	16.2 to 17.7	16.3 to 18.1
Average	17.8 to 18.6	18.2 to 19.1
Below Average	18.7 to 20.2	19.2 to 21.0
Poor	20.3 and above	21.1 and above

Discussion of Results

All test results should be explained carefully to each officer with opportunity for discussion. Strengths as well as weaknesses should be pointed out before an exercise prescription is given. A rating scale or profile chart is an excellent way of summarizing test results and presenting them visually to the officer for interpretation. Tables 12.19 to 12.24 show examples of how a fitness profile may be presented to officers of different ages. Space is also provided for recording actual scores on each table.

Table 12.19 Fitness Profile Chart for Police Officers, Ages 20-29 Years.

NAME _____ AGE _____ HEIGHT _____ WEIGHT _____

Fitness Category	Resting Heart Rate beats/min	Bruce Treadmill Time min:sec	Maximum Oxygen Intake ml/kg•min	Three-Min. Step Test H.R. beats/min	1.5 Mile Run min:sec	12-min Run miles	Body Fat %
Excellent	Below 44	Above 13:12	Above 52.9	Below 69	Below 10:15	Above 1.75	Below 6.7
Good	45	13:11	52.8	70	10:16	1.74	6.8
	58	11:24	44.8	97	12:00	1.50	17.3
Average	59	11:23	44.7	98	12:01	1.49	17.4
	66	10:30	40.8	111	14:30	1.25	22.6
Below Average	67	10:29	40.7	112	14:31	1.24	22.7
	79	8:42	32.8	139	16:30	1.00	33.2
Poor	80	8:41	32.7	140	16:31	0.99	33.3
	Above	Below	Below	Above	Above	Below	Above

DATA COLLECTION FORM

Date _____

_____ Test 1 _____
 _____ Test 2 _____
 _____ Test 3 _____

Instructions: Record the individual's scores in the spaces provided above according to date of testing and type of test. Circle the individual's actual score in each test on the profile chart to identify varying levels of fitness.

Table 12.20 Fitness Profile Chart for Police Officers, Ages 20-29 Years.

NAME _____ AGE _____ HEIGHT _____ WEIGHT _____

Fitness Category	Flexibility (in)	Bench Press (lb)	Pushups (reps)	Situps (reps/min)	Vertical Jump (in)	Agility Run (sec)
Excellent	Above 25.9	Above 227	Above 43	Above 51	Above 25.0	Below 16.1
Good	25.8	226	42	50	24.5	16.2
	19.7	174	28	40	20.0	17.7
Average	19.6	173	27	39	19.5	17.8
	16.6	147	20	35	17.5	18.6
Below Average	16.5	146	19	34	17.0	18.7
	10.5	94	5	24	12.5	20.2
Poor	10.4	93	4	23	12.0	20.3
	Below	Below	Below	Below	Below	Above

DATA COLLECTION FORM

Date _____

_____ Test 1 _____
 _____ Test 2 _____
 _____ Test 3 _____

Instructions: Record the individual's scores in the spaces provided above according to date of testing and type of test. Circle the individual's actual score in each test on the profile chart to identify varying levels of fitness.

Table 12.21 Fitness Profile Chart for Police Officers, Ages 30-39 Years

NAME _____ AGE _____ HEIGHT _____ WEIGHT _____

Fitness Category	Resting Heart Rate beats/min	Bruce Treadmill Time min:sec	Maximum Oxygen Intake ml/kg•min	Three-Min. Step Test H.R. beats/min	1.5 Mile Run min:sec	12-min Run miles	Body Fat %
Excellent	Below 44	Above 12:22	Above 47.4	Below 73	Below 11:00	Above 1.65	Below 13.8
Good	45	12:21	47.3	74	11:01	1.64	13.9
	61	10:37	40.2	102	13:00	1.40	21.5
Average	62	10:36	40.1	103	13:01	1.39	21.6
	69	9:44	36.6	117	15:30	1.15	25.4
Below Average	70	9:43	36.5	118	15:31	1.14	25.5
	85	7:59	29.3	147	17:30	0.95	33.0
Poor	86 Above	7:58 Below	29.2 Below	148 Above	17:31 Above	0.94 Below	33.1 Above

DATA COLLECTION FORM

Date _____

_____ Test 1 _____

_____ Test 2 _____

_____ Test 3 _____

Instructions: Record the individual's scores in the spaces provided above according to date of testing and type of test. Circle the individual's actual score in each test on the profile chart to identify varying levels of fitness.

Table 12.22 Fitness Profile Chart for Police Officers, Ages 30-39 Years.

NAME _____ AGE _____ HEIGHT _____ WEIGHT _____

Fitness Category	Flexibility (in)	Bench Press (lb)	Pushups (reps)	Situps (reps/min)	Vertical Jump (in)	Agility Run (sec)
Excellent	Above 26.4	Above 201	Above 37	Above 45	Above 26.0	Below 16.2
Good	26.3 19.2	200 161	36 23	44 34	25.5 20.0	16.3 18.1
Average	19.1 15.6	160 141	22 17	33 29	19.5 16.5	18.2 19.1
Below Average	15.5 8.4	140 100	16 3	28 18	16.0 10.0	19.2 21.0
Poor	8.3 Below	99 Below	2 Below	17 Below	9.5 Below	21.1 Above

DATA COLLECTION FORM

Date _____

_____ Test 1 _____
 _____ Test 2 _____
 _____ Test 3 _____

Instructions: Record the individual's scores in the spaces provided above according to date of testing and type of test. Circle the individual's actual score in each test on the profile chart to identify varying levels of fitness.

Table 12.23 Fitness Profile Chart for Police Officers, Ages 40-52 Years.

NAME _____ AGE _____ HEIGHT _____ WEIGHT _____

Fitness Category	Resting Heart Rate beats/min	Bruce Treadmill Time min:sec	Maximum Oxygen Intake ml/kg•min	Three-Min. Step Test H.R. beats/min	1.5-Mile Run min:sec	12-min Run miles	Body Fat %
Excellent	Below 48	Above 11:02	Above 40.1	Below 71	Below 11:30	Above 1.55	Below 16.8
Good	49 62	11:01 9:34	40.0 34.3	72 102	11:31 14:00	1.54 1.30	16.9 22.9
Average	63 69	9:33 8:49	34.2 31.4	103 117	14:01 16:30	1.29 1.05	23.0 26.0
Below Average	70 83	8:48 7:21	31.3 25.6	118 148	16:31 18:30	1.04 0.85	26.1 32.2
Poor	84 Above	7:20 Below	25.5 Below	149 Above	18:31 Above	0.84 Below	32.3 Above

DATA COLLECTION FORM

Date _____

_____ Test 1 _____

_____ Test 2 _____

_____ Test 3 _____

Instructions: Record the individual's scores in the spaces provided above according to date of testing and type of test. Circle the individual's actual score in each test on the profile chart to identify varying levels of fitness.

Table 12.24 Fitness Profile Chart for Police Officers, Ages 40-52 Years.

NAME _____ AGE _____ HEIGHT _____ WEIGHT _____

Fitness Category	Flexibility (in)	Bench Press (lb)	Pushups (reps)	Situps (reps/min)
Excellent	Above 23.3	Above 188	Above 28	Above 39
Good	23.2 16.3	187 150	27 18	38 26
Average	16.2 12.8	149 132	17 13	25 19
Below Average	12.7 5.7	131 95	12 2	18 6
Poor	5.6 Below	94 Below	1 Below	5 Below

DATA COLLECTION FORM

Date _____

_____	Test 1	_____	_____	_____	_____
_____	Test 2	_____	_____	_____	_____
_____	Test 3	_____	_____	_____	_____

Instructions: Record the individual's scores in the spaces provided above according to date of testing and type of test. Circle the individual's actual score in each test on the profile chart to identify varying levels of fitness.

The profile is used to indicate the officer's initial level of fitness but more importantly is used to show progress through a prescribed exercise program. Retesting then becomes an important requirement in the evaluation process. One of the most important impacts on an officer's attitude toward exercise is to be able to show progress as a result of the hard work required in an exercise program.

Summary

The medical screening examination helps to assure the health and safety practices of the program. The complete fitness profile including cardiovascular-respiratory, body composition, and motor ability measures identifies the level of fitness for an individual, enables proper exercise prescription, and demonstrates the progress that is possible through a systematic, supervised program.

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CHAPTER 13

THE EXERCISE PRESCRIPTION

Guidelines and Preliminary Considerations

Exercise prescription is dependent on needs (job description, likes and dislikes, etc.), goals, physical and health status, age, available time, and equipment and facilities. These factors vary greatly among police; therefore, the individual approach to exercise prescription is recommended (1, 3, 5, 6, 11, 12, 14, 17). Officers in the field have a greater need for muscular strength exercises than the police executive. Thus, training for the field officer should emphasize both cardiorespiratory endurance training and muscular strength exercises.

As an officer gets older, the need for a preventive health program becomes more evident. Results shown from the recent study conducted on 213 police officers showed them to be lower than average in cardiorespiratory fitness and higher in body fat than the average person. Their coronary risk factor profile for prediction of coronary heart disease became significantly higher with age. Lack of regular physical training was apparent in most police officers studied. Thus, as an officer gets older, emphasis should be placed more on the development and maintenance of cardiorespiratory fitness. The initial experience with endurance maintenance should be of low to moderate intensity and progression which allows for gradual adaptation. On the basis of experience with adult programs, the abrupt approach can result in discouraging future motivation for participation in endurance activities. Improper prescription also can lead to undue muscle strain or soreness, orthopedic problems, undue fatigue, and risk of

precipitating a heart attack. The latter is rare and occurs mainly with middle-aged and older participants. Most incidents have occurred because of the lack of previous medical clearance and evaluation, incorrect exercise prescription, inadequate supervision, or an extreme climatic condition such as excess heat and humidity.

The intent of the programs recommended in this section is directed toward the police officer who would like an exercise program to develop and maintain cardiorespiratory fitness and desirable body fat composition and muscle tone. The following guidelines are geared to the healthy officer who is not physically disabled and has approximately one hour of time available 3 to 5 days per week. The following guidelines are suggested in the exercise prescription process:

Preliminary Suggestions

1. Adequate medical information available to assess health status properly.
2. Information concerning the present status of physical fitness and exercise habits.
3. Needs and objectives of the individual for being in an exercise program.
4. Realistic short-term and long-term goals.
5. Advice on proper attire and equipment for an exercise program.

Suggestions for Initial Phases of an Exercise Program

1. Proper education of persons as to the principles of exercise, exercise prescription, and methods of monitoring and recording exercise experiences.
2. Adequate physical leadership in the early stages of the exercise program to assure proper implementation and progress.
3. Education and leadership are the keys to a successful exercise program.

Long-Term Suggestions

1. Reevaluations are necessary for reassessing status of health, physical fitness, and exercise prescription.
2. Reevaluations are also important in the education and motivation processes.

The program can begin as soon as the health and fitness status and needs and objectives of the officers are determined. Having this information plus knowing the participants' activity interests and available time, the type and quantity of exercise may be determined. It is important for the initial exercise experience to be enjoyable, refreshing, and not too demanding either physiologically or time-wise. The slow, gradual approach to initiating an exercise program will help culture a more positive attitude toward physical activity and enhance the probability of long-term adherence. Also, if the prescribed program is too demanding, adherence is not very likely.

Cardiorespiratory Endurance and Weight Reduction

The research findings reported in Chapter 2 described the amount of work necessary to develop and maintain an optimal level of cardiorespiratory endurance. Within certain limits, the total energy cost (calories utilized) of a training regimen is the important factor in the development of cardiorespiratory endurance and weight reduction and control (13). This energy cost amounts to approximately 900 to 1500 calories per week or 300 to 500 calories per exercise session. Table 13.1 emphasizes the importance of frequency, intensity, and duration of training in attaining a certain level of calorie expenditure and gives general recommendations for exercise prescription.

Table 13.1 Recommendations for exercise prescription

1. Frequency	3 to 5 days/week
2. Intensity	60% to 90% of maximum heart rate 50% to 80% of maximum oxygen intake
3. Duration	15 to 60 minutes (continuous)
4. Mode-Activity	Run, jog, walk, bicycle, swim
5. Initial Level of Fitness	High = higher work load Low = lower work load

These recommendations are designed for the needs of the average police officer and not for highly trained endurance athletes, persons of low and/or poor health status, or severely handicapped individuals. Competitive runners usually exercise daily and cover approximately 100 miles per week. On the other extreme, certain debilitating diseases, such as coronary heart disease and arthritis, may greatly limit individuals in their initial stages of training.

1. Frequency - Exercise should be performed on a regular basis from three to five days per week. Although programs of sufficient intensity and duration show some cardiorespiratory improvements with less than three days per week training, no body weight or fat losses are found. Also, improvement in cardiorespiratory endurance is only minimal to modest in programs of less than three days per week (usually less than ten percent). Participants in one or two days per week programs often complain that the workout sessions are too intermittent and break the continuity of the training regimen. Another common complaint is that "It seemed as though I was starting anew each time I came out." Our experience has shown that these types of complaints often lead to dropouts

in a program. Under unusual conditions, if time and available space are important considerations, then one or two days per week regimens may be advisable and serve a temporary purpose.

Conditioning every other day is recommended when initiating an endurance exercise regimen. Daily exercise often becomes too demanding initially and does not allow enough time between workouts for the musculo-skeletal system to adapt properly. This nonadaptive state generally leads to undue muscle soreness, fatigue, and possible injury. This guideline may seem to contradict the research findings reported in Chapter 2 and the recommendations for exercise prescription shown in Table 13.1 however, the data from young men running 30 minutes, five days per week, or 45 minutes, three days per week showed them to incur injuries at a significantly higher rate than three days per week programs of 15 and 30 minute durations (15). In fact, the men in the three days per week programs had little or no injury problems. Most of the injuries that did occur concerned problems of the knee, shin, ankle, or foot.

Officers who are considered at a low level of fitness and whose initial programs are restricted to five to 15 minutes per session may want to exercise twice each day (6). An example of this special condition is a participant who is placed into a walking program of low intensity and short duration. In this case, an officer may adapt better to shorter but more frequent exercise sessions. Another substitute to exercising every other day is to alternate the regular exercise session with days of very mild activity. For officers who are initiating a jog-walk program, stretching and moderate warm-up exercises (calisthenics) for 10 to 15 minutes followed by a continuous walk for 20 to 30 minutes on alternate days are recommended.

Participants can begin to increase their frequency of training to a daily basis after several weeks or months of conditioning. The point in time at which this increase in frequency can be accommodated properly is an individual matter and is dependent upon age and initial level of fitness. Generally, persons of older ages and lower fitness levels are more prone to musculo-skeletal problems.

2. Intensity-Duration - Although intensity and duration are separate entities in themselves, it is difficult to discuss intensity without mentioning its interaction with duration (13). As mentioned in Chapter 2 , exercise regimens of lower intensity (less calorie expenditure) but with a longer duration period showed similar improvements to the higher and shorter duration regimens; the total calorie expenditures were approximately equal for both programs. The caloric difference between running a mile in eight minutes and running a mile in nine minutes is minimal; therefore, running a little extra time at the slower pace will offset the extra calories burned at the faster pace. The important concept is that a certain amount of total work should be completed in an exercise session (total calories), and the manner in which it is accomplished can vary.

The above-mentioned concept has important implications for exercise prescription for adults, and it should be remembered that low intensity-longer duration types of programs are generally recommended for beginners. This recommendation is particularly true for those officers showing a poor performance and/or presence of coronary heart disease on their initial evaluation. The important point is to prescribe a regimen at a low intensity so that the participant can accomplish a sufficient amount of work. Initially the prescription may call for a moderate to brisk walk for 20 to 30 minutes duration.

Table 13.1 outlines a certain minimal threshold of intensity which is necessary for improving cardiorespiratory function. As was mentioned in Chapter 2 under research findings, programs of less intensity than 60 percent of maximum capacity will show improvements in persons with low initial levels of fitness. These officers generally will qualify for fitness classifications I or II, as listed in Table 13.2. Special starter programs of less than 60 percent intensity are recommended for these individuals.

The training-duration will vary from day to day and from activity to activity. The important factor is to design a program that meets the criteria for improving and maintaining a sufficient level of physical fitness, is enjoyable (tolerable), and will fit into time demands.

The level of training intensity that can be tolerated will vary greatly depending on status of fitness and health, age, experience, and general ability. Long distance runners may tolerate two to three hours of continuous running at 80 to 90 percent of maximum capacity, but most beginners cannot perform a continuous effort at this level for more than a few minutes. In order for beginners to accomplish 20 to 30 minutes of continuous training, they must choose the proper intensity level. The proper intensity level for beginners will range from 60 to 70 percent of maximum capacity (brisk walking programs) to 70 to 80 percent of maximum capacity (combinations of walking and jogging). Most persons in fitness categories I and II (Table 13.2) will start with a walking program; and those in categories III and above, a combination walk-jog routine.

The walk-jog routine or low intensity-moderate intensity periods of work if performing another mode of activity will have a peak intensity of 85 to 90 percent of maximum capacity and a low intensity of 50 to 65 percent. The

Table 13.2 Fitness classifications for exercise prescription for various levels of cardiorespiratory endurance

Fitness Category	Max O ₂ Intake (ml/kg min)	Mode of Estimating Maximum Oxygen Intake		
		Bruce Test ^a (min:sec)	1.5 Mile Run (min:sec)	Step Test ^b HR Count
I. Poor	31.5 and below	8:59 and below	15:01 and above	130 and above
II. Below Average	31.6 to 35.0	9:00 to 9:29	15:00 to 13:29	129 to 120
III. Average	35.1 to 42.5	9:30 to 10:59	13:30 to 12:01	119 to 95
IV. Good	42.6 to 51.5	11:00 to 13:59	12:00 to 9:31	94 to 85
V. Excellent	51.6 and above	14:00 and above	9:30 and below	84 and below

^a Bruce treadmill test (2).

^b Kasch and Boyer step test (9). For description of tests see Chapter .

average intensity level will range between 70 and 80 percent of maximum capacity (6). Experience has shown that an intensity level of 50 to 60 percent of maximum can be tolerated comfortably for 20 to 30 minutes by most persons and can be classified as low to moderate work. Intensity levels ranging from 70 to 85 percent are considered as moderate work and above 90 percent of maximum capacity, as high intensity work (13). The results of the initial tolerance test are important in placing the participant at a correct and safe level of intensity (6, 11, 14, 17).

Upon initiating an endurance training regimen, most officers notice the training effect rather quickly. They usually experience the ability to perform more total work in subsequent exercise sessions. The increased total work is a result of the ability of the participant to increase the training duration and/or to tolerate a greater work intensity. The increased average intensity is a function of a higher peak intensity level and/or an increase in the ratio of high to low bouts of work; for example, a participant in a walk-jog routine can tolerate longer periods of jogging interspersed with shorter amounts of walking. As these adaptations to training occur, changes in the exercise prescription are recommended. Periodic reevaluations will help in determining a new status of physical fitness and facilitate proper exercise prescription.

How is exercise intensity determined and how can it be estimated during an exercise session? As mentioned in Chapter 12 under evaluation procedures, intensity at various levels of effort as well as the ability to utilize oxygen (calories expended) are measured during a graded exercise test.

Heart rate and oxygen intake have a linear relationship (See Figure 1) (5). Thus, heart rate is an excellent means for estimating intensity of training.

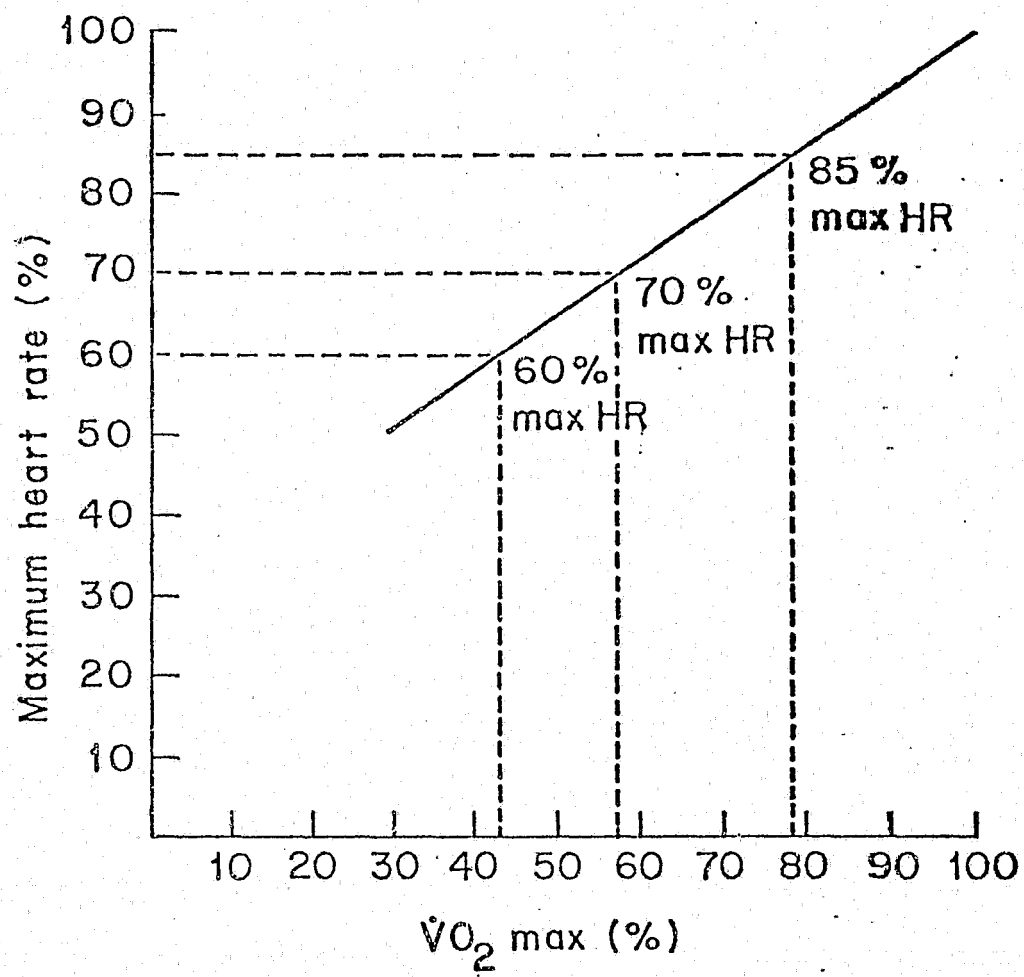


FIGURE 1.

Because of the impracticality of measuring oxygen intake and the ease in monitoring heart rate, the heart rate standard is recommended for general use.

To make an accurate estimation of intensity of training, it is necessary to know both resting and maximum heart rates (8). Maximum heart rate can be determined by using the highest heart rate found on a maximum graded exercise test, after a difficult bout of endurance exercise or by subtracting one's age from 220 (5). See Figure 2 for an example of calculating percent of maximum heart rate. The first method of estimating maximum heart rate is preferred because that heart rate is usually attained while qualified personnel are evaluating the performance of an officer. The second method is to count the heart rate after an all-out 12-minute run or similar endurance type field test (1.5 mile run). This type of test is not recommended for beginners or persons suspected of being coronary prone (4). The third method of determining maximum heart rate is the least accurate, but may be used as a rule of thumb. The inaccuracy of the third method stems from the variability of maximum heart rate at any given age. For example, the maximum heart rate of a man 50 years of age averages approximately 170 beats per minute, but in fact could vary from below 140 to over 200 beats per minute. Resting heart rate should be counted in the morning for 30 seconds while in a sitting position and before eating or smoking.

Estimating exercise heart rate during training usually is accomplished by counting the pulse rate immediately after stopping by means of the palpation technique (12). This technique is applied by placing the tips of the first two fingers lightly on the carotid artery (adjacent to the voice box) or the heel of the hand over the left side of the chest (at the apex of the heart) and by counting the pulsations. The pulse at the radial artery (wrist area) is generally more

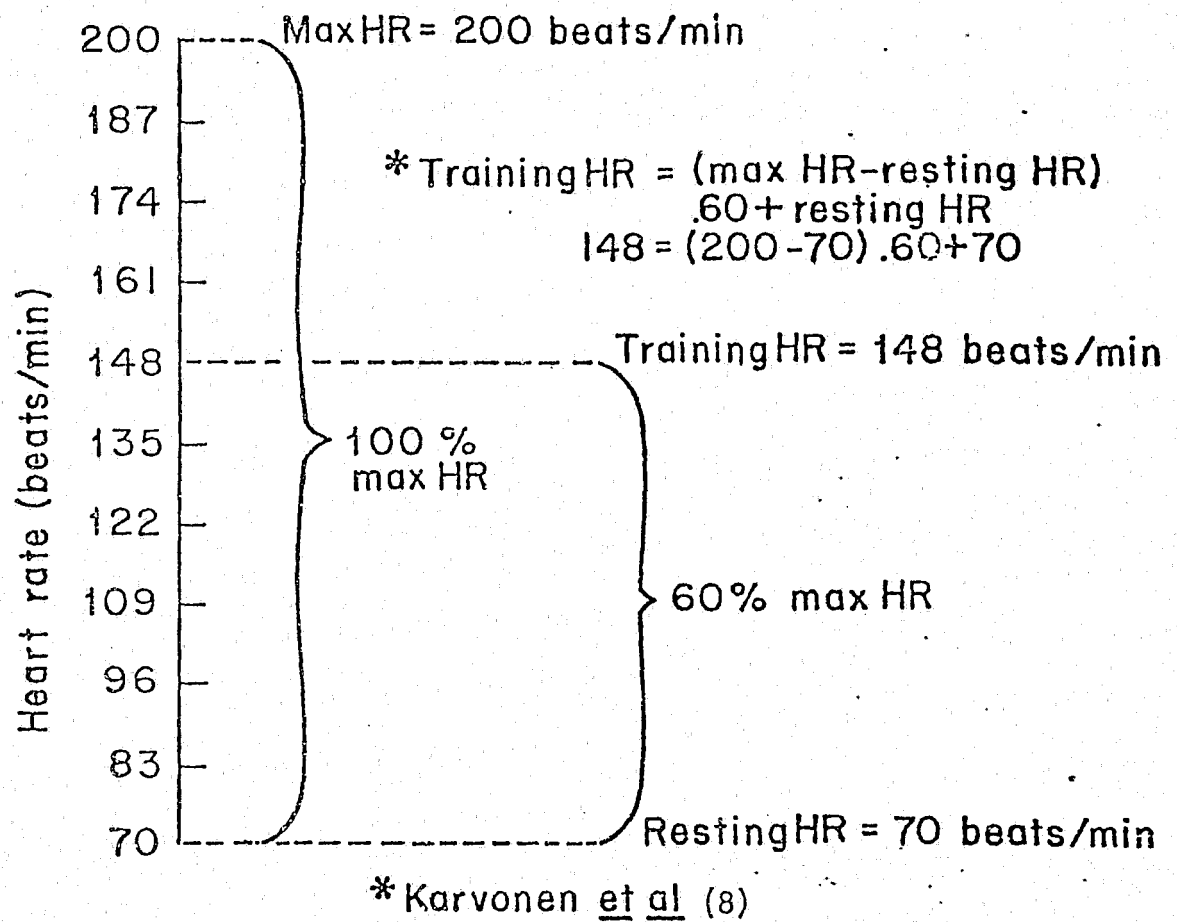


FIGURE 2.

difficult to count after exercise and, thus, is not recommended. A few persons will not be able to count the pulse in this manner and will need to revert to the use of a stethoscope.

Heart rate begins to decelerate soon after cessation of exercising (usually after only 15 seconds); thus, the count should begin as soon as possible. It is recommended to count the pulse for ten seconds and to complete it within 15 seconds after completion of exercise. Only two to four seconds are needed to situate the hand properly and to feel the heart beat rhythm. Thus, by counting beats per ten seconds, it is possible to complete the count within 15 seconds and to avoid errors resulting from the deceleration of the heart beat.

A wristwatch, wall clock, or stopwatch can be used for determining heart rate; however, a stopwatch will be the most accurate. The stopwatch facilitates starting the count more quickly as well as general counting accuracy. After establishing the heart-rate rhythm, the count can start on a full beat with the first count being zero (can only start this way when using stopwatch). If the count does not end on an even beat, then one-half beat is added to the last full count. This counting detail is important with this technique because each one beat error in counting results in a six beat per minute error.

Another heart rate counting procedure that can be used satisfactorily is to count beats per 15 seconds. This method has some advantages: counting the heart rate over a longer time-span can reduce the errors in counting and multiplying the counted value by four to get beats per minute is easier for the beginner. The disadvantage is the five to ten percent error that may occur with the added counting time.

Each of the techniques requires some experimentation and practice to become proficient. Table 13.3 is a conversion chart for transforming raw heart data to beats per minute.

3. Mode of Activity - Many different types of activities can provide adequate stimulation for improving cardiorespiratory function. Chapter emphasized that the total energy cost of a program is an important factor and that as long as various activities are of sufficient intensity and duration, the training effect will occur. Also, activities of similar energy requirements will provide similar training effects (13). In choosing the proper mode of training, the participant should be familiar with the variety of activities that are available. Table 13.4 categorizes activities by their calorie cost. An activity will vary in intensity depending on the enthusiasm of the participant as well as on the type of activity, e.g., singles or doubles; thus, a range of energy costs is listed in the table.

In general, an activity that expends less than five calories per minute is classified as "low" intensity and is not generally recommended for use in exercise regimens that are designed to develop cardiorespiratory fitness and weight reduction. An exception to this would be a person with a functional capacity in category I. These officers will improve their functional capacity with low intensity work, but should be encouraged to increase the duration of effort up to 60 minutes. Activities that expend five to ten calories per minute are considered of moderate intensity; activities from 10 to 14 calories per minute, moderate to high intensity; and activities greater than 14 calories per minute, high intensity. These classifications are based upon exercising continuously for up to 60 minutes.

Table 13.3 Conversion chart for transforming heart rate counted for 10 to 15 seconds to beats per minute.

HEART RATE			
beats/10 sec	beats/min	beats/15 sec	beats/min
15	90	23	92
16	96	24	96
17	102	25	100
18	108	26	104
19	114	27	108
20	120	28	112
21	126	29	116
22	132	30	120
23	138	31	124
24	144	32	128
25	150	33	132
26	156	34	136
27	162	35	140
28	168	36	144
29	174	37	148
30	180	38	152
31	186	39	156
32	192	40	160
33	198	41	164
34	204	42	168
		43	172
		44	176
		45	180
		46	184
		47	188
		48	192
		49	196
		50	200
		51	204

Table 13.4 Energy cost of various activities¹

Activity	Calories ² (cal/min)	Activity	Calories ² (cal/min)
Archery	3.7 - 5	Skating (Ice or roller)	6 - 10
Back Packing	6 - 13.5	Skiing (Snow)	
Badminton	5 - 11	Downhill	6 - 10
Basketball		Cross-country	7.5 - 15
Non-game	3.7 - 11	Skiing (Water)	6 - 8.5
Game	8.5 - 15	Snow Shoeing	8.5 - 17
Bed Exercise (Arm movement supine or sitting)	1.1 - 2.5	Squash	10 - 15
Bicycling		Soccer	6 - 15
(Pleasure or to work)	3.7 - 10	Softball	3.7 - 7.5
Bowling	2.5 - 5	Stair-climbing	5 - 10
Canoeing		Swimming	5 - 10
(Rowing and kayaking)	3.7 - 10	Table-tennis	3.7 - 6
Calisthenics	3.7 - 10	Tennis	5 - 11
Dancing (Social and square)	3.7 - 8.5	Volleyball	3.7 - 6
Fencing	7.5 - 12	Walking (See Table)	
Fishing			
(Bank, boat or ice)	2.5 - 5		
(Stream, wading)	6 - 7.5		
Football (Touch)	7.5 - 12		
Golf			
(Using power cart)	2.5 - 3.7		
(Walking, carrying bag or pulling cart)	5 - 8.5		
Handball	10 - 15		
Hiking (Cross-country)	3.7 - 8.5		
Horseback riding	3.7 - 10		
Horseshoe pitching	2.5 - 3.7		
Hunting, walking			
Small game	3.7 - 8.5		
Big game	3.7 - 17		
Jogging (See Table)			
Mountain Climbing	6 - 12		
Paddleball (Racquet)	10 - 15		
Sailing	2.5 - 6		
Scuba Diving	6 - 12		
Shuffleboard	2.5 - 3.7		

¹ Energy cost values based on individual 154 pounds of body weight (70 kg).

² Calorie: A unit of measure based upon heat production. One calorie equals 200 ml of O₂ consumed.

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When choosing the proper activity, the officer should take into account level of fitness, physical activity interests, availability of equipment and facilities, geographical location and climate. The deconditioned participant should be involved initially in several weeks or months of moderate activity that does not require competition or extreme starting and stopping movements. Under these conditions, many participants tend to overdo and become unduely stiff and sore, fatigued, and/or injured. The joints and muscular system are not adequately developed in a beginner to handle such demands; thus, the participant is vulnerable to injury. The need to get in shape to play games is true in most cases. Officers whose screening tests have indicated cardiovascular problems should avoid highly competitive type activities. It is important not to exceed the safe limit of exercise. The starter programs outlined later in this chapter are recommended for beginners.

Participation in a variety of activities is recommended and can be accomplished by interchanging some of the various activities listed in Table 13.4. Choosing different activities tends to keep a participant interested in endurance exercise over a long-term period. For example, one might jog 30 minutes on Monday and Thursday and play handball or basketball on Tuesday and Friday. The important factor is that the officer participates in these activities frequently and with sufficient intensity and duration.

Regardless of the type of physical activity used in a training program, each exercise session should begin with a warm-up period and finish with a cool-down period. The warm-up period should be from 10 to 15 minutes in duration and include a combination of stretching (flexibility) and light to moderate muscular strength and endurance exercises. This warm-up can be followed

by five minutes of walking or slow jogging. Suggested stretching and muscular strength and endurance exercises are described later in this chapter.

The cool-down period should allow adequate time for the various bodily processes to readjust to normal. The length of the cool-down period is dependent on the difficulty of the endurance training period, status of physical fitness, and environmental conditions. Officers in better physical condition recover more quickly from vigorous activity. Exercising in a hot and humid environment generally will lengthen the recovery period. The cool-down period normally will last from five to ten minutes and can include a variety of activities such as slow jogging, walking, stretching, and light calisthenics.

Although the emphasis of this section was based upon the variety of activities available for developing and maintaining cardiorespiratory endurance, it must be remembered that such exercise is only a part of a total well-rounded program. Endurance activities are of paramount importance, but adequate flexibility and muscular strength and endurance add to a balanced physical fitness program.

Programs for Cardiorespiratory Fitness

The Aerobics Exercise System

The term "aerobics" was adapted from the word aerobic which refers to the type of metabolism utilizing oxygen in the production of energy for the body. Aerobics is a program of endurance exercises which require a sustained effort, e.g., running, bicycling, swimming, fast walking, and vigorous game-type activities. These types of exercises improve the efficiency of the cardiorespiratory system (heart, lungs, and blood vessels) and thus increase the

ability of the body to transport and utilize oxygen.

Dr. Kenneth Cooper (3, 4) developed the aerobics program of endurance training. To make this program of training adaptable to the general public, a system of awarding points for various amounts of activity was devised. The point system is based upon the energy cost of the activity, i.e., the amount of oxygen utilized. Thus, the number of points achieved (energy cost) is dependent upon the intensity of the activity and its duration. Cooper suggests that a minimum of 30 points per week is necessary in order to maintain satisfactory cardiorespiratory condition. Thirty aerobic points per week is equal to approximately 30 minutes of walk/jogging, three days per week. The system is unique in that numerous activities can be combined or interchanged to meet the 30 points per week recommendation. The aerobics system is unique in that it can be used by most departments because its use is generally not dependent on size, facilities, location (city or rural), or environmental conditions.

Exercise Prescription for Cardiorespiratory Endurance

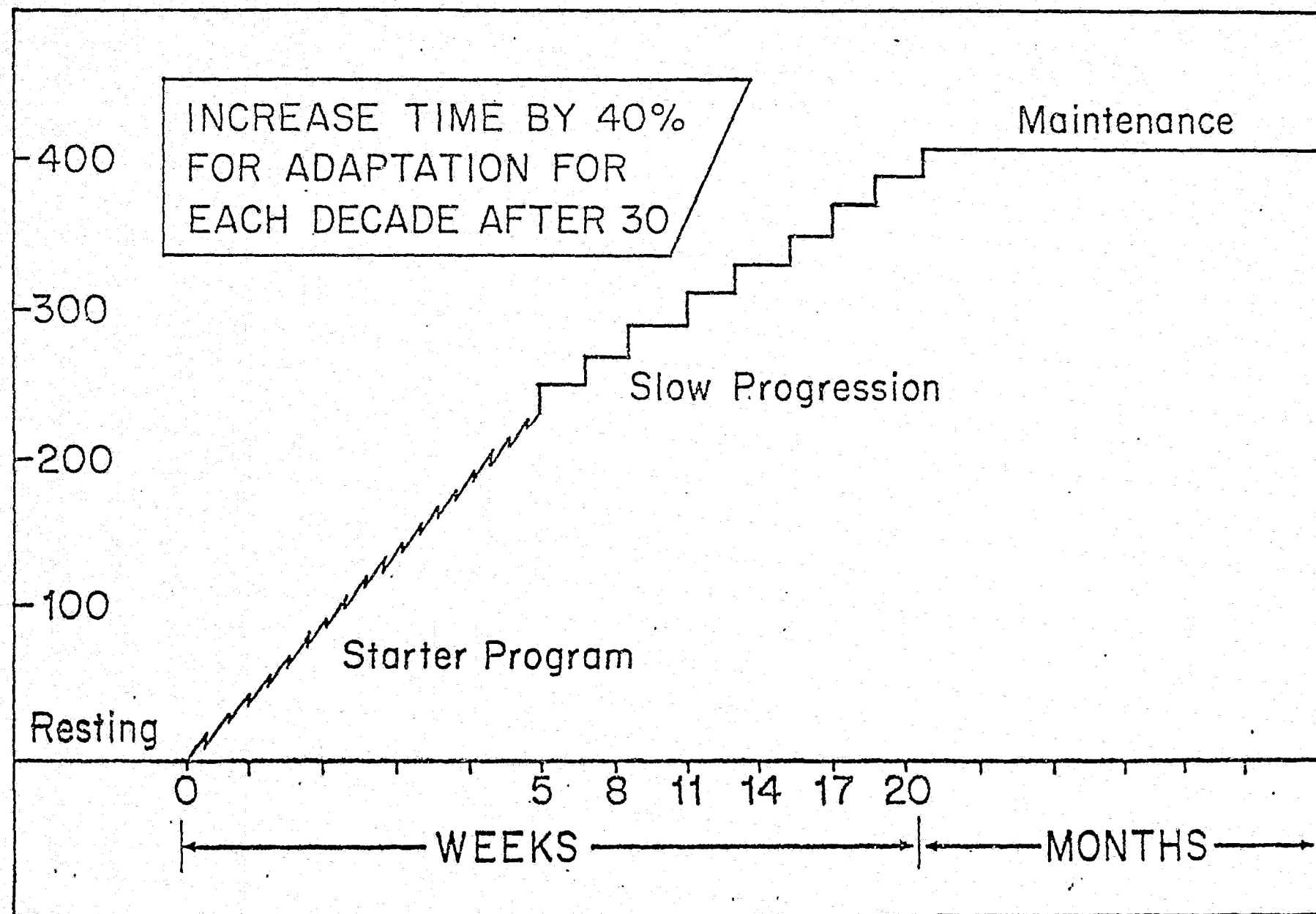
As mentioned earlier, in order to prescribe exercise properly, it is necessary to know something about the person's health status and physical fitness level. After undergoing the physical fitness examination (see Chapter 12), the officer may be classified into one of five categories of cardiorespiratory fitness. Table 13.2 shows the fitness classifications scores achieved on various tests. In order to be classified into the good level of cardiorespiratory fitness, a person should have a functional capacity of approximately 42 ml/kg/min. of oxygen intake. That level of fitness coincides with about 10:30

(min:sec) on the Bruce treadmill stress test, 12:00 minutes on the 1.5 mile test, and 90 (beats/min) total recovery heart rate on the three-minute step test. Therefore, knowing the initial level of cardiorespiratory fitness will help guide the participant into the correct program.

The exercise prescription usually has three stages of progression: starter, slow progression, and maintenance (see Figure 3). The initial stage of training is classified as a starter program. In this phase the exercise intensity is low and includes a lot of stretching and light calisthenics. The purpose at this stage of the program is to introduce the officer to exercise at a low level and to allow time to adapt properly to the initial weeks of training. If this phase is introduced correctly, the participant will experience a minimum of muscle soreness and can avoid debilitating injuries of the knee, shin, ankle, or foot. The latter injuries are common in the initial stages of a jogging program, but can be avoided if the participant takes some preliminary precautions, such as a good starter program, good running shoes, and proper warm-up and conditioning of the legs. Avoiding sharp turns and extremely hard running surfaces are also important safeguards (14).

The duration of the starter program is usually from four to six weeks, but is dependent on the adaptation of the participant to the program. For example, an officer who is classified in a poor or fair fitness level may spend as many as six to ten weeks in a starter program, but a participant scoring in the good to excellent categories may not need to participate in a starter program.

The slow progression stage of training differs from the starter phase in that the participant is progressed at a more rapid rate. During this stage, the duration and/or intensity are increased consistently every two to three weeks.



EXERCISE PRESCRIPTION: PROGRESSION IN TRAINING

FIGURE 3. Exercise prescription: progression in training

How well the person adapts to the present level of training dictates the frequency and magnitude of progression. As a general rule, the older the participant and the lower the initial fitness level, the longer one takes to adapt and progress in a training regimen. The adaptation to the training load takes approximately 40 percent longer for each decade in life after age 30. That is, if the progression in distance run is every two weeks for men of 30 to 39 years, then the interval may be three weeks for those of 40 to 49 years and four weeks for the 50 to 59 year-old group.

The maintenance stage of prescription usually occurs after six months to a year of training. At this stage, the participant has reached a satisfactory level of cardiorespiratory fitness and is no longer interested in increasing the training load. At this point further development is usually minimal, but the number of miles or minutes trained per week enables one to maintain fitness.

General Guidelines for Getting Started

In designing an exercise regimen one must select an activity which can be performed on a regular basis. Generally, game-type activities are not recommended in the early stages of training. Prior to becoming involved in game-type activities whereby running will be encountered, fast walking or walk-jog programs are recommended.

Table 134 lists the energy cost of a variety of activities commonly used in recreation and endurance fitness programs. The activities are quantified in terms of calories/minute. These values give inference as to the relative intensity of the effort. To get the total effect of the programs, one must determine the intensity level and multiply this by the total number of minutes

of participation. Because games are not played continuously with an even amount of effort, some extrapolation will have to be made to get the intensity level for game-type activities. Intensity is dependent on how hard the game is played. If in doubt use the average value listed in Table 13.4. For example, if handball is played for 45 minutes, then the intensity in calories (12.5 cal/min) would be multiplied by the minutes played (45) to get the total calorie expenditure (562.5). The important point here is that the participant counts only the time that was used in participation. Rest breaks and waiting time do not count.

The energy cost of running and walking are listed in Table 13.5. An endurance training program can be designed from Table 13.5, but because of the difficulty of knowing the proper pace or sequence of progression, several programs are outlined in subsequent tables in this chapter. The programs include walking and running routines, stationary running, bench stepping, rope skipping, and various game-type activities and are designed relative to various levels of fitness.

Although walking and running can be done in a variety of settings, such as running tracks, roads, parks, etc., the course should be a measured distance. This can be accomplished by the use of an odometer from an automobile or bicycle or use of a measured track. Training on an oval track can get boring over a long period of time, but if available is a good way of getting started. Tracks generally have a smooth running surface and are of a known distance.

Table 13.6 will help in determining pace for walking and running programs. Speeds range from a slow walk (2.9 mph) to a fast run (12.5 mph). To aid in pacing, reference points of 110 yards or 440 yards are helpful. If carrying a stopwatch or wristwatch with a 60-second sweep hand, pace can be kept very

Table 13.5 Energy cost of walking and running¹

Activity	Calories ² (cal/min)	Speed	
		mph	min/mile (min:sec)
Walking	2.5	2.00	30:00
	3.0	2.50	24:00
	3.7	3.00	20:00
	4.2	3.50	17:08
	4.9	3.75	16:00
	5.5	4.00	15:00
	7.0	4.50	13:20
	8.3	5.00	12:00

Running	10.1	5.5	10:55
	12.0	6.0	10:00
	14.0	7.0	8:35
	15.6	8.0	7:30
	17.5	9.0	6:40
	19.6	10.0	6:00
	21.7	11.0	5:30
	24.5	12.0	5:00

¹ Energy cost values based on individual 154 pounds of body weight (70 kg)

² Calorie: A unit of measure based upon heat production. One calorie equals 200 ml of O₂ consumed.

Table 13.6 Pacing chart for walking and running program conducted on track measured in 110 yard increments.

110 yd (sec)	Pace 440 yd (min:sec)	mph	110 yd (sec)	Pace 440 yd (min:sec)	mph	110 yd (sec)	Pace 440 yd (min:sec)	mph
18	1:12	12.5	38	2:32	5.9	58	3:52	3.9
19	1:16	11.8	39	2:36	5.8	59	3:56	3.8
20	1:20	11.2	40	2:40	5.6	60	4:00	3.7
21	1:24	10.7	41	2:44	5.5	61	4:04	3.7
22	1:28	10.2	42	2:48	5.4	62	4:08	3.6
23	1:32	9.8	43	2:52	5.2	63	4:12	3.6
24	1:36	9.4	44	2:56	5.1	64	4:16	3.5
25	1:40	9.0	45	3:00	5.0	65	4:20	3.5
26	1:44	8.6	46	3:04	4.9	66	4:24	3.4
27	1:48	8.3	47	3:08	4.8	67	4:28	3.4
28	1:52	8.0	48	3:12	4.7	68	4:32	3.3
29	1:56	7.7	49	3:16	4.6	69	4:36	3.3
30	2:00	7.5	50	3:20	4.5	70	4:40	3.2
31	2:04	7.3	51	3:24	4.4	71	4:44	3.2
32	2:08	7.0	52	3:28	4.3	72	4:48	3.1
33	2:12	6.8	53	3:32	4.2	73	4:52	3.1
34	2:16	6.6	54	3:36	4.2	74	4:56	3.0
35	2:20	6.4	55	3:40	4.1	75	5:00	3.0
36	2:24	6.2	56	3:44	4.0	76	5:04	2.9
37	2:28	6.1	57	3:48	3.9	77	5:08	2.9

accurately during the entire training program. Monitoring of the program by pace and heart rate response will help as a guide to proper initiation and progression of the training regimen.

Generally officers scoring in fitness categories I and II should begin their endurance training by walking. The walk should be at a comfortable but brisk pace. The initial speed will range from 3.0 to 4.0 mph. Distance (or time) will be approximately 1.5 to 2 miles (30 to 40 minutes). The reason behind this combination of walking speed and distance is to get the participant started at a comfortable pace and at the same time keeping the distance long enough so that one can begin to get an endurance training effect (total calories - aerobic points).

Even though the calorie cost of this regimen is low (125-150 calories), it will allow time for adaptation of most bodily systems and parts. Do not be concerned about not working hard enough. Time, with proper progression and adaptation, will eventually lead to the higher, more demanding levels of training.

Starter and Low-Level Conditioning Programs

Tables 13.7 to 13.15 outline various six-week starter programs, and Tables 13.16 to 13.24 are 16-week conditioning programs for fitness categories I, II, and III. All tables are developed for ages under 30, between 30 and 39 years, and between 40 and 49 years of age. These tables are taken from the book The New Aerobics (4). Programs for the age group 50 and over are available, but can be found only in The New Aerobics. If an officer is in a very low state of physical condition, the starter programs for under 30 (Tables 13.7 to 13.9), 30 to 39 years of age (Tables 13.10 to 13.12), and 40 to 49 years of age (Tables 13.13 to 13.15) are recommended. If the starter programs are too easy, then the participant can begin

Table 13.7 Walking starter program
(under 30 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
1	1.0	15:00	5	5
2	1.0	14:00	5	10
3	1.0	13:45	5	10
4	1.5	21:30	5	15
5	1.5	21:00	5	15
6	1.5	20:30	5	15

Table 13.8 Combination walk-jog starter program
(under 30 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
1	1.0	13:30	5	10
2	1.0	13:00	5	10
3	1.0	12:45	5	10
4	1.0	11:45	5	15
5	1.0	11:00	5	15
6	1.0	10:30	5	15

Table 13.9 Stationary running starter program
(under 30 years of age)

Week	Distance (min)	Steps/Min*	Freq/Wk	Points/Wk
1	2:30	70-80	5	4
2	5:00	70-80	5	7 1/2
3	5:00	70-80	5	7 1/2
4	7:30	70-80	5	11 1/4
5	7:30	70-80	5	11 1/4
6	10:00	70-80	5	15

* Count only when left foot hits the floor. Feet must be at least eight inches from the floor.

Table 13.10 Walking starter program
(30-39 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
1	1.0	17:30	5	5
2	1.0	15:30	5	5
3	1.0	14:15	5	10
4	1.0	14:00	5	10
5	1.5	21:40	5	15
6	1.5	21:15	5	15

Table 13.11 Combination walk-jog starter program
(30-39 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
1	1.0	17:30	5	5
2	1.0	15:30	5	5
3	1.0	14:15	5	10
4	1.0	13:30	5	10
5	1.0	11:45	5	15
6	1.0	11:15	5	15

Table 13.12 Stationary running starter program *
(30-39 years of age)

Week	Duration (min)	Steps/Min*	Freq/Wk	Points/Wk
1	2:30	70-80	5	4
2	2:30	70-80	5	4
3	5:00	70-80	5	7 1/2
4	5:00	70-80	5	7 1/2
5	7:30	70-80	5	11 1/4
6	7:30	70-80	5	11 1/4

* Count only when left foot hits ground. Feet must be brought at least eight inches from floor.

Table 13.13 Walking starter program
(40-49 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
1	1.0	18:00	5	5
2	1.0	16:00	5	5
3	1.5	24:00	5	7 1/2
4	1.5	22:30	5	7 1/2
5	2.0	31:00	5	10
6	2.0	30:00	5	10

Table 13.14 Combination walk-jog starter program
(40-49 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
1	1.0	18:00	5	5
2	1.0	16:00	5	5
3	1.0	15:00	5	5
4	1.0	14:15	5	10
5	1.0	13:45	5	10
6	1.0	12:45	5	10

Table 13.15 Stationary running starter program
(40-49 years of age)

Week	Duration (min)	Steps/min*	Freq/Wk	Points/Wk
1	2:30	70-80	5	4
2	2:30	70-80	5	4
3	5:00	70-80	5	7 1/2
4	5:00	70-80	5	7 1/2
5	5:00	70-80	5	7 1/2
6	7:30	70-80	5	11 1/4

* Count only when left foot hits the ground. Feet must be brought at least eight inches from floor.

with Tables 13.16 to 13.24. Starter programs for swimming and cycling are described in The New Aerobics.

If the starter program is too easy or difficult then make an on-the-spot change in the program. Remember, the exercise prescription should be individualized. A satisfactory modification can usually be made by changing the speed or distance slightly (Tables 13.5 and 13.6).

The starter programs begin at a low level of conditioning with only five to 15 points earned per week in order to allow for proper adaptation. Through continuous progress training, the 30 point per week level may be achieved by the 10th to 15th week depending on the initial fitness category for the participant. Officers in fitness categories IV and V usually will progress to the 30 point per week level at a faster rate than participants in categories I, II, and III.

If the participant wants to play rigorous games such as handball or basketball for a conditioning regimen, he probably should spend several weeks in a walk-jog program first. Vigorous sport activities are more traumatic to the legs and feet than walking and jogging and often leave the unconditioned participant vulnerable to injury. The starter programs are conservative recommendations for beginning an exercise program. If the participant is not significantly overweight and feels that the starter programs are too easy, then he can progress to the seventh week of the conditioning program listed for his fitness category (Tables 13.16 to 13.24). A reevaluation at this time can assist the officer in the proper readjustment of his training load. Officers in fitness categories IV and V should begin with the programs listed in Table 13.25. More extensive point charts for running, walking, cycling, swimming, stationary

Table 13.16 Walking conditioning programs for fitness categories I, II, and III*

Fitness Category I (under 30 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	2.0	28:00	5	20
8	2.0	27:45	5	20
9	2.0	27:30	5	20
10	2.0	27:30	3	22
	and			
	2.5	33:45	2	
11	2.0	27:30	3	22
	and			
	2.5	33:30	2	
12	2.5	33:15	4	26
	and			
	3.0	41:30	1	
13	2.5	33:15	3	27
	and			
	3.0	41:15	2	
14	2.5	33:00	3	27
	and			
	3.0	40:00	2	
15	3.0	41:00	5	30
16	4.0	55:00	3	33

Fitness Category II

7	2.0	27:30	5	20
8	2.0	27:30	3	22
	and			
	2.5	33:45	2	
9	2.0	27:30	3	22
	and			
	2.5	33:30	2	
10	2.5	33:15	3	27
	and			
	3.0	41:15	2	
11	2.5	33:00	3	27
	and			
	3.0	40:00	2	
12	3.0	41:00	5	30
13	4.0	55:00	3	33

Table 13.16(con't.)

Fitness Category III

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	2.5	33:15	4	26
	and			
	3.0	41:30	1	
8	2.5	33:00	3	27
	and			
	3.0	40:00	2	
9	3.0	41:00	5	30
10	4.0	55:00	3	33

* After completing the progressive walking program, use Table to select a 30 point per week conditioning program.

Table 13.17 Combination walk-jog conditioning programs for fitness categories I, II, and III*

Fitness Category I (under 30 years of age)				
Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	18:30	5	15
8	1.5	17:30	5	15
9	1.5	16:30	4	18
10	1.0 and 1.5	9:30 15:30	3 2	21
11	1.0 and 1.5	8:45 14:45	3 2	24
12	1.0 and 1.5	8:30 14:00	3 2	24
13	1.0 and 1.5	8:15 13:30	3 2	24
14	1.0 and 1.5	7:55 13:00	3 2	27
15	1.0 and 1.5	7:45 12:30	2 2	31
16	2.0 and 1.5 and 2.0	18:00 11:55 17:00	1 2 2	32
Fitness Category II				
Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	17:30	5	15
8	1.5	16:30	4	18
9	1.0 and 1.5	9:30 15:30	3 2	21
10	1.0 and 1.5	8:45 14:15	3 2	24
11	1.0 and 1.5	8:15 13:00	2 3	26

Table 13.17 (Con't.)

Fitness Category II (con't)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
12	1.0	7:45	2	31
	and 1.5	12:30	2	
	and 2.0	18:00	1	
13	1.5	11:55	2	32
	and 2.0	17:00	2	

Fitness Category III

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	16:30	5	22
8	1.0	9:00	3	24
	and 1.5	14:45	2	
9	1.0	7:55	1	32
	and 2.0	18:00	3	
10	1.5	11:55	2	32
	and 2.0	17:00	2	

* After the progressive walk-jog program, use Table 13.25 to select a 30 point per week conditioning program.

Table 13.18 Stationary running conditioning program for fitness categories I, II, and III*

Fitness Category I (under 30 years of age)

Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	10:00	70-80	5	15
8	12:30	70-80	5	18 3/4
9	12:30	70-80	5	18 3/4
10	15:00	70-80	5	22 1/2
11	15:00	70-80	5	22 1/2
12	10:00	80-90	1	24 1/4
	and 17:30	70-80	3	
13	12:30	80-90	3	27
	and 15:00	80-90	2	
14	12:30	80-90	3	28
	and 15:00	80-90	3	

Table 13.18 (Con't)

Fitness Category I (con't)

Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
15	15:00	80-90	5	30
16	15:00	90-100	4	30

Fitness Category II

Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	12:30	70-80	5	18 3/4
8	15:00	70-80	5	22 1/2
9	15:00	70-80	5	22 1/2
10	12:30	80-90	3	27
	and			
	15:00	80-90	2	
11	12:30	80-90	2	28
	and			
	15:00	80-90	3	
12	15:00	80-90	5	30
13	15:00	90-100	4	30

Fitness Category III

Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	10:00	80-90	1	24 1/4
	and			
	17:30	70-80	3	
8	12:30	80-90	2	28
	and			
	15:00	80-90	3	
9	15:00	80-90	5	30
10	15:00	90-100	4	30

* After completing the progressive stationary running program, use Table 13.25 to select a 30 point per week conditioning program.

** Count only when left foot hits the floor. Feet must be brought at least eight inches from the floor.

Table 13.19 Walking conditioning programs for
fitness categories I, II, III*

Fitness Category I (30 to 39 years of age)				
Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	21:00	5	15
8	2.0	28:45	5	20
9	2.0	28:30	5	20
10	2.0	28:00	5	20
11	2.0	28:00	3	22
	and			
	2.5	35:30	2	
12	2.5	35:00	3	27
	and			
	3.0	43:15	2	
13	2.5	34:45	3	27
	and			
	3.0	43:00	2	
14	2	34:30	3	27
	and			
	3.0	43:30	2	
15	3.0	42:30	5	30
16	4.0	56:30	3	33
Fitness Category II				
Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	2.0	28:30	5	20
8	2.0	28:00	5	20
9	2.0	28:00	3	22
	and			
	2.5	35:30	2	
10	2.5	34:45	3	27
	and			
	3.0	43:00	2	
11	2.5	34:30	3	27
	and			
	3.0	42:30	2	
12	3.0	42:30	5	30
13	4.0	56:30	3	33
Fitness Category III				
Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	2.5	35:00	3	27
	and			
	3.0	43:15	2	
8	2.5	34:30	3	27
	and			
	3.0	42:30	2	

Table 13.19 (con't)

Fitness Category III

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
9	3.0	42:30	5	30
10	4.0	56:30	3	33

* After completing the progressive walking program, use Table 13.25 to select a 30 point per week conditioning program.

Table 13.20 Combination walk-jog conditioning programs for fitness categories I, II, III*

Fitness Category I (30 to 39 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	19:30	5	15
8	1.5	18:30	5	15
9	1.5	17:30	4	18
10	1.0 and 1.5	10:00 16:30	2 3	19 1/2
11	1.0 and 1.5	9:30 15:30	3 2	21
12	1.0 and 1.5	9:00 14:30	3 2	24
13	1.0 and 1.5	8:30 14:00	3 2	24
14	1.0 and 2.0	8:15 19:30	3 2	30
15	1.0 and 1.5	8:00 12:55	2 2	31 1/2
16	1.0 and 1.5 and 2.0	8:00 12:25 18:30	1 2 2	34

Table 13.20 (con't)

Fitness Category II

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	18:30	5	15
8	1.5	17:00	4	18
9	1.0	10:00	3	21
	and			
	1.5	15:45	2	
10	1.0	9:15	3	24
	and			
	1.5	14:30	2	
11	1.0	8:45	2	26
	and			
	1.5	13:00	3	
12	1.0	8:15	3	30
	and			
	2.0	19:30	2	
13	1.0	8:00	1	34
	and			
	1.5	12:25	2	
	and			
	2.0	18:30	2	

Fitness Category III

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	17:30	4	18
8	1.0	10:00	1	21
	and			
	1.5	15:15	4	
9	1.5	13:15	3	27
	and			
	2.0	19:30	1	
10	1.0	8:00	1	34
	and			
	1.5	12:25	2	
	and			
	2.0	18:30	2	

* After completing the progressive walk-jog program, use Table 13.25 to select a 30 point per week conditioning program.

Table 13.21 Stationary running conditioning program for fitness categories I, II, and III*

Fitness Category I (30 to 39 years of age)				
Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	10:00	70-80	5	15
8	10:00	70-80	5	15
9	12:30	70-80	5	18 3/4
10	12:30	70-80	5	18 3/4
11	15:00	70-80	5	22 1/2
12	10:00	80-90	1	24 1/4
13	and 17:30	70-80	3	
	10:00	80-90	1	24 1/4
	and 17:30	70-80	3	
14	12:30	80-90	2	28
	and 15:00	80-90	3	
15	15:00	80-90	5	30
16	15:00	90-100	4	30
Fitness Category II				
Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	12:30	70-80	5	18 3/4
8	12:30	70-80	5	18 3/4
9	15:00	70-80	5	22 1/2
10	10:00	80-90	1	24 1/4
	and 17:30	70-80	3	
11	12:30	80-90	2	28
	and 15:00	80-90	3	
12	15:00	80-90	5	30
13	15:00	90-100	4	30
Fitness Category III				
Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	10:00	80-90	1	24 1/4
	and 17:30	70-80	3	
8	12:30	80-90	2	28
	and 15:00	80-90	3	
9	15:00	80-90	5	30
10	15:00	90-100	4	30

* See next page

** See next page

* After completing the progressive stationary running conditioning program, use Table 13.25 to select a 30 point per week conditioning program.

** Count only when the left foot hits the floor. Feet must be brought at least eight inches from the floor.

Table 13.22 Walking conditioning programs for fitness categories I, II, and III*

Fitness Category I (40 to 49 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	2.5	37:45	5	12 1/2
8	2.5	36:30	5	12 1/2
9	2.0	29:30	3	16
	and			
	2.5	36:00	2	
10	1.5	21:30	3	19
	and			
	2.5	35:30	2	
11	2.0	28:00	3	22
	and			
	2.5	36:00	2	
12	2.5	35:30	4	23
	and			
	3.0	43:45	1	
13	2.0	28:00	2	26
	and			
	3.0	43:00	3	
14	2.5	34:45	3	27
	and			
	3.0	42:45	2	
15	3.0	42:45	5	30
16	4.0	56:45	3	33

Fitness Category II

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	2.0	29:30	3	16
	and			
	2.5	36:30	2	
8	1.5	21:30	3	19
	and			
	2.5	35:30	2	
9	2.0	28:00	3	22
	and			
	2.5	36:00	2	
10	2.0	28:00	2	26
	and			
	3.0	43:00	3	

Table 13.22 (con't)

Fitness Category II (con't)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
11	2.5 and 3.0	34:45	3	27
12	3.0	42:45	2	30
13	4.0	56:45	5	33

Fitness Category III (40 to 49 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	2.5 and 3.0	35:30	4	23
8	2.5 and 3.0	43:45	1	27
9	3.0	34:45	3	30
10	4.0	42:45	5	33

* After completing the progressive walking programs use Table 13.25 to select a 30 point per week conditioning program.

Table 13.23 Combination walk-jog conditioning programs for fitness categories I, II, and III*

Fitness Category I (40 to 49 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	20:30	5	15
8	1.5	19:30	5	15
9	1.5	18:30	5	15
10	1.0 and 1.5	10:45	2	19 1/2
11	1.0 and 1.5	17:30	3	19 1/2
12	1.0 and 1.5	10:15	2	21
13	1.5 and 1.0	16:30	3	24
	1.5	9:45	2	
	1.5	15:30	3	
	1.5	9:15	2	
	1.5	14:55	2	

Table 13.23 (con't)

Fitness Category I (40 to 49 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
14	1.0	8:55	3	26
	and 2.0	20:30	2	
15	1.0	8:45	2	27
	and 1.5	14:00	2	
	and 2.0	20:00	1	
16	1.0	8:30	1	34
	and 1.5	13:25	2	
	and 2.0	19:30	2	

Fitness Category II (40 to 49 years of age)

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	19:30	5	15
8	1.5	18:00	5	15
9	1.0	10:45	3	18
	and 1.5	17:00	2	
10	1.0	10:00	1	21
	and 1.5	15:45	4	
11	1.0	9:30	2	26
	and 1.5	14:30	3	
12	1.0	9:30	1	32
	and 2.0	20:30	4	
13	1.0	8:30	1	34
	and 1.5	13:25	2	
	and 2.0	19:30	2	

Table 13.23 (con't)

Fitness Category III

Week	Distance (miles)	Time (min)	Freq/Wk	Points/Wk
7	1.5	18:30	5	15
8	1.0 and 1.5	10:45	3	18
9	1.5 and 2.0	16:30 14:15	2 2	26
10	1.0 and 1.5 and 2.0	20:30 8:30 13:25 19:30	2 1 2 2	34

* After completion of the progressive walk-jog program, use Table 13.25 to select a 30 point per week conditioning program.

Table 13.24 Stationary running program for fitness categories I, II, and III*

Fitness Category I (40 to 49 years of age)

Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	7:30	70-80	5	11 1/4
8	10:00	70-80	5	15
9	10:00	70-80	5	15
10	12:30	70-80	5	18 3/4
11	12:30	70-80	5	18 3/4
12	15:00	70-80	5	22 1/2
13	10:00	80-90	1	24 1/4
	and			
	17:30	70-80	3	
14	12:30	80-90	2	28
	and			
	15:00	80-90	3	
15	17:30	70-80	4	27
16	20:00	80-90	3	30

Fitness Category II

Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	10:00	70-80	5	15
8	12:30	70-80	5	18 3/4
9	12:30	70-80	5	18 3/4
10	10:00	80-90	1	24 1/4
	and			
	17:30	70-80	3	
11	12:30	80-90	2	28
	and			
	15:00	80-90	3	
12	17:30	70-80	4	27
13	20:00	80-90	3	30

Fitness Category III

Week	Duration (min)	Steps/Min**	Freq/Wk	Points/Wk
7	15:00	70-80	5	22 1/2
8	12:30	80-90	2	28
	and			
	15:00	80-90	3	
9	17:30	70-80	4	27
10	20:00	80-90	3	30

* After completing the progressive stationary running program use Table 13.25 to select a 30 point per week conditioning program.

** Count only when the left foot hits the floor. Feet must be brought at least eight inches from the floor.

running, and other activities are shown in Tables 13.26 and 13.27.

Maintenance Programs for Cardiorespiratory Fitness and Weight Control

Upon completion of the six-week starter and other programs outlined in Tables 13.7 to 13.25 a substantial improvement in fitness should have been attained. To maintain fitness, a specific program should be designed that will have similar aerobic point value (calorie cost) as the initial program and also satisfy the needs of the participant over a long time span. For many, walking and jogging may become boring and thus variety should be introduced into their program. The important thing is that participation in activities that are enjoyed are more likely to be continued.

One should check over the list of activities in Table 12.4 to see which ones best meet his interest and can still give the calorie output necessary for maintenance. Fitness is not stored but must be practiced continually. The guidelines for frequency, intensity, and duration of training do not change and should be taken into consideration when selecting activities for participation.

If goals have not been met or further development is required, then added calorie expenditure (aerobic points) is needed. For example, ideal weight may not be attained in a sixteen-week program, thus the program design should increase calorie output. Usually added frequency of training of up to five or six days per week will greatly increase the total energy expenditure. The addition of one extra 400 calorie (20 aerobic points) workout per week to the training regimen will decrease one pound of body fat every nine weeks. If this is matched by a similar reduction in food intake, it will amount to a reduction of 12 pounds in a year.

Table 13.25 Suggested conditioning programs for fitness
for categories IV and V.

	Distance (miles)	Time (min) Requirement	Freq/Wk	Points/Wk
Walking	2.0	24:00-29:00	8	32
	or 3.0	36:00-43:30	5	30
	or 4.0	58:00-79:59	5	35
	or 4.0	48:00-58:00	3	33
Running	1.0	6:30-7:59	6	30
	or 1.5	12:00-14:59	5	30
	or 1.5	9:45-11:59	4	30
	or 2.0	16:00-19:59	4	36
	or 2.0	13:00-15:59	3	33
Cycling	5.0	15:00-15:59	3	33
	or 6.0	18:00-19:59	6	30
	or 7.0	21:00-27:59	4	36
	or 8.0	35:00-31:59	3	31
Swimming	Yards 500	8:20-12:59	8	32
	or 600	10:00-14:59	6	30
	or 800	13:20-19:59	4	30
	or 1000	16:40-24:59	3	31 1/2

Table 13.25 (con't)

Suggested conditioning programs for fitness for categories IV and V.

	Duration (min)	Steps/Min*	Freq/Wk	Points/Wk
Stationary Running	10:00 in am and 10:00 in pm	70-80	5	30
	or 15:00	70-80	7	30
	or 15:00	80-90	5	30
	or 20:00	70-80	4	32

* Count only when the left foot hits the floor. Feet must be brought at least eight inches from the floor.

	Duration	Freq/Wk	Points/Wk
Handball	40:00*	5	30
Basketball	or		
Squash	50:00	4	30
	or		
	70:00	3	30

* Continuous exercise; do not count breaks and time-outs.

Table 13.26 Supplemental point chart for running and walking

1.0 Mile		4.5 Miles	
19:59---14:30 min	1	1 hr 30:00 min or longer	4 1/2*
14:29---12:00 min	2	1 hr 29:59--1 hr 5:15 min	8
11:59---10:00 min	3	1 hr 5:14--54:00 min	12 1/2
9:59---8:00 min	4	53:59---45:00 min	17
7:59---6:31 min	5	44:59---36:00 min	21 1/2
6:30---5:45 min	6	35:59---29:15 min	26
under---5:45 min	7	29:14---25:55 min	30 1/2
		under---25:55 min	33
1.5 Miles		5.0 Miles	
29:59---21:45 min	1 1/2	1 hr 40:00 min or longer	5*
21:44---18:00 min	3	1 hr 39:59--1 hr 12:30 min	9
17:59---15:00 min	4 1/2	1 hr 12:29--1 hr	14
14:59---12:00 min	6	59:59---50:00 min	19
11:59---9:45 min	7 1/2	49:59---40:00 min	24
9:44---8:40 min	9	39:59---32:30 min	29
under---8:40 min	10 1/2	32:29---28:45 min	34
		under---28:45 min	39
2.0 Miles		6.0 Miles	
40:00 min or longer	1*	2 hrs or longer	6*
39:59---29:00 min	2	1 hr 59:59--1 hr 27:00 min	11
28:59---24:00 min	4	1 hr 26:59--1 hr 12:00 min	17
23:59---20:00 min	7	1 hr 11:59--1 hr	23
19:59---16:00 min	9	59:59---48:00 min	29
15:59---13:00 min	11	47:59---39:00 min	35
12:59---11:30 min	13	38:59---34:30 min	41
under---11:30 min	15	under---34:30 min	47
2.5 Miles		7.0 Miles	
50:00 min or longer	1*	2 hrs 20:00 min or longer	7*
49:59---36:15 min	2 1/2	2 hrs 19:59--1 hr 41:30 min	13
36:14---30:00 min	5	1 hr 41:29--1 hr 24:00 min	20
29:59---25:00 min	9	1 hr 23:59--1 hr 10:00 min	27
24:59---20:00 min	11 1/2	1 hr 9:59--56 min	34
19:59---16:15 min	14	55:59---45:30 min	41
		45:29---40:15 min	48
		under---40:15 min	55
3.0 Miles		8.0 Miles	
1 hr or longer	1 1/2*	2 hrs 40:00 min or longer	8*
59:59---43:30 min	3	2 hrs 39:59--1 hr 56:00 min	15
43:29---36:00 min	6	1 hr 55:59--1 hr 36:00 min	23
35:59---30:00 min	11	1 hr 35:59--1 hr 20:00 min	31
29:59---24:00 min	14	1 hr 19:59--1 hr 4:00 min	39
23:59---19:30 min	17	1 hr 3:59--52:00 min	47
19:29---17:15 min	20	51:59---46:00 min	55
under---17:15 min	23	under---46:00 min	63
3.5 Miles		9.0 Miles	
1 hr 10:00 min or longer	1 1/2*	3 hrs or longer	9*
1 hr 9:59--50:45 min	3 1/2	2 hrs 59:59--2 hrs 10:30 min	17
50:44---42:00 min	7	2 hrs 10:29--1 hr 48:00 min	26
41:59---35:00 min	13	1 hr 47:59--1 hr 30:00 min	35
34:59---28:00 min	16 1/2	1 hr 29:59--1 hr 12:00 min	44
27:59---22:45 min	20	1 hr 11:59--48:30 min	53
22:44---20:10 min	23 1/2	58:29---41:45 min	62
under---20:10 min	27	under---41:45 min	71
4.0 Miles		10.0 Miles	
1 hr 20:00 min or longer	4*	3 hrs 20:00 min or longer	10*
1 hr 19:59--58:00 min	7	3 hrs 19:59--2 hrs 25:00 min	19
57:59---48:00 min	11	2 hrs 24:59--2 hrs	29
47:59---40:00 min	15	1 hr 59:59--1 hr 40:00 min	39
39:59---32:00 min	19	1 hr 39:59--1 hr 20:00 min	49
31:59---26:00 min	23	1 hr 19:59--1 hr 5:00 min	59
25:59---23:00 min	27	1 hr 4:59--57:30 min	69
under---23:00 min	31	under 57:30 min	79

*Exercise of sufficient duration to be of cardiovascular benefit. At this speed, ordinarily no training effect would occur. However, the duration is of such extent that a training effect does begin to occur.

Table 13.27 Supplemental point chart for other aerobic activities

CYCLING

2 Miles	Points	6 Miles	Points
12 min or longer	0	36 min or longer	1*
11:59-8:00	1	35:59-24:00 min	3
7:59-6:00	2	23:59-18:00	6
Under 6:00	3	Under 18:00	9
3 Miles	Points	8 Miles	Points
18 min or longer	0	48 min or longer	3 1/2*
17:59-12:00 min	1 1/2	47:59-32:00 min	6 1/2
11:59-9:00	3	31:59-24:00 min	10 1/2
Under 9:00	4 1/2	Under 24:00 min	14 1/2
4 Miles	Points	10 Miles	Points
24 min or longer	0	60 min or longer	5 1/2*
23:59-16:00 min	2	59:59-40:00 min	8 1/2
15:59-12:00 min	4	39:59-30:00 min	13 1/2
Under 12:00 min	6	Under 30:00 min	18 1/2
5 Miles	Points		
30 min or longer	1*		
29:59-20:00 min	2 1/2		
19:59-15:00 min	5		
Under 15:00 min	7 1/2		

* Exercise of sufficient duration to be of cardiovascular benefit. At this speed, ordinarily no training effect would occur. However, the duration is of such extent that a training effect does begin to occur.

Table 13.27 (con't)

SWIMMING

200 Yards	Points	600 Yards	Points
6:40 min or longer	0	20:00 min or longer	1 1/2*
6:39-5:00 min	1	19:59-15:00 min	4
4:59-3:20 min	1 1/2	14:59-10:00 min	5
Under 3:20 min	2 1/2	Under 10:00 min	7 1/2
300 Yards	Points	700 Yards	Points
10:00 min or longer	1*	23:20 min or longer	1 1/2*
9:59-7:30 min	1 1/2	23:19-17:30 min	4 1/2
7:29-5:00 min	2 1/2	17:29-11:40 min	6
Under 5:00 min	3 1/2	Under 11:40 min	8 1/2
400 Yards	Points	800 Yards	Points
13:20 min or longer	1*	26:40 min or longer	2 1/4*
13:19-10:00 min	2 1/2	26:39-20:00 min	5 3/4
9:59-6:40 min	3 1/2	19:59-13:20 min	7 1/4
Under 6:40 min	5	Under 13:20 min	10 3/4
500 Yards	Points	1000 Yards	Points
16:40 min or longer	1*	33:20 min or longer	4*
16:39-12:30 min	3	33:19-25:00 min	8 1/4
12:29-8:20 min	4	24:59-16:40 min	10 1/2
Under 8:20 min	6	Under 16:40 min	14 1/2

* Exercise of sufficient duration to be of cardiovascular benefit. At this speed, ordinarily no training effect would occur. However, the duration is of such extent that a training effect does begin to occur.

HANDBALL/BASKETBALL/SQUASH*

Duration	Points	Duration	Points
10	1 1/2	55	8 1/4
15	2 1/4	60	9
20	3	65	9 3/4
25	3 3/4	70	10 1/2
30	4 1/2	75	11 1/4
35	5 1/4	80	12
40	6	85	12 3/4
45	6 3/4	90	13 1/2
50	7 1/2		

* Continuous exercise. Do not include breaks, time-outs, etc.

Table 13.27 (con't)

STATIONARY RUNNING

Time	*60-70		*70-80		*80-90	
	Steps/Min	Points	Steps/Min	Points	Steps/Min	Points
2:30			175-200	3/4	200-225	1
5:00	300-350	1 1/4	350-400	1 1/2	400-450	2
7:30			525-600	2 1/4	600-675	3
10:00	600-700	2 1/2	700-800	3	800-900	4
12:30			785-1000	3 3/4	1000-1125	5
15:00	900-1050	3 3/4	1050-1200	4 1/2	1200-1350	6
17:30			1225-1400	6 1/4	1400-1575	8 1/2
20:00	1200-1400	7	1400-1600	8	1600-1800	10

* Count only when the left foot hits the floor. Feet must be brought at least eight inches from the floor.

ROPE SKIPPING

Minutes	Points
5	1 1/2
10	3
15	4 1/2

Skip with both feet together or step over the rope alternating one foot at a time.

VOLLEYBALL

Minutes	Points
15	1
30	2
60	4

WRESTLING

Minutes	Points
5	2
10	4
15	6

BENCH STEPPING (7 in step)

Stepping Rate (per min)	Time (min)	Points
30	6:30	1 1/2
	9:45	2 1/4
	13:00	3
35	6:00	2
	9:00	3
	12:00	4
40	5:00	2 1/2
	7:30	3 3/4
	10:00	5

Earlier in this chapter, cardiac rehabilitation was mentioned briefly. Although many of the guidelines and exercise prescriptions used in this chapter can be readily adapted for use in cardiac rehabilitation programs, officers with high risk of coronary heart disease or with diagnosed CHD should be exercised only after having an examination by a physician and according to his recommendations. Cardiac rehabilitation programs generally are conducted under the supervision of a medical doctor or highly trained paramedical team.

Programs for Muscular Strength and Endurance, and Flexibility

As described in Chapter 2, muscular strength and endurance are developed by using the overload principle, that is applying more tension on the muscle than is normally used. Muscular strength is best developed by using heavy weights (maximum tension applied) with few repetitions and muscular endurance by using lighter loads along with a greater number of repetitions. Actually both strength and endurance can be developed under each condition, but each system favors a more specific type of development.

Muscular strength and endurance can be developed by means of either isometric (static) or isotonic (going through the full range of motion) exercise. Although both types of training have their advantages and disadvantages, isotonic exercises are recommended for the development and maintenance of muscular strength and endurance. Isotonic exercises should be rhythmical, follow through the full range of motion, and not impede normal forced breathing. Lifting heavy weights impedes blood circulation and breathing and can be potentially dangerous for persons with high blood pressure, coronary heart disease, and other circulatory problems (10). Therefore, the use of lighter weights is recommended.

Table 13.27 (con't)

STATIONARY RUNNING

Time	*60-70		*70-80		*80-90	
	Steps/Min	Points	Steps/Min	Points	Steps/Min	Points
2:30			175-200	3/4	200-225	1
5:00	300-350	1 1/4	350-400	1 1/2	400-450	2
7:30			525-600	2 1/4	600-675	3
10:00	600-700	2 1/2	700-800	3	800-900	4
12:30			785-1000	3 3/4	1000-1125	5
15:00	900-1050	3 3/4	1050-1200	4 1/2	1200-1350	6
17:30			1225-1400	6 1/4	1400-1575	8 1/2
20:00	1200-1400	7	1400-1600	8	1600-1800	10

* Count only when the left foot hits the floor. Feet must be brought at least eight inches from the floor.

ROPE SKIPPING

Minutes	Points
5	1 1/2
10	3
15	4 1/2

Skip with both feet together or step over the rope alternating one foot at a time.

VOLLEYBALL

Minutes	Points
15	1
30	2
60	4

WRESTLING

Minutes	Points
5	2
10	4
15	6

BENCH STEPPING (7 in step)

Stepping Rate (per min)	Time (min)	Points
30	6:30	1 1/2
	9:45	2 1/4
	13:00	3
35	6:00	2
	9:00	3
	12:00	4
40	5:00	2 1/2
	7:30	3 3/4
	10:00	5

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It has already been stated that the emphasis of the exercise prescription should be based on a good endurance conditioning program which is supplemented by an exercise routine to develop and maintain muscular strength, endurance, and flexibility. It is felt that this type of training program best meets the needs of police officers. Therefore, as an adjunct to the previously described aerobics program, a series of exercises to develop and maintain muscular strength, endurance, and flexibility for most of the major muscle groups of the body are outlined.

The exercise routines are divided into the following categories: upper body, trunk, and lower back stretching (1 through 6); leg stretching (7 through 12); and, muscular strength and endurance. Many of the exercises have several options from which to choose. In the first two categories (stretching exercises), some of the alternate exercises are more advanced and should be used only after the original exercise has been mastered. The muscular strength and endurance exercises offer options depending on whether or not weight training equipment is available.

The stretching exercises should be included as part of the warm-up routine prior to starting the aerobics phase of the program. The muscular strength and endurance routine can be used either after the stretching routine or after the aerobic phase.

Prior to starting the aforementioned routines, the participant should be with the described starting position, movement, and suggested repetitions. The training load has been designed to give the participant a moderate amount of muscular strength and endurance. This is considered the safest and most sensible manner to approach flexibility and muscular strength and endurance training.

To help avoid muscle soreness in weight training exercises, the starting weight should be light (approximately 50 percent of maximum that can be lifted in one repetition). After a few weeks of training, 60 to 70 percent of maximum can be attained. As soon as the required number of repetitions can be easily managed, more weight can be added. This is usually accomplished by adding 5 pounds of weight for arm and 10 pounds for leg exercises. For those participants who want to place more emphasis on strength development, a different training load and added sets would be necessary. The texts by Rasch (16) or Hooks (7) are recommended for more advance weight training programs.

UPPER BODY, TRUNK, AND LOWER BACK STRETCHING EXERCISES

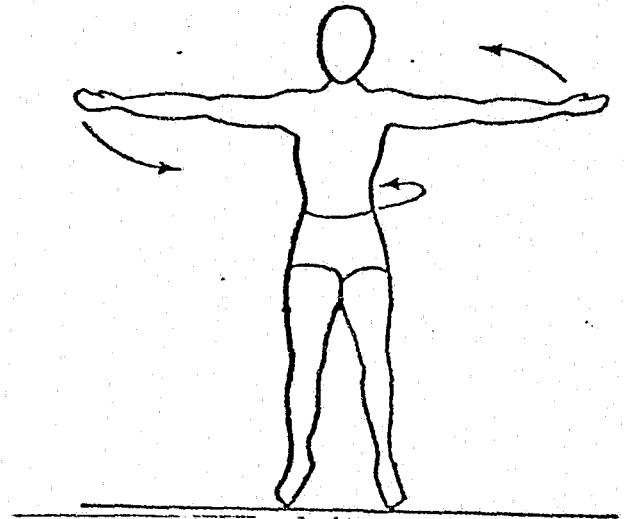
1. Trunk Rotation

Purpose: To stretch muscles in the back, sides, and shoulder girdle.

Starting Position: Stand astride with feet pointed forward; raise arms to shoulder level. May use bar to increase stretch to the deltoid muscle and waist.

Movement: Twist trunk to the right; avoid lifting heels. Repeat 3-to 4 times before twisting to left side.

Repetitions: 10



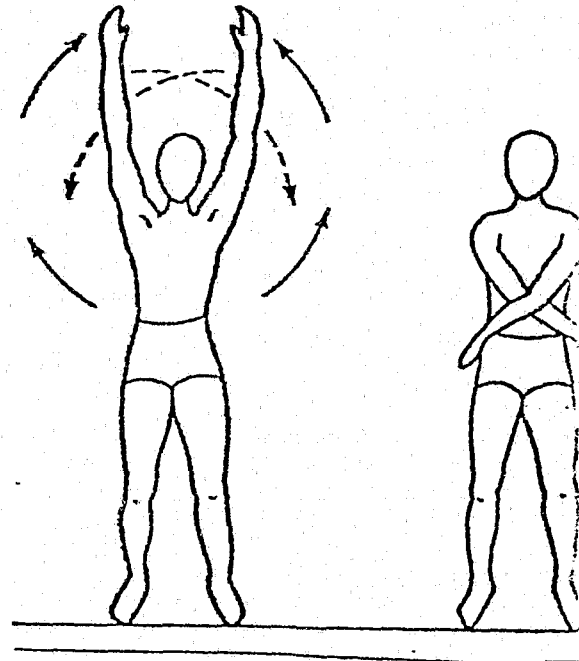
2. Double Arm Circles and Toe Raises

Purpose: To stretch muscles of the shoulder girdle and to strengthen muscles of the feet.

Starting Position: Stand with feet about 12 inches apart and arms at sides.

Movement: Swing arms upward and around, making large circles. As arms are raised and crossed overhead, rise on toes.

Repetitions: 10 to 15



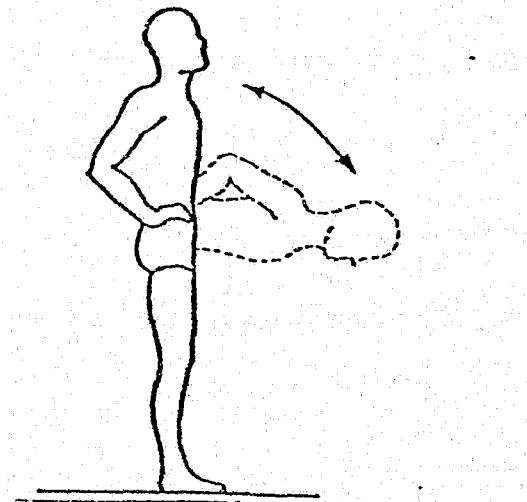
3A. Forward Bend

Purpose: To stretch muscles of the buttocks and posterior leg.

Starting Position: Stand astride with hands on hips.

Movement: Slowly bend forward to a 90 degree angle; return slowly to starting position; keep back flat.

Repetitions: 10



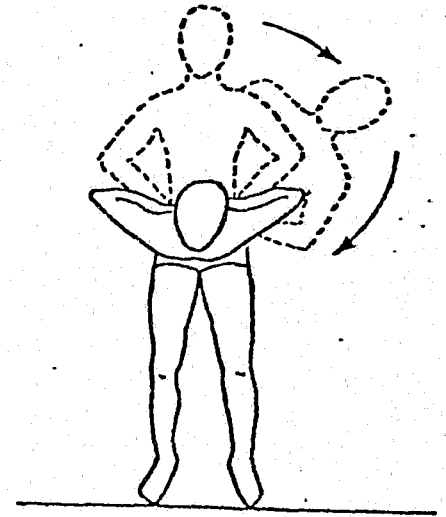
3B. Abdominal Churn

Purpose: To stretch muscles of the buttocks, abdomen, and posterior leg.

Starting Position: Stand astride with hands on hips.

Movement: Lower trunk sideward to left; rotate to forward position and to right; return to upright position. Repeat and reverse direction after 2 rotations.

Repetitions: 5 to 8



3C. Bar Hang

Purpose: To stretch muscles of arms, shoulders, back, trunk, hips, and pelvic regions. Good general body stretcher.

Starting Position: Hang from bar with arms straight.

Repetitions: 1 for up to 60 seconds

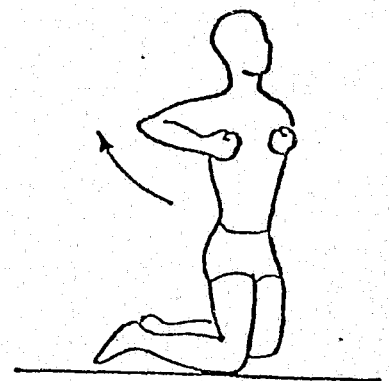
4. Shoulder and Chest Stretch

Purpose: To stretch muscles of the chest and shoulders.

Starting Position: Stand astride or kneel with arms at shoulder level and elbows bent.

Movement: Slowly force elbows backward and return to starting position.

Repetitions: 10 to 15



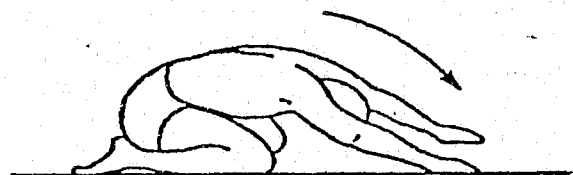
5A. Lower Back Stretch

Purpose: To stretch muscles in the lower back.

Starting Position: Crouch on hands and knees.

Movement: Slowly rock back until buttocks touch heels; emphasize rounding back; return to starting position.

Repetitions: 10



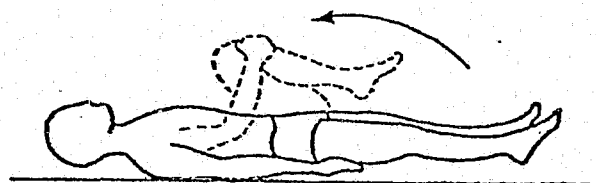
5B. Alternate Lower Back Stretch

Purpose: To stretch muscles in the lower back and buttocks.

Starting Position: Lie on back with the legs extended or stand erect.

Movement: Lift and bend one leg; grasp the knee and keep the opposite leg flat; pull knee to chest. Repeat with alternate leg.

Repetitions: 10



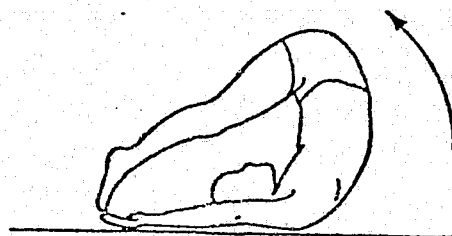
5C. Advanced Lower Back and Hamstring Stretch

Purpose: To stretch muscles of the lower back and hamstring muscles.

Starting Position: Lie on back with legs bent.

Movement: Keep knees together and slowly bring them over the head; straighten the legs and touch the toes to the floor; return to starting position.

Repetitions: 5 to 10



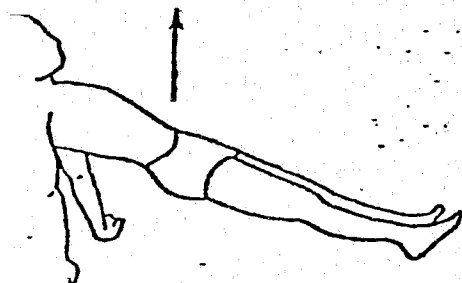
6. Inverted Stretch

Purpose: To stretch and strengthen the anterior hip, buttocks, and abdominal muscles.

Starting Position: Sit with arms at side.

Movement: Support body with heels and arms and raise trunk as high as possible.

Repetitions: 10



LEG STRETCHING EXERCISES

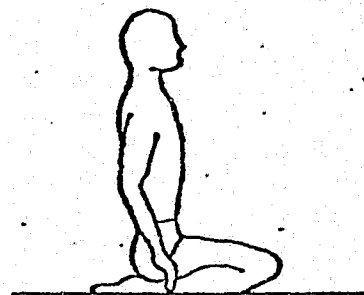
7A. Front Leg Stretch

Purpose: To stretch the muscles in the anterior leg.

Starting Position: Kneel with tops of ankles and feet flat on the ground.

Movement: Lean backward slowly; keep the back straight; maintain tension on muscles for 30 to 60 seconds.

Repetitions: 1 to 2



7B. Front Leg Stretch

Purpose: To stretch the muscles of the anterior thigh and hip.

Starting Position: Lie on the ground with face down or stand erect.

Movement: Pull the ankle to the hip slowly; hold for 3 counts and release the ankle. Use same procedure for other side.

Note: If difficulty is encountered in assuming starting position, ask for assistance.

Repetitions: 5 to 10



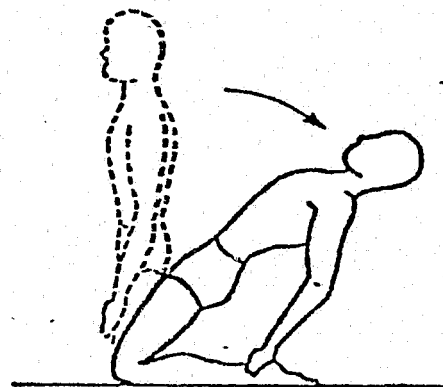
7C. Advanced Front Leg Stretch

Purpose: To stretch the muscles of the anterior thigh.

Starting Position: Kneel with feet turned outward.

Movement: Lean backward slowly; put constant tension on muscles; use arms to control the movement; hold backward position for 30 to 60 seconds.

Repetitions: 1 to 2



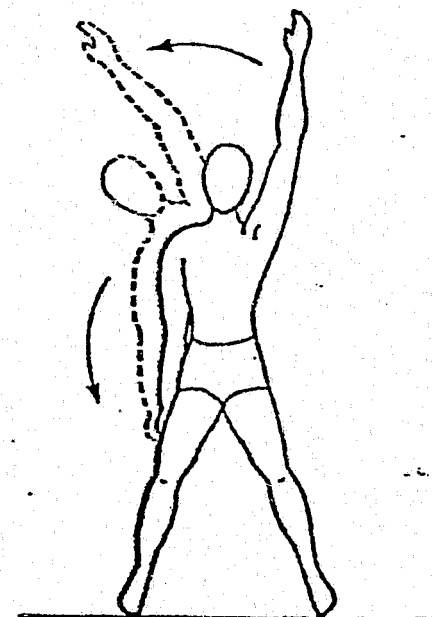
8. Side Stretch

Purpose: To stretch the medial muscles of the thigh and the lateral muscles of the trunk and thorax.

Starting Position: Stand erect with one arm extended upward and the other relaxed at the side; place feet apart at more than shoulder width.

Movement: Bend trunk directly to the right with the left arm stretching overhead; keep both feet flat. Use same procedure for other side.

Repetitions: 5 to 10



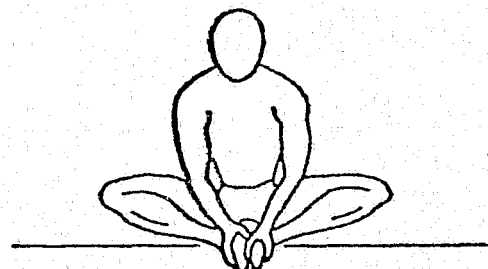
9. Groin Stretch

Purpose: To stretch the groin muscles.

Starting Position: Sit with knees bent outward and the bottoms of the feet together.

Movement: Grasp ankles and pull the upper body as close as possible to the feet. Hold stretch for 30 to 60 seconds. Repeat with other leg.

Repetitions: 1 to 2



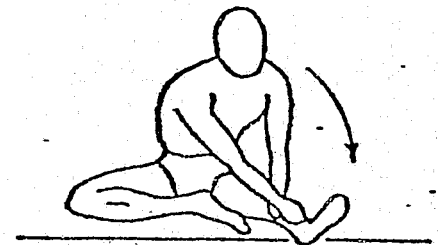
10. Hamstring Stretch

Purpose: To stretch the muscles in the posterior leg and thigh.

Starting Position: Sit on ground with one leg extended straightforward; place the other leg forward with the knee bent and the sole touching the inner thigh of the extended leg.

Movement: Bend forward and attempt to touch the head to the knee; hold stretch for 30 to 60 seconds. Repeat with other leg.

Repetitions: 1 to 2



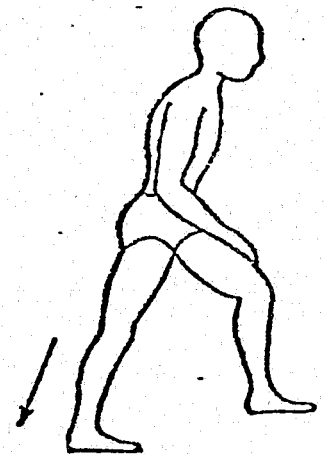
11A. Calf Stretcher

Purpose: To stretch the posterior leg and ankle muscles.

Starting Position: Stand in forward stride position with the forward knee partially flexed and the rear leg fully extended; keep feet pointed forward and heels flat on the ground.

Movement: Lean trunk forward until a continuous stretch occurs in the rear calf; hold stretch for 30 to 60 seconds. Repeat with other leg.

Repetitions: 1 to 2



11B. Calf Stretcher

Purpose: To stretch the posterior leg muscles.

Starting Position: Stand in upright position with the balls of the feet on the edge of a step.

Movement: Slowly lower heels and hold for 30 to 60 seconds; raise heels and rise on toes.

Repetitions: 1 to 2

MUSCULAR STRENGTH AND ENDURANCE EXERCISES

Two options will be illustrated for each of the following routines. The first option (A) will utilize weights; the second (B) stresses the same muscle group, but without utilizing weights.

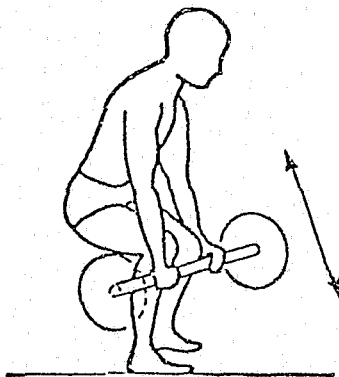
12A. Weight Training Warm-Up

Purpose: To utilize all of the major muscle groups in a warm-up routine prior to concentrating on specific muscle groups.

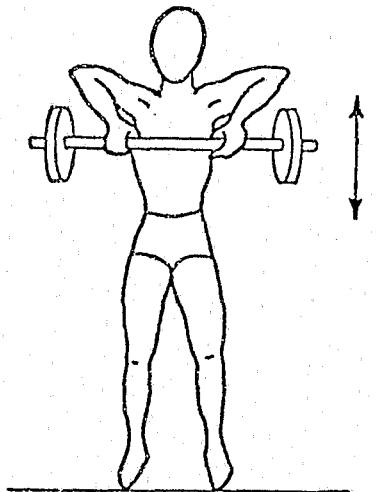
Starting Position: Place feet astride; bend knees; keep back straight; hold a bar with an overhand grip. (Position A)

Movement: Straighten legs with back still straight; raise elbows to shoulder height or higher (Position B); lower elbows next to the trunk and keep the weight at chest level; press the weight over the head and fully extend arms (Position C); return weight to floor.

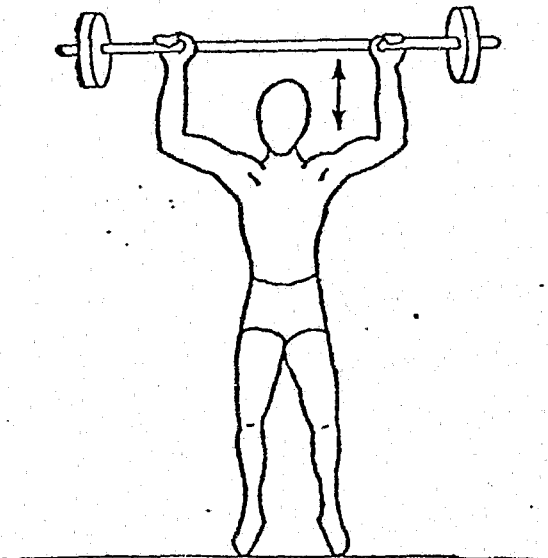
Repetitions: 8 to 10



Position A.



Position B.



Position C.

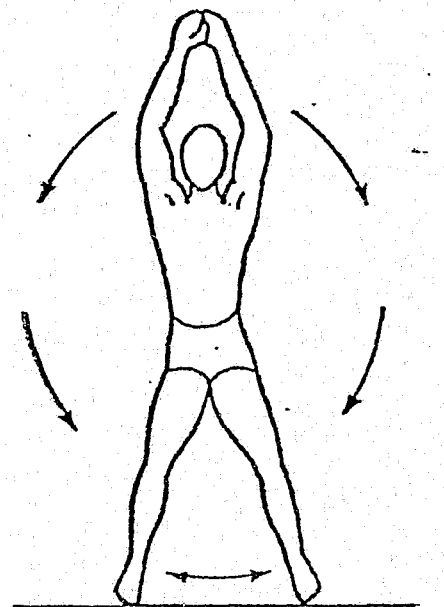
12B. Jumping Jacks

Purpose: To utilize all of the major muscle groups in a warm-up routine prior to concentrating on specific muscle groups.

Starting Position: Stand erect with feet together and arms at the side.

Movement: Swing arms upward until over head and spread feet apart in one movement; in second movement, return to starting position.

Repetitions: 20



13. Military Press

Purpose: To strengthen the shoulder, upper back, and arm muscles.

Starting Position: Support weight at shoulder level with an overhead grip.

Movement: Push weight directly overhead; keep the back and knees straight; return the weight slowly to starting position.

Repetitions: 10 to 12

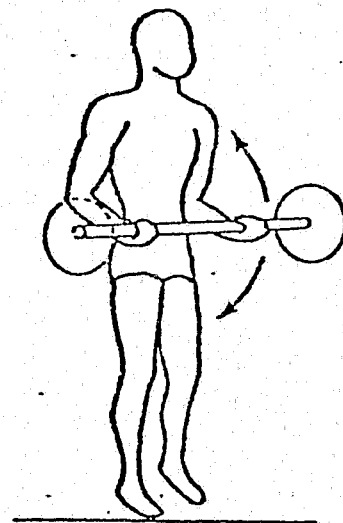
14A. Curl

Purpose: To strengthen the anterior arm muscles.

Starting Position: Hold weight with a palms-up grip; keep arms straight.

Movement: Bend arms and bring weight up to chest; return slowly.

Repetitions: 10 to 12



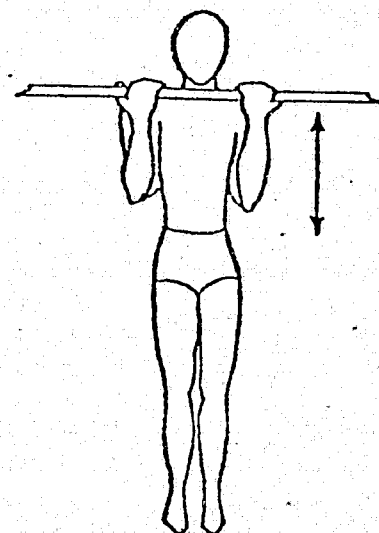
14B. Pull-Up

Purpose: To strengthen the anterior arm, upper back, and shoulder muscles.

Starting Position: Place hands about 18 inches apart on overhead bar with either a palms-in or a palms-out grip; keep arms straight in order to support the body.

Movement: Pull body up so chin comes above the bar; slowly lower the body to starting position.

Repetitions: Progress to 10 to 15



18A. Back Hyperextension

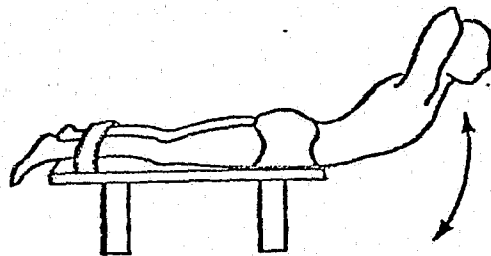
Purpose: To strengthen the lower back muscles.

Starting Position: Lie on a bench with the face down; extend the body from above the waist over the edge of the bench; strap or hold the feet to the other end of the bench.

Movement: Lift head and trunk; slowly lower head and trunk.

Note: Do not hyperextend.

Repetitions: Progress to 10 to 15.



18B. Back Tightener

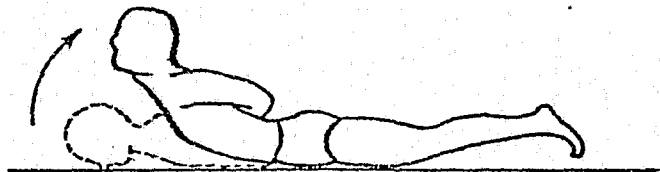
Purpose: To strengthen the lower back muscles.

Starting Position: Lie on floor with face down; fold hands over lower back area.

Movement: Raise head and chest and tense the gluteal and lower back muscles.

Caution: Do not hyperextend; just raise head and chest slightly off the floor; concentrate mainly on tensing gluteal muscles.

Repetitions: 10 to 15



19. Squat

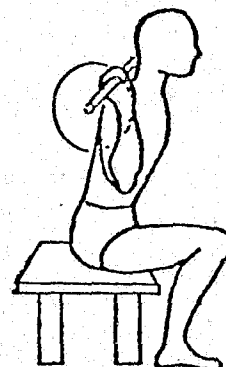
Purpose: To strengthen the anterior thigh and buttock muscles.

Starting Position: Stand erect with feet astride and support weight on shoulders with palms-up grip.

Movement: Keep the back straight and bend knees into a squat position; return to the standing position.

Note: Do half squat if knees are weak.

Repetitions: 10 to 12



20A. Heel Raises

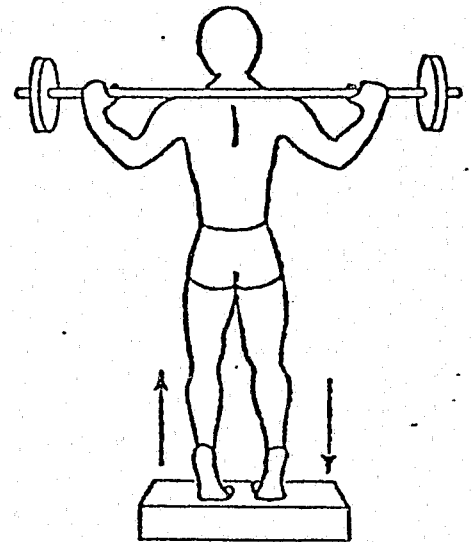
Purpose: To strengthen the calf muscles.

Starting Position: Place feet astride and hold weight on shoulders with a palms-up grip.

Movement: Raise to a toe position; lower body.

Note: A board may be placed under the toes to increase the range of motion.

Repetition: 10 to 15



20B. Heel Raises

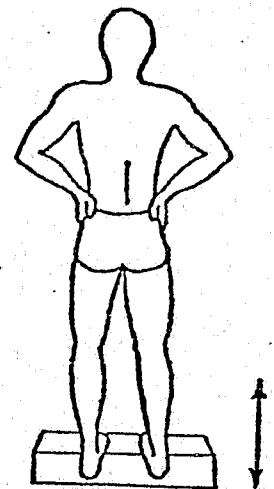
Purpose: To strengthen the calf muscles.

Starting Position: Place feet astride and use arms for balance if necessary.

Movement: Raise to a toe position; lower body.

Note: A board may be placed under the toes to increase the range of motion.

Repetition: 10 to 15



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PART III

CHAPTER 14

PROGRAM IMPLEMENTATION

Several factors are important to consider in implementing a physical fitness program for police; namely, program staff, evaluation, exercise prescription, leadership and supervision, motivation, and education. These factors interrelate and help make a police fitness program comprehensive, safe, and practical.

The PROGRAM STAFF should include a medical director, program director, exercise leader(s), and technician(s). The medical director should be a licensed physician and assume the leadership role in the interpretation of medical information. The physician should work closely with the program director in determining the status of health of each individual being tested and in helping to disseminate this information on each of the participants. It is the responsibility of the medical director to see that the evaluation and activity phases of the program are conducted in a safe manner.

The program director should be an exercise specialist, highly trained in the areas of evaluation, program development and implementation, and exercise physiology. This training can be obtained through graduate programs specializing in exercise physiology and physical fitness programs, workshops, and special training programs. The program director must work with the physician in setting up adequate exercise testing procedures; prescribing proper exercise; leading and supervising the program in a safe and efficient manner according to the needs of the participants; and providing educational input so that the participant will understand the need for testing, exercise prescription, and a physical fitness program. The program director should coordinate his efforts with the

medical director and provide a good program with highly trained exercise leaders and technicians.

The exercise leader should be well trained in exercise physiology and in leading activity programs. It is important for the exercise leader to have rapport with the people in the program and the ability to conduct programs on an individual or group basis. The exercise leader should work directly with the program director in order to provide adequate leadership and supervision to the participants.

Exercise technicians must be well trained in administering tests and should assist the physician and/or program director in testing. For a more detailed explanation of the role and competencies necessary for various personnel in the adult fitness program staff, see Guidelines for Graded Exercise Testing and Exercise Prescription developed by the American College of Sports Medicine (8).

The EVALUATION process is concerned with obtaining certain preliminary information as well as administering a comprehensive testing program. See Chapter of this report for details concerning the evaluation process. Preliminary information includes such items as a physical examination, consultation with a family physician, completion of a medical history questionnaire, explanation and signing of an informed consent form, and, if possible, an exercise stress test. For those individuals who are asymptomatic, apparently low risk in relation to coronary heart disease, and under the age of 35, a complete physical examination and stress test may not be required (8). In all cases, some preliminary screening is required so that an adequate exercise prescription can be determined. A signed informed consent form for both stress testing and program implementation is necessary (8, 29). Participants should

understand the nature of the tests and the program and the potential value and risk that may be involved. Also, participants should not be forced, coerced, or inadequately advised with the objective of obtaining better performance on a test or increasing adherence to the program. Such procedure violates human rights and is against policy established by the federal government (National Institutes of Health) and most professional organizations. Further explanation of informed consent and examples of forms used by various organizations can be found in the literature (8, 12, 29). An example of an informed consent of stress testing at the Institute for Aerobics Research is shown in Appendix A.

The basic testing program should assess cardiorespiratory fitness, body composition, certain blood values, muscular strength and endurance, and flexibility. Testing is important because it serves as a base of comparison for later evaluations. Cardiorespiratory fitness tests should include resting heart rate, blood pressure, a standard 12-lead electrocardiogram (ECG), and an exercise test to at least 85% of predicted maximum heart rate (7). The exercise test should be ECG and blood-pressure monitored (7, 8, 29). An exercise stress test is important because of its diagnostic value in assessing the presence of coronary heart disease; it also gives the program director some baseline information for determining an adequate exercise prescription (3, 7, 8, 12, 29). The use of less sophisticated tests for cardiorespiratory fitness may be used on young, low risk officers (8, 11). In this case, a submaximal bicycle test, three-minute bench step test, or 12-minute run field test may be used (4, 11). Usually 4 to 6 weeks of preliminary endurance training is recommended prior to the use of the 12-minute run test.

Body composition encompasses a determination of percent body fat as well as a subsequent determination of ideal weight (2, 21, 25). This can be determined by use of a skinfold fat caliper and steel tape. Blood measures should include serum cholesterol, triglycerides, and glucose values. Muscular strength and endurance tests should relate to the major muscle groups of the body. A one-repetition bench press appears to be a good field measure of total body strength (11). Also, maximum pushups and timed, one-minute, bent-legged situps are used regularly for assessing muscular endurance (11). The measurement of flexibility is particularly important. Because of the importance of the lower back region, the sit and reach test is recommended (11).

This battery of tests offers a comprehensive testing program for police. If time, money, and equipment are available, other tests can be included. For example, the assessment of maximum oxygen intake is an excellent test, but is considered a luxury in an evaluation program. Maximum oxygen intake can be estimated accurately with time on the treadmill, heart rate response to a sub-maximal bicycle or bench step test, and the 12-minute run test (3, 4, 11, 23). After undergoing adequate screening and evaluations, the participants are ready for the exercise prescription.

EXERCISE PRESCRIPTION is dependent on needs (job description, likes and dislikes, etc.), goals, physical and health status, age, available time, and equipment and facilities. These factors vary greatly among police; therefore, the individual approach to exercise prescription is recommended (1, 4, 8, 12, 18, 29). Officers in the field have a greater need for muscular strength exercises than the police executive. Thus, training for the field officer should emphasize both cardiorespiratory endurance training and muscular strength exercises.

As an officer gets older, the need for a preventive health program becomes more evident. The results from this project (Promoting Physical Fitness Among Police Officers, Final Report I - Results, Chapter 4) showed that police officers 20-29 years of age were of average risk for coronary heart disease, and officers over 30 years of age were at higher risk. Thus, coronary risk factor profile for prediction of coronary heart disease became significantly higher with age and a need for a preventive health program was shown. Lack of regular physical training was apparent in most police officers studied. Thus, as an officer gets older, emphasis should be placed more on the development and maintenance of cardiorespiratory fitness. The initial experience with endurance training should be of low to moderate intensity and progression which allows for gradual adaptation. On the basis of experience with adult programs, the abrupt approach can result in discouraging future motivation for participation in endurance activities. Improper prescription also can lead to undue muscle strain or soreness, orthopedic problems, undue fatigue, and risk of precipitating a heart attack. The latter is rare and occurs mainly with middle-aged and older participants. Most incidents have occurred because of the lack of previous medical clearance and evaluation, incorrect exercise prescription, inadequate supervision, or an extreme climatic condition such as excess heat and humidity.

These guidelines are directed toward the average policeman who would like an exercise program to develop and maintain cardiorespiratory fitness and desirable body fat composition and muscle tone. The following guidelines are geared to the healthy officer who is not physically disabled and has approximately one hour of time available 3 to 5 days per week. The program director must consider several factors in prescribing exercise; frequency, intensity, and

duration of training; mode of activity; and initial level of physical fitness (4, 5, 13, 19). In general, for the purpose of developing and maintaining a good cardiorespiratory system and keeping the body composition in proper proportions, the prescription should include a frequency of 3 to 5 days per week, intensity between 60 and 90% of maximum, and duration of 15 to 45 minutes. The mode of activity can be any sustained endurance type such as fast walking, running, bicycling, or swimming. Game activities also are good modes of activity if they are a sustained effort and not too intermittent. The initial level of fitness is quite important because persons with low levels do not adapt as well to exercise regimens and thus should have programs of lower intensity and longer duration. Listed below are some findings observed during exercise programs over the past ten years:

1. Improvements in physical fitness are related directly to frequency, intensity, and duration of training (19, 27).

2. If the intensity is between 70 and 90% of maximum, the frequency between 2 and 5 days per week, and duration of 30 to 45 minutes, a significant cardiorespiratory response to exercise can be attained (14, 17, 20).

3. If diet is held constant, body weight and fat changes do not occur in programs of less than 3 days per week (14, 15, 17, 20).

4. Intensity and duration are interrelated and, in general, the total energy expenditure of the program is the most important factor. If participants work at a higher intensity such as in a running program, then the duration does not need to be as great as for a moderate intensity program (4, 17, 19). For middle-aged and older individuals, a moderate intensity program of longer duration is recommended (4, 5).

5. If the first four items are taken into consideration, the mode of activity appears to be independent of the training effect (4, 22).

6. Older people with lower levels of fitness take longer to adapt to exercise. If given the proper adaptation period, they can progress to a satisfactory level of physical fitness (24).

7. Recent results show a significantly higher incidence of injury due to musculoskeletal problems for beginning runners due to increased frequency and duration of training. Thus, a recommended program for beginners is to intersperse a day of rest between days of activity and to limit duration to 15 to 30 minutes. The exception to this recommendation is if participants are engaged in a moderate walking program (26).

These seven findings, plus the results shown in Chapter 6, should give better inference to the program director as to the rationale for the exercise prescription recommended for police officers.

Each exercise session should include a 10- to 15-minute warm-up followed by a 15- to 45-minute endurance activity period and conclude with a 5- to 10-minute cool-down (4, 5). An exception to this would be the officer in the field who needs an extra 10 to 15 minutes for strength training. In prescribing exercise, it is best to think of a program as initially developmental in nature and progressing to a maintenance regimen (4, 5). Those having a lower level on the fitness scale require a longer developmental period. A starter program for the developmental phase should include low to moderate intensity activities and stretching and low to moderate intensity calisthenics. After the participants have adapted to that level of activity, the exercise requirements should be progressed. The increase in workload should occur each week or two weeks until the participants reach the maintenance level of fitness. Low fit or older

individuals require longer adaptation periods and slower progression periods. After age 30, it is estimated that the increase in time for adaptation is approximately 40% per decade; that is, if 30-year-old participants progress every 2 weeks, the 40-year-old group advances approximately every 3 weeks, and the over 50 individuals, every 4 weeks. In general, the starter program will last from 5 to 10 weeks, followed by a 3- to 5-month slow progression period, and reaching the maintenance program in 6 months to a year.

Recordkeeping for quantifying the program is another important phase of the exercise prescription. Appendix B shows an example of an exercise log form used at the Aerobics Center, Dallas, Texas. A form similar to this was used in the study on police officers. The log lists a variety of exercises which the participant can record, and thus, the aerobic point (oxygen cost) values of the program can be evaluated. For ease of use, the aerobic point system can be computerized, which facilitates data quantification and feedback to the program director and participant.

LEADERSHIP and SUPERVISION are extremely important in the implementation of a physical training program. Without proper leadership, on-the-spot counseling as to program modification and special considerations due to injury cannot be properly assessed. Many of the guidelines for proper exercise prescription have been developed for average persons and do not allow for individual differences within a group of participants (4, 28). Therefore, on-the-spot guidance is essential. Such counseling also serves as a motivator in that the participants see the staff actively engaged in the program.

Part of the leadership aspect of directing and leading a program is to show physical leadership. That is, the staff should look the part, have good health practices (non-smoker), and participate regularly. The leader does not

have to be the best fit person in the program but regular participation will gain the respect of the other officers.

Officers should be taught to monitor their own programs, specifically to pace themselves and to count their heart rate properly. In a run-walk type program, participants usually are training on a known distance course and can pace themselves with a stopwatch or wristwatch with a sweep second hand. The accuracy of keeping pace can be improved by providing known distance reference points every 100 to 110 yards. Heart rate is easy to count and relates well to oxygen costs (6). The participants should count the heart rate as quickly as possible after cessation of exercise before the heart rate begins to decrease (10). The best method for assessing heart rate is to count beats per 10 seconds at either the carotid artery (neck area) or by placing the palm of the hand over the apex of the heart. With concentration and practice, this method has proved to be very accurate (18).

In general, walking programs range from 50 to 75% of maximum heart rate and jogging-running programs, from 80 to 95% of maximum. Programs that sustain the heart rate over 90% of maximum are considered to be high intensity work (17). Most people jog at approximately 85% of maximum heart rate. The percent of maximum heart rate should be determined by subtracting the resting heart rate from the maximum heart rate (18). Failure to take the resting heart rate into consideration may cause the energy cost of the activity to be overestimated (6).

Evaluation and exercise prescription often are overemphasized in relation to the LEADERSHIP and MOTIVATION phases of the program. The best adherence rates to exercise programs are attained through these latter two phases. It is not difficult to motivate people to exercise for a few weeks or months in order to

develop significant improvements in their physical fitness status; but it is difficult to motivate people to exercise for a lifetime. The aspects of motivation which have tended to be successful are good supervision, proper exercise prescription, individualized exercise prescription, group participation, setting realistic, intermittent goals, periodic evaluation, variety in the program, desirable environment, low-key competition for motivation, periodic awards, and education.

Proper exercise prescription not only makes a program more enjoyable and tolerable for the participants, but also decreases attrition due to injury and discouragement. Although many participants enjoy exercising alone, training in groups usually adds to adherence. Periodic evaluations are important and should be scheduled 8 to 10 weeks after initiating the program, at 6 months, and at one-year intervals. Such evaluations should focus attention on the improvement in fitness and health as well as the adaptation of the body to exercise.

There are many methods which can be used to attain physical fitness (4, 5, 19). Therefore, participation in a variety of activities is recommended and can be accomplished by interchanging various activities. Choosing different activities tends to keep a participant interested in endurance exercise over a long-term period. For example, one might jog 30 minutes on Monday and Thursday and play handball or basketball on Tuesday and Friday. Also, running through the woods or in parks rather than around the track appears to make exercise more interesting. Likewise, many exercise leaders use music in conjunction with their exercise programs. The important factor is that the person participates in these activities frequently and with sufficient intensity and duration.

Giving back to the participant a monthly record on total aerobic points acts as a motivator for program continuation. Using the exercise log as described above and quantifying the aerobic points for the participant helps give continual feedback.

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CHAPTER 15

ADMINISTRATIVE CONSIDERATIONS

Ideally, physical fitness and weight maintenance programs should be implemented simultaneously in order to have the greatest effect on the condition of police personnel. The methods utilized by the administrator in the implementation of these programs also impacts upon the adherence, motivation, and ultimate success of personnel development programs.

The administrator must consider that, initially, he may encounter some employee resistance to these programs. Evidence collected during the field study segments of this project indicate that greater success, and the least resistance, is realized when the administrator employs the "evolutionary" approach to fitness.

The recommended procedures which are listed below represent this approach.

1. Issue a department memorandum to all personnel stating the need for physical fitness and weight maintenance and the intention of the department to implement these programs. The memorandum should include a height/weight chart if this type of program is being considered. (Additional information concerning charts and weight maintenance are discussed later in this chapter). Officers should be informed that they will receive complete information concerning these programs at an in-service training session or indoctrination period. This memorandum should be worded in such a fashion that no officer

will feel threatened or intimidated by this announcement.

2. Conduct in-service training or indoctrination sessions where personnel receive information concerning the need for physical fitness. Information can be obtained from Part I of this manual. Other information that may be useful is: number of sick days utilized by department personnel over a given period, information concerning limited duty, early retirements, and premature death within the department. It should be emphasized that prior to implementing any requirements, all personnel will be evaluated and an individualized program will be prescribed. It should be pointed out to all personnel that requirements will become mandatory after ample time has been allowed for compliance.
3. Conduct medical and fitness evaluations as described in Chapter 12.
4. Conduct counseling sessions and recommend training regimen for officers. Realistic goals should be established with the ultimate objective of each member of the agency scoring in the "good" category for his age group.
5. Based upon the officer's current fitness level, age group, and prescribed program, future evaluation examinations should be scheduled.

6. Program Implementation: it is totally unrealistic to expect agencies to conduct training programs during on-duty hours. Personnel limitations, budgetary considerations, and lack of proper facilities, preclude this luxury. Therefore, officers must be encouraged to participate in regular physical fitness programs on their own time.
7. Additional training sessions should be conducted to educate personnel concerning the proper procedures of exercise. They must become familiar with procedures of taking their pulse rate, pacing, warm-up, cool-down, and the like. They should also become familiar with the exercise log utilized to record each training session.
8. When all personnel have sufficient time to meet the goals established after their initial evaluation and counseling session, the administrator can issue a general order requiring all personnel to adhere to the minimum standards for their age. Fitness evaluations should then be administered at least every 12 months.

Because on-duty physical training is impractical in most departments, there are additional problems which the administrator is obligated to meet head-on.

Motivation

As indicated at the beginning of this chapter, a degree of employee resistance may be encountered in establishing these programs. Motivation

is, perhaps, the greatest obstacle which must be overcome. The results from both our national survey and the program conducted in Dallas indicated that police officers are willing to participate in a physical fitness program when it is conceived. However, the dropout rate of participants in the experimental program was greater than anticipated. Therefore, we examined other factors which tend to motivate officers to exercise. (The adherence rate in the experimental program is discussed in the next chapter).

1. Officer participation in program planning: this was indicated by the majority of officers in the national survey as the primary factor which would motivate them. The exercise prescription described in Chapter 13 allows the officer to participate in his own program by choosing the exercise activities which most interest him.
2. Knowledge of fitness ability: we described in Chapters 7 and 8, that the perception officers have of their physical ability is probably inflated. The realization of their actual ability, coupled with their knowledge of the physical tasks they are expected to perform at any given time, will motivate the majority of officers.
3. The influence of significant others: perhaps the most influential person for the majority of persons is their spouse. There is no one more concerned about the husband or wife as the spouse of a police officer.

It is recommended that the spouse of the police officer be advised of his/her

current state of physical fitness following the medical and physical evaluation. The old saw, "A nagging wife may save your life," cannot be more aptly applied than in this situation.

It is also recommended that, where possible, an indoctrination session be conducted for the wives/husbands of the police officers. They should be informed of the program and the objectives the department is trying to realize. In those departments where weight maintenance programs are being initiated, it is especially important for the wives to become involved. Reinforcement is absolutely necessary in these programs. There is no one who can offer the necessary support given by an informed wife/husband.

Peer Group

A motivational factor which also plays a significant role is the peer group. In order to be effective, however, peer group pressure should be applied in a positive rather than a negative manner. The posting of a list of overweight officers or those whose physical ability is below standards is not recommended. The presentation of a chief's or superintendant's award for unit achievement in physical fitness may, however, generate a positive effect. Unit or divisional pride may cause peer pressure to become a motivating factor for the underachiever.

Other motivational factors may include awards for officers achieving excellence, certificates, or additional days off at the convenience of the agency.

Disciplinary Procedures for Noncompliance

One very definite factor which will reduce compliance in physical fitness or weight maintenance programs is failure to take corrective measures against

officers who do not meet established standards. If some officers have not complied within an ample time frame, it becomes necessary for the administrator to take disciplinary action. If he fails to do so, officers who have complied will feel free to revert to their previous condition. We recommend the following action be taken:

Members who are found to be overweight or fail to meet physical requirements after they have been counseled and given adequate time to comply, will be enrolled in a mandatory, supervised program to insure compliance. (In the case of overweight officers, diet programs should be supervised by the department physician).

Members may elect not to participate in these programs. If this is their choice, they should be advised, by letter, that they will be ineligible for promotion, shall revert to permanent rank (if in a temporary status), and shall be ineligible for department-sponsored schools or institutes.

Weight Maintenance Programs

Departments who desire to implement height and weight requirements for officers are advised to consult with the department physician to establish standards. During the course of our research, we discovered no standard height/weight chart in general use which warrants recommendation as opposed to others. Many departments are utilizing standards established by life insurance companies, U. S. military academies, the armed services, and their department physician. In many cases, officers are allowed to weigh a few pounds over the established standard without penalty.

We encourage departments to incorporate the use of percent body fat as an additional indicator of proper body composition. The procedures for obtaining skinfold measurements are described in Chapter 12, Table 12.8 , and Chapter 13 presents body fat norms for police officers by age.

If excessive weight is a problem to a great many officers in your agency, department-sponsored clinics for weight control or a department Weight Watchers club might be considered. Departmental physicians should establish gradual weight reduction standards. Monthly weight checks should be made to insure compliance with reduction standards until officers have achieved desired weight.

Recordkeeping

The establishment of any new program requires administrative bookkeeping. These programs are no exception. A record of the initial medical and fitness evaluation should become part of the officer's personnel folder. The exercise prescription selected and the results of all subsequent evaluations should also be recorded.

Because most departments will initiate programs requiring officers to exercise independently, it is suggested that an exercise log, a sample of which is included in the appendix, be submitted by each officer on a monthly basis. The officer's performance on annual or semiannual qualification tests will serve as an indicator to verify his regular exercise program.

The cost-effectiveness of a physical fitness program is as elusive and controversial as the subject of preventive patrol as an efficient way to prevent crime. We cannot provide information concerning the savings a

department might realize by implementing physical fitness testing, training, and evaluation. In the short run, these programs will require financing regardless of the type of program implemented. Even with the most economical program, costs will be incurred in personnel, both administrative and operational, and in the training days required for each member of the department to receive indoctrination, evaluation, and instruction.

The cost-effectiveness must be long term and should be considered in terms of better prepared personnel, reduced sick and injury time, less limited duty assignments, and fewer early retirements and premature death. Only with implementation and evaluation can the savings realized by physically fit officers be documented.

Physical fitness programs can be successful if prior planning, objectives, and implementation are successfully carried out. One last recommendation is that the leadership leaders within the department make a personal commitment and establish an example. An overweight administrator will not receive the cooperation from line personnel necessary for a successful program. Likewise, commanding officers and supervisors must also comply with any of the recommended programs.

CHAPTER 16

OFFICER ADHERENCE TO PHYSICAL FITNESS PROGRAMS

Adherence and Attrition Analyses

To evaluate the attrition rate of the various exercise programs, a questionnaire was mailed to all officers who dropped out of the program. The adherence to the programs was evaluated by a questionnaire given to all officers who finished the programs. A summary of the participant adherence and attrition rate for all programs is presented in Table 16.1. The overall attrition rate (45%) for the exercise groups in all programs was much higher than previously reported for similar exercise programs. Of particular note is the extremely high dropout rates for the interval and combined running groups; 60% and 58%, respectively. In order to evaluate factors associated with these high dropout rates, an analysis of injuries was made and the results are summarized in Table 16.2. An injury was defined in this study as a musculoskeletal trauma (such as shin splints, ankle, and knee involvement) resulting in a modification of an individual's training program for a period of one week or more. As shown in Table 16.2, injury was not a significant attrition factor for the interval and combined groups; only 8% and 12%, respectively, dropped out of those groups due to injuries. The RPD/TDPS programs was the only group showing a significantly high dropout rate (31%) due to injury.

In addition, injury was not a particularly significant factor for those who finished the exercise programs. Only the Richardson training group and the Dallas combined running group indicated a relatively high injury rate (19%) among the finishers (see Table 16.2).

Table 16.1 Adherence and Attrition Rate for Police Physical Fitness Programs

Group	Starters (n)	Finishers (n)	Dropouts (n)	Attrition Rate ^a (%)
RPD/TDPS ^b Training	16	11	5	31
RPD/TDPS Control	12	10	2	17
DPD ^c Continuous Running	26	16	10	38
DPD Interval Running	25	10	15	60
DPD Combined Running	26	11	15	58
DPD Weight Training	17	11	6	35
DPD Young Control	20	14	6	30
DPD Supervised Training	20	11	9	45
DPD Unsupervised Training	17	11	6	35
DPD Middle-Aged Control	<u>10</u>	<u>7</u>	<u>3</u>	<u>30</u>
TOTAL	189	112	77	41

a = Number of dropouts ÷ Number of Starters

b = Richardson Police Department/Texas Department of Public Safety

c = Dallas Police Department

Table 16.2 Analysis of Injury and Attrition in Exercise Programs for Young Police Officers, Ages 21-35

Group	Starters (n)	Finishers with Injury (n) (%)	Finishers without Injury (n) (%)	Dropouts with Injury (n) (%)	Dropouts without Injury (n) (%)
RPD/TDPS ^a Training	16	3 19	8 50	5 31	0 0
DPD ^b Continuous Running	26	3 12	13 50	2 8	8 31
DPD Interval Running	25	2 8	8 32	2 8	13 52
DPD Combined Running	26	5 19	6 23	3 12	12 46
DPD Weight Training	<u>17</u>	<u>1</u> <u>6</u>	<u>10</u> <u>59</u>	<u>0</u> <u>0</u>	<u>6</u> <u>35</u>
TOTAL	110	14 13	45 41	12 11	39 35

a = Richardson Police Department/Texas Department of Public Safety

b = Dallas Police Department

In the Dallas running programs, most of the injuries occurring among both the dropouts and finishers were located at the anterior, lower leg site (shin splints). Those were confined primarily to the combined running group and a few to the interval and continuous running groups. Apparently, alternating days of short sprints with days of long jogging in the combined group affected mainly the anterior, lower leg when problems occurred. The shin splint problem was not apparent in the RPD/TDPS program. In that program, 4 of the 5 dropouts reported associated knee problems. Perhaps the grass field surface used in that program provided enough cushion to prevent shin splints, but the unevenness and multiple turns induced some knee problems. Of the other injuries reported among all exercise groups, 21% involved the ankle and 8% the foot.

Questions were asked concerning whether or not the dropouts enjoyed the training, enjoyed their group assignment, had a second job, and went to school. Average number of training weeks completed, distance from home and work to exercise center, number of trips from home and work to exercise center, and specific reasons for dropping were also analyzed. Of the total number (N=66) of dropouts from the exercise programs, 57 or 86% responded to the attrition questionnaire.

Only a few of the respondents were totally dissatisfied with the training and/or their group assignment. Most of the officers not enjoying their group assignment were from the Dallas interval running program which was apparently one of the most unpopular of the programs. Only 30% of the dropouts had a second job and only 30% attended school, yet the most commonly checked reason

for dropping was "too much time involved" in the exercise program. Rotating shift was apparently not a problem since only 30% of all the dropouts were on that schedule.

A variety of reasons combined to account for the rather high dropout rate for the young officers in the various exercise programs. Those reasons included the following: personal reasons, too many work hours, illness in family, personal illness (mainly colds and flu), extensive court appearances, new babies in family, poor training facilities, distance too far, and gas too expensive. Many of the young officers estimated that two or three hours of their day were required to travel to the exercise center, work-out, shower, dress, and go to work or return home. Even though the program was conducted only three days per week, the dropouts felt the program required too much of their personal time.

The dropout rate for the middle-aged officers in the exercise programs was slightly lower compared to the young officers. The middle-aged dropouts also had a variety of reasons for dropping, including too much time, lack of interest, family illness, personal problems, and interferes with job. Several of the middle-aged officers were transferred to other divisions during the study, and many dropped the program claiming that their new job required too much time. This observation was made by the investigators and is not well documented because only eight of the 15 exercise dropouts responded to the questionnaire.

The factor of travel in attrition and adherence to the exercise programs is analyzed in Table 16.3. The average distances traveled from home to the exercise center were 14.0 miles and 14.3 miles for the young dropouts and

Table 16.3 Analysis of Travel in Attrition and Adherence to Exercise Programs

Group	Distance Home to Ex. (mi) Dropouts - Finishers		Distance Work to Ex. (mi) Dropouts - Finishers		Trips: Home to Ex. (%) Dropouts - Finishers		Trips: Work to Ex. (%) Dropouts - Finishers	
RPD/TDPS Training	9.7	8.0	7.9	3.6	83	90	17	10
DPD Continuous Running	11.9	14.2	4.3	8.4	79	54	21	46
DPD Interval Running	17.5	16.6	6.6	6.4	67	47	33	53
DPD Combined Running	16.2	15.5	8.8	6.4	66	53	34	47
DPD Weight Training	<u>14.7</u>	<u>17.4</u>	<u>5.2</u>	<u>10.2</u>	<u>73</u>	<u>73</u>	<u>28</u>	<u>27</u>
TOTAL FOR YOUNG OFFICERS	14.0	14.3	6.6	7.0	74	63	27	37
DPD Supervised Training	12.6	17.8	4.4	3.7	29	20	71	80
DPD Unsupervised Training	<u>9.5</u>	<u>19.1</u>	<u>2.0</u>	<u>2.9</u>	<u>0</u>	<u>19</u>	<u>100</u>	<u>81</u>
TOTAL FOR MIDDLE-AGED OFFICERS	11.0	18.4	3.2	3.3	14	20	86	80

finishers, respectively. However, the young dropouts traveled a few more times from home to the exercise center. This could have been a factor in the attrition rate since the distance from work to the exercise center was shorter for both young dropouts and young finishers, and the finishers traveled more times from work to exercise than the young dropouts.

The travel results for the middle-aged officers were just the opposite, i.e., more of the dropouts traveled from work to exercise than the finishers. The distance was small for both groups (3.2 miles and 3.3 miles), yet the program experienced a relatively high dropout rate as previously mentioned. Thus, distance did not seem to be a dropout factor.

Similar to the dropouts, only a few of the finishers were totally dissatisfied with the training and/or their group assignment. The groups showing slight unpopularity with the finishers were the combined running, weight training, and unsupervised programs. As previously reported, the unpopular program among the dropouts was the interval running. To gain further insight into this aspect, the finishers in the combined group were asked which training they preferred, continuous or interval running. Most preferred the continuous running, 10% preferred the interval, and 10% enjoyed both. Of the three programs (continuous, interval, or combined), it appears that the continuous running is the preferred regimen.

Also similar to the dropouts were the number of finishers on a rotating shift and holding a second job. However, only 16% of the finishers attended school, compared to the 30% of the dropouts. This could explain some of the

"time demanding" reasons expressed by the dropouts. Virtually all of the finishers felt that the programs were worthwhile. Regarding other questions, 64% felt that they slept better, 84% had a better sense of well-being, and 66% felt less tense as a result of the various exercise programs. Virtually all of the finishers indicated that there was sufficient communication with the exercise program staff, and all said that they would recommend the programs to others and planned to continue exercising on their own at the completion of the study.

In order to gain some insight on the motivational factors involved in the exercise programs, questions were asked relative to why the finishers volunteered for the program and why they continued. It was obvious that the officers recognized the need for a regular exercise program to "get in shape" and "lose weight." Also evident was the recognition of the need for a supervised program which indicates that future programs for police officers should seriously consider some form of supervised exercise. Many of the finishers enjoyed the exercise and saw improvements within themselves. They also displayed a strong commitment to the program in indicating that they "finish what they start."

In summary, the major factors indicated for the high attrition rate was "too much time" for the programs. Several reasons contributed to this factor and included holding second jobs, attending school, distance to exercise center, family and personal illness, several court appearances, new babies in family, expense of traveling to exercise center, lack of interest, and some injuries.

No one reason stood out as being significant, but all combined to result in "too much time" required for the exercise programs even though they were held only three days per week. This situation is somewhat perplexing since a similar number of officers who finished the exercise programs held second jobs, attended school, traveled the same distance, incurred the same expenses, had court appearance, and experienced some injuries. Not explained in the previous results was the fact that many of the middle-aged, executive-type officers exercised during on-duty time, even though all officers were told to exercise on their own time. The younger officers (mainly patrolmen) did not have this option and, thus, were forced to exercise on their own time which could have contributed to a higher dropout rate. Several young officers felt that exercise programs should be mandatory and that on-duty time should be allowed for such exercise since it is a vital part of an officer's job. Even though several middle-aged officers exercised on-duty, the dropout rates were similar for the middle-aged and young officers (41% and 46%, respectively). Thus, the "too much time" attrition factor involved many reasons other than not having on-duty time available for exercising. Providing motivation to exercise on one's own time is an extremely important consideration for enhancing adherence to an exercise program.

Officers completing the exercise programs indicated that it was worthwhile and that they slept better, felt better, had a better sense of well-being, would recommend the program to others, and had planned to continue exercise on their own after completion of the study. Officers volunteering for the program

recognized the need for regular, supervised exercise to "get in shape" and "lose weight." The finishers enjoyed the exercise and exemplified strong commitments to "finish what they start."

Additional Factors Contributing to Attrition Rate

An additional factor which contributed to the attrition rate was discovered in personal interviews with dropouts from the experimental programs conducted by the IACP staff members. This factor was the "experimental" nature of the exercise programs. All officers who volunteered to participate in the program were asked to complete 60 full workouts; that is, 3 workouts per week for 20 weeks. In the event that a workout was missed for any reason, the officer was asked to make up the exercise session. Many of the officers fell so far behind that they found it easier to drop out than attempt to catch up with the other members of their group.

At least two of the dropouts interviewed indicated that they found the exercise regimen to be too demanding when it was increased to a higher level. In other words, as the jogging pace or distance was increased, they did not feel physically capable to exercise at the higher level. Therefore, they dropped out of the program rather than exercise at a pace which made them feel uncomfortable.

Additional information concerning attrition in the experimental programs is given in Chapter 8.

CHAPTER 17

LEGAL ISSUES

The law recognizes the importance of physical fitness in the law enforcement profession. Although legislation has not been prolific, nor litigation extensive, there is evidence that courts and legislatures are striving to balance the pressing needs for effective law enforcement with the constitutionally protected interests of individuals. Conflicts may arise in the context of challenges to statutory age requirements, suits against departments for allegedly wrongful dismissals, or complaints about the propriety of certain promotional standards. Generally, it can be said that the unusual physical demands of police work separate the profession from the average public service employment, justifying some degree of special treatment in the promulgation and application of employment practices. In some instances, this has meant extra benefits for members of police departments; in others, it has led to the construction of special, preventive protections for their employers. Basically, a concern for the welfare of the community results in a less stringent application of a rationality standard to regulations than would normally be applied.

There has been little question that physical ability is related to job performance in police work, although some entrance requirements have been invalidated (1) because their usefulness in predicting fitness was insufficient to justify their discriminatory impact. In addition, more and more legislatures are taking action to insure that newly hired police officers have received some minimal amount of training and attained a specific level of competence in a program or school designated by the state (2). In at least one state - Alaska -

the groundwork has been laid for continuing education and physical training through such programs as might be devised by the Alaska Police Standards Council (3). Similar legislation in other states is likely to be forthcoming.

Special Legal Problems Relating to Physical Fitness

Because police work makes relatively heavy demands in terms of physical astuteness and ability to cope with stress, certain problems crop up which, if not unique to police departments, at least require special handling. Problems of advancing age, excessive weight, alcoholism, and the like are especially serious when viewed in the context of the law enforcement field. A brief look at some of these problems and how they are dealt with is presented below.

Veterans

Several states have laws granting veterans a preference in hiring and promotion for all public employment (4). According to these statutory provisions, veteran applicants are not to be disqualified by virtue of age, loss of limb, or other physical impairment which does not in fact incapacitate them, provided they meet other hiring or promotional qualifications. It is unclear how these provisions stand with respect to maximum hiring age requirements and other standards relating solely to police employment practices. No case could be found in which such a conflict arose.

Handicapped

State legislatures have been somewhat more active in their attempts to protect the working rights of their handicapped citizens. At present, 22 states have laws forbidding discrimination in employment against the physically handicapped (5). The term "physically handicapped," as used in these statutes,

has invariably been broadly defined to include not only the standard disabilities such as blindness and loss of limb, but such diseases as epilepsy, asthma, and diabetes. In addition, courts have held that the statutes are also intended to cover those whose medical history indicates a propensity for certain diseases and those who have previously suffered from, but have subsequently recovered from, some disability (6).

Basically, the underlying principle supporting these provisions is that a person is entitled to be judged for employment capabilities on an individual basis and is not to be discounted solely because an employer presumes that an applicant's physical handicap renders him unfit for the position for which he is applying. Thus, generalizations about the predictable inability to perform on the job which may be valid as to many, or even most persons, suffering from that particular handicap have been held to be impermissible reasons for summarily excluding every applicant afflicted with that impairment (7).

There are, however, limits on how far an employer must bend to avoid discriminating against the handicapped, and this is particularly evident in fields of employment where exposure to physical hazards is highly likely. Hence, in determining fitness for employment, an employer may consider not only present ability to perform, but the likelihood of an employee's future physical deterioration. It is also proper to take into account the degree of risk encountered in the job and the possibility that the safety of others may be endangered. Therefore, in employment which places a relatively greater amount of stress on a person's body as compared to other lines of work, freedom from certain physical handicaps may constitute a bona fide occupational qualification, by reason of which an applicant may be validly denied employment (8).

Agility

Questions concerning physical agility standards most often arise in the context of allegations of discrimination in hiring. There have been two major cases in this area, one arising in Boston, Massachusetts, and one coming out of northern California (10).

In the first case, a number of challenges were made to the recruitment and hiring practices of the Boston Police Department based on the 1871 Civil Rights Act (42USC 1983). One aspect of the complaint protested a mandatory 100-yard swim test which all applicants to the force were required to take and pass. It was claimed that a substantially greater number of blacks failed the test. The trial court, however, sustained the department's use of the swim test as being reasonably related to fitness and ability to perform in certain rescue situations. In the court's words, "It takes no remarkable powers of imagination to foresee the justified outcry there would be if a child drowned in a lake while a policeman stood by without making even an effort to rescue and gave as his excuse that he could not swim." The court continued that such a test was reasonable even in a community with little water, where there had been no known incidents in which a police officer had been called upon to make a rescue in the water, and in spite of the fact that ability to swim 100 yards may give no indication of life saving ability. The court was likewise unpersuaded by the alleged effect on minorities and the absence of test validation. On appeal, the Circuit Court affirmed this part of the trial court's decision, briefly stating that the plaintiffs had failed to demonstrate that the swimming test had any discriminatory impact.

In the second case, the use of physical agility tests in hiring was objected to by women applicants to the police department. The results of these testing procedures were shown to have a significant adverse impact (11) on women applicants to the force. In the court's opinion, such tests could be utilized only upon a showing that the skills tested are necessary to proper job performance and that no acceptable alternative means could accomplish the same purpose with lesser adverse impact. Because the defendants in this case were unable to establish that the skills tested were essential to job performance or that the tests could actually be useful in predicting job performance, the court ruled for the plaintiffs. It then approved the implementation of an experimental program placing sixty women on the patrol force, from which proper studies could be made.

In addition, the court held that women, as members of a group that had been discriminated against in the past, could not be required to pass a physical agility test more demanding than that given to male officers already serving on the force.

Age

Nearly every state makes some provision for minimum and maximum age limits for hiring police officers. Typically, these statutes state that no person applying for the position of police officer shall be eligible if younger than 18 or 21 years or older than 35 to 45 years of age. Statutes also commonly provide for mandatory retirement at a specified age regardless of the officer's health or physical condition. One of the latter provisions was recently upheld by the Supreme Court in the case of Massachusetts v. Murgia (12).

In that case, the law in question provided for mandatory retirement of police officers at the age of 50. The complainant, who had been involuntarily retired, claimed that he was being denied equal protection of the law. After hearing arguments, the Court determined that as a matter of fact, the duties of police officers are physically taxing, and that there is a general relationship between advancing age and decreasing physical capabilities. The increased risks, concluded the Court, are particularly significant in the cardiovascular system, and the task of evaluating those risks in any particular individual would require detailed study. The Court did agree that persons over 50 years of age could be physically able to function as police officers and conceded that the plaintiff-officer in this case was in excellent physical condition at the time of his retirement. Nonetheless, the Court held that the statute was a rational attempt to achieve the state's goal of protecting the public by assuring the physical preparedness of its officers. The Court felt that the officer had failed to show that the mandatory retirement requirement had the effect of excluding significantly large numbers of qualified officers so as to render the requirement irrational and invalid (13).

State court decisions have generally followed this same line of reasoning. In one case, for example, it was held that mandatory retirement at age 65 for employees on the police payroll was valid, notwithstanding the fact that some employees avoided retirement by transferring to more sedentary positions on other payrolls within the department (14).

Nor, apparently, does the fact that a city charter permits an officer who has reached retirement age to apply for extended service mean that an otherwise competent officer will be granted such a privilege. The Michigan Court of Appeals

has held that the Board of Trustees is not required to make exceptions to the retirement provision, although it is authorized to do so, even though the requesting officer is in good health, fully qualified, desirous of continuing on the force, and recommended for continued service by the police commissioner. Rather, the burden is on the officer to produce substantial reasons why he should be differentiated from other officers of retirement age and therefore permitted to continue (15).

Minimum and maximum hiring age requirements have been sustained against equal protection challenges. Again, the rationale has been that the nature of police work, requiring "special attributed of agility, alertness, and dexterity," demands special consideration. In one case in which the age 35 maximum was challenged, the plaintiff was not seeking employment for the first time, but was seeking reinstatement. The officer had already served a total of eleven years on the force, but had resigned twice - once to engage in private employment and once to accept a short-term appointment from the governor as a constable. The court ruled in favor of the employer, the state highway patrol, holding that it properly took the normal hiring requirements into account in determining whether, in its discretion, it would reinstate the officer (16).

In another case, the special treatment accorded members of the police department by a statute dealing with retirement was approved. In Geary v. Retirement Board of Alleghany County (17), it was held that a statute which reduces the age of retirement for police officers having 20 years of service to 55 years is not unconstitutional, notwithstanding that other county employees are not entitled to retirement benefits until age 60. The greater need for physical fitness and greater exposure to physical hazards were said to justify the difference in treatment.

Weight

Perhaps one of the most serious situations confronting a police department is the problem of the overweight officer. Several cases reviewed below highlight the difficulties associated with this particular physical impairment.

In the first case, a patrolman was hired by the Arizona Highway Patrol although at the time his weight exceeded the regulation maximum of 225 pounds. In the six years succeeding, the patrolman was told repeatedly to conform his weight to departmental requirements. Finally, he was given five months to lose 43 pounds, or be terminated. When he failed to lose the poundage, his services were terminated, although he was informed that he would be eligible for reinstatement if he reduced in accordance with the patrol's rules. The Arizona Supreme Court upheld the dismissal for willful disobedience and insubordination, finding the Highway Patrol's actions to be within the bounds of due process. The Court further found that the Highway Patrol had not waived the weight requirements by hiring the overweight officer, in light of the repeated warnings to the patrolman that he reduce his weight to stated requirements (18).

In another case, an officer on the Town of Orange, Connecticut, Police Department was ordered to lose 6% of his weight within 30 days or be subject to disciplinary action. When the officer not only failed to lose the weight, but instead gained twelve pounds, he was suspended without pay for 30 days. The officer thereafter complained that the suspension was unlawful, and in response, the department maintained that the action was justified in view of the fact that the officer's weight made him a prime candidate for cardiovascular failure and that the Department would be bound under a town ordinance to provide disability benefits to the officer should he suffer from a heart attack or hypertension.

while on the force. The Board of Mediation and Arbitration which heard the case upheld the suspension, but its order was modified when the officer entered the hospital for treatment (19).

In San Francisco, a Retirement Board decided a controversy centering around an officer's entitlement to retirement benefits after the Police Department had requested his resignation due to his excessive weight. The 300-pound patrolman contended that his condition was a job-related disability and should be equated with alcoholism. He claimed that the stress of police employment duties drove him to eat. Based on the testimony of the officer's physician, the Retirement Board accepted the officer's position and granted him benefits amounting to 50% of his salary at the time of his retirement (20).

In the past, it was also common for departments to attempt to exclude from the force persons considered to be underweight. Normally, this was accomplished by setting a minimum weight requirement at the hiring stage. These requirements have been challenged as being discriminatory on the basis of sex. Although the Supreme Court has not spoken on the issue, a recent U. S. Court of Appeals case resulted in the striking down of one such provision (21). In that case, a woman applicant to the East Cleveland Police Department established that the weight requirement disqualified 80% of the women applicants, whereas only 26% of the men applicants were thereby excluded. The court concluded that there was "no rational support for the weight requirement" and that based upon the testimony of even the police department's expert witness "the weight requirement is neither rationally related to physical strength nor to psychological advantage."

Alcoholism

Alcoholism is undoubtedly as grave a problem for police departments as excessive weight. The difference is that most departments specifically make drinking on duty or intoxication while on duty grounds for disciplinary action. The physical condition of an alcoholic officer, therefore, may come up only in the context of disability benefits. Some state laws distinctly exclude alcoholism from the range of disabilities for which an employee may obtain benefits (22), and such statutes have been upheld (23). In the absence of such provisions, however, alcoholism-related disabilities may not necessarily terminate the officer's rights to disability or pension benefits, and may in fact serve as an affirmative defense to discharge. For example, in one instance, an officer of the Flint, Michigan, Police Department was dismissed for tardiness, absenteeism, and abuse of sick leave. At the hearing before the Arbitration Board, it was established that the source of the officer's failures was alcoholism. The arbitrator determined that the officer was in fact suffering from an illness and that like anyone else having any other illness, was entitled to obtain treatment. The officer was thereupon reinstated to the force on the condition that he remain sober and continue in the rehabilitation program he had entered following his discharge (24).

Pregnancy

There are presently no cases concerning pregnant police officers, but a brief overview of the law as it relates to other public service employment requiring some minimum level of physical competence is presented here. It is clear that arbitrary cut-off dates from duty are unconstitutional. In other words, an employer may not require that all pregnant women take leave beginning in their

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sixth (or fourth or eighth) month of pregnancy (25). The Supreme Court case which decided that issue, however, did not involve a situation in which employees constantly encounter physical stress. There is some indication that mandatory leave policies could be more strict if it could be shown by competent medical evidence that continuation on the job after a certain stage of pregnancy would greatly increase the risk of injury (26). In any event, the employer can require some evidence of a woman's continued capacity to perform her duties fully and may even require her to submit to an examination by a physician of the employer's choice (27).

Promotions

Just as all departments require a certain minimum physical capacity of applicants to the police force, a number of jurisdictions demand that some physical fitness standards be met before an officer can be promoted. Generally, this involves a physical examination and certification of fitness by the department physician (28). Indiana, however, has gone one step further. The legislature there has established a promotion board, whose responsibility it is to maintain a merit system whereby records are to be kept of, inter alia, physical qualifications of officers. Persons applying for promotion must attend special promotion schools for at least two weeks, where they are to receive instruction, as well as submit to mental and physical tests and participate in competitive examinations (29).

Again, like entrance requirements, promotion requirements have sometimes been challenged on equal protection grounds. The validity of these requirements depends upon whether they are reasonable in relation to the goal of assuring that only physically capable officers will be serving on patrol. It is simply

a question of balancing the interests, and the courts have gone both ways. For example, in one action by a woman police officer who was denied promotion to sergeant for failure to meet the department's promotional standards relating to height, weight, strength, agility, and patrol experience, the requirements were upheld. The plaintiff was hired at a time when, although entrance requirements were lower for women than for men, women could not be assigned patrol duties and therefore could not be promoted. After the plaintiff filed suit, the department opened up the patrol classification to women as well as men and instituted new across-the-board standards for hiring and promotion. The plaintiff was unable to meet the newly implemented standards for height and weight and was therefore denied the opportunity to take the physical agility tests. The court determined that the height and weight requirements were substantially related to job performance in that they assured physical equivalence with persons who might have to be subdued and as a psychological factor in crowd control situations. Further, the court concluded that while the strength and agility tests were not the best that could be devised, they were substantially related to job performance (30). Similar standards, used as entrance requirements, however, have been struck down as discriminatory (31).

Medical Examinations

To insure the physical competence of its law enforcement officers, many jurisdictions require applicants and/or in-service patrol officers to submit to periodic medical examinations conducted by physicians hired or appointed by the state or municipality. In some cases, physical exams will be required only when there is a question of disability or when promotion is sought, but in other instances, the department may order physical examinations on a yearly basis or

at its discretion (32). Challenges to this authority have been generally unsuccessful. For example, in New Mexico, where the statute provides that in order to qualify as a member of the State Police, one must successfully pass any physical examination that "the Police Board may require." (33) It has been held that this standard is a continuing requirement and not solely a requisite for new entrants (34). In another attempt to invalidate a similar law, police officers contended that the ordinance requiring police officers to take an annual physical as a condition of continued employment was unjustifiable in light of a statute granting police officers the right to bargain in matters concerning terms and conditions of employment. The court held that the medical exam was not a "condition of employment" in the context of the collective bargaining statute. It then declared the ordinance to be reasonable, emphasizing its belief that an officer's physical fitness is absolutely essential to the performance of law enforcement duties (35).

Disability

When a law enforcement officer becomes physically unfit for duty, a number of difficult questions arise. Who is to determine his fitness or unfitness? Can he be discharged or involuntarily retired? Is he entitled to a hearing? Is he entitled to a pension?

Physical incompetence is widely regarded as adequate grounds for dismissal (36), although very few states expressly declare that physical ailments, defects, or diseases which undermine the officer's ability to fully perform his duties may be grounds for discharge, suspension, or demotion (37). While removal for physical inability to perform may follow standard disciplinary procedures, however, it should be recognized that such removals are not necessarily based

on findings of intentional misconduct.

The case of O'Neil v. City and County of San Francisco (38) illustrates the point. In that case, an officer with four years of service began to suffer from grand mal epileptic seizures. The officer was given notice of a possible discharge after his refusal to submit his resignation. For lack of a better regulation under which to proceed, the department charged that the officer, by reason of his physical disability, was incapable of performing police functions and sought a "dismissal for cause" under the city and county charter; the department did not allege any misconduct per se. The officer was given a full and fair hearing, after which he was discharged. The court upheld the removal on appeal, stating that the department was not obliged to show that the officer was at fault before being authorized to dismiss him for cause, but that proof of physical incapacity was sufficient.

Once it has been determined that physical incapacity may be grounds for dismissal, the question then arises as to whether it may be accomplished summarily or whether certain procedural safeguards, such as notice and a hearing, are required. A department's authority to discharge an employee summarily for physical disability may rest primarily on whether the employee has passed the probationary period of employment. Thus, for example, where a probationary officer was certified by the Civil Service Commission as being in good health, but was subsequently suspended and discharged without a hearing when a second physical examination produced evidence of a tubercular disability, the court held that the police commissioner had authority to so act (39). In another situation, an officer was injured in an off-duty accident in the eleventh month of his twelve-month probationary period. When he sought to return to work four months later,

his request was denied, without a hearing. The Police Commission claimed that the psychological impact of the accident on the officer would affect his performance and that the potential aggravation of the officer's injury in the performance of police functions might be financially detrimental to the city, since the city might then be bound to award disability benefits. The court found that although the officer was indisputably a credit to the force, his injury made it impossible for him to complete his twelve-month probation satisfactorily, and the Police Commission therefore had authority to terminate his employment without a hearing (40).

Different procedural rules apply when the officer has nonprobationary status. In Tafoya v. New Mexico State Police Board, (41) a police captain failed to pass a required physical exam, and his employment was terminated without notice or hearing. In that case, the court said that the termination amounted to a dismissal for incompetence, which requires notice and hearing under New Mexico statutes and due process standards.

Retirement

Nearly all jurisdictions make some provision for the retirement of officers disabled while serving on the police force. Often these statutes make distinctions between officers disabled in the line of duty and those disabled outside the line of duty, and between officers who have served some minimum number of years on the force and those who have not. Thus, an officer who has been employed for twenty years may be able to retire by virtue of any certified permanent disability, whereas an officer having fewer years of service may be eligible for retirement only upon proof that the disability was incurred in the performance of his duties (42). Most often, the conflicts that arise under these

provisions involve factual disputes over the officer's eligibility for benefits under the statute. Occasionally, however, a department will seek to retire an officer with full benefits, but against the officer's will. In those cases, it is incumbent upon the department to show that the officer has become disabled. A case in point is City of Hagerstown v. Blenard (43), in which a police captain with thirty years of service was "retired" by the mayor without a hearing or any explanation. In its analysis, the court observed that two County Code provisions might be applicable. One provision permitted discharge of an officer after appropriate notice and opportunity to reply; the second gave the mayor the authority to retire an officer having at least fifteen years of service upon certification of two physicians that the officer was permanently disabled. In this case, however, the officer was never given a physical examination; therefore, the court concluded that the mayor's discretion was not so great as to allow him to override the specific mandates of the County Code.

As stated, the usual disagreement arises over whether an officer applying for benefits is in fact disabled. To protect police departments from spurious claims, therefore, most statutes require certification of disability from two or more physicians (44). In addition, the legislation may permit the police department or appropriate board to require additional physical examinations to determine whether the officer is entitled to continued pension benefits or will be reinstated pursuant to certification of good health (45). In lieu of full-time reinstatement, an officer may be ordered to report to duty from time to time to perform duties for which he is fit, even if the responsibilities differ from those previously undertaken (46). Permanent reassignment has also been upheld (43), and at least one state explicitly states that an officer terminated

due to incapacity, if able, must engage in gainful employment and deduct his earnings from the disability benefits received (48).

It should again be noted here that although it is usually an officer's superiors who seek to initiate reinstatement, there are cases in which the officer himself wants to return to work. The question then becomes, what are his rights to employment vis-a-vis those of the officer hired to replace him? This precise question was addressed by the New Jersey courts in the case of an officer who lost his employment pursuant to the reinstatement of another member to the force. The reinstated lieutenant had previously voluntarily retired from the department on a disability pension, but was entitled to seek reinstatement upon certification of full recovery, provided a position was then available. The trial court granted summary judgment in favor of the reinstated lieutenant, but this decision was reversed on appeal. The court held that if the department's budget could not sustain an additional officer, no position was "available" under the statute, and therefore the reinstatement of the retired officer at the expense of one presently serving on the force was improper (49).

The laws governing employment related disabilities generally require, in addition to certification of the fact of disability, proof that the disability was proximately caused by some work accident or hazard (50). A frequent dispute involves whether or not ulcers qualify as a disability under these provisions.

In one recent workmen's compensation case, for example, the decedent had obtained employment as a police officer upon certification that a prior ulcer had completely healed. A year after the officer's instatement, the ulcer started up again. The condition gradually worsened until finally the officer required surgery, shortly after which he died. Evidence produced at a subsequent

hearing satisfied the Workmen's Compensation Board that the officer's disability was caused by the emotional strain of his job. Therefore, it was decided that although the condition was a pre-existing dormant one, it was nonetheless compensable under the Workmen's Compensation Act (51).

In an earlier case, a Santa Ana police officer developed an ulcer condition after fifteen years on the force. Thereafter, he missed a considerable number of days from work due to illness. During the four years following the inception of the ulcers, the officer twice sought disability benefits, but was turned down on both occasions. Shortly after returning to work after the second denial, the officer was discharged for incompetence, based on a determination that his ulcers rendered him incapable of discharging his duties. The court that heard the officer's appeal held that the discharge was unwarranted in light of the officer's right to a leave of absence without pay when disabled in the course of his duties. In other words, the department could not refuse to retire the officer from the force for an ulcer condition and then turn around and dismiss him for physical incompetence caused by the same ulcer condition. In the court's opinion, if the department would elect to terminate any officer for disability under a discipline code rather than allow him to terminate voluntarily under the retirement provision, the statutes creating pension rights upon a finding of disability would be mere nullities (52).

An ever-increasing number of legislatures are making disability benefits easier to obtain by creating statutory presumptions that certain disabilities suffered by police officers have been incurred in the course of employment. The most notable of these disabilities are heart disease and hypertension (53).

Other jurisdictions have included respiratory illnesses or lung diseases, (54) tuberculosis, and hardening of the arteries (55). Some states limit eligibility to members who have had a minimum number of years on the force (56); an equal number require that the benefits applicant have been previously found free of such ailments (57). Florida specifically includes electrocardiogram results as evidence of no prior disabling condition (58). Nevada, on the other hand, considers heart disease to be an occupational disease only if caused by "extreme overexertion in times of stress or danger " and upon a showing of causal relationship between the injury and the alleged source (59).

The statutes have generally withstood constitutional attacks (60), although one court has held that a statutory presumption that heart disease was a disability arising out of the course of employment was unconstitutional insofar as it made the presumption conclusive and precluded the introduction of evidence tending to rebut the presumption (61). Generally, the statutes have been liberally applied in order to implement the legislative intention. Thus, for example, where a disabled officer had taken the required physical examination twenty-two months prior to the date his permanent employment began, the court nonetheless determined that he had satisfied the statutory requirement that an officer must pass a medical examination upon entry into service before entitlement to the presumption that any heart disease arose in the course of employment (62).

Conclusion

A few things can be said about the effects of legislation and litigation in the area of physical fitness in law enforcement and the directions in which police departments and courts may be heading. Municipal agencies, in great part because of recent court decisions, appear to be moving away from absolute

qualifications such as minimum weight for entrants to the police force and toward a more balanced testing for ability to perform on the job. The one exception to this has been age, which has been invariably found to be a rational absolute measure of capacity. This conclusive presumption operates in relation to minimum age for applicants and as to mandatory retirement age for in-service officers as well.

The movement away from absolute entrance qualifications has been accompanied by a trend toward a more intensive in-service review of competence. Mandatory medical examinations and continuing training are becoming more common than ever before. Moreover, lack of physical competence is generally grounds for discharge, demotion, or retirement, and officers must constantly be prepared to present evidence of their continued fitness for employment. Nonprobationary officers, of course, must be accorded their due process rights in these circumstances, but performance is nonetheless subject to scrutiny and review.

A final identifiable pattern which goes hand in hand with the more intensive and structured review of in-service performance is the increased attention being given to disability protection. Courts are becoming less reluctant to refuse disability benefits to law enforcement personnel whose disabilities alleged to have been incurred in the line of duty include ulcers, alcoholism, and even obesity. Legislatures have kept pace by enacting statutes which make such impairments as heart disease and hypertension presumptively job related. The increased emphasis on equal protection and due process in department-employee relations has thus been accompanied by more extensive testing and review procedures. The efforts of the legal system and the law enforcement field will, it is hoped, combine to further the overall goal to guarantee fair employment rights to police officers without sacrificing the general welfare and safety of local communities.

REFERENCES

1. Officers For Justice v. Civil Service Comm'n, 395 F. Supp. 378 (N.D. Calif. 1975)
2. Ga. Code Ann., Ch. 92A-21; Conn. Gen. Stats. Ann., Title 7, Ch. 104, §§ 7-294a - 7-294e
3. Alas. Stats. Title 18, Art. 2, §§ 18.65.130—18.65.290
4. See, eg, S. D. Comp. Laws, Title 3, §§ 3-3-1 — 3-3-6; Mass. Gen. Laws Ann., Title 32, § 85
5. Alaska, California, Connecticut, Illinois, Iowa, Kansas, Maine, Massachusetts, Minnesota, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Virginia, Washington, West Virginia, Wisconsin
6. Milwaukee Railroad v. Wisconsin D.I.L.H.R. 215 N.W. 2d 443 (Wis. 1974)
7. Bevan v. New York State Teachers Retirement System, 345 NYS 2d 921 (N.Y. Sup. Ct. 1973), aff'd as modified, 355 NYS 2d 185 (N.Y. App. Div. 1974)
8. Clark v. Chicago, Milwaukee, St. Paul & Pacific Railroad Co. (Wash. Super. Ct., Oct. 3, 1975)
9. Castro v. Beecher, 334 F. Supp. 930 (D. Mass. 1971), aff'd in part, reversed in part, 459 F.2d 725 (1st Cir. 1972)
10. Officers For Justice v. Civil Service Comm'n, 395 F. Supp. 378 (N.D. Calif. 1975)
11. As used here, "adverse impact" means that the effect of utilizing some standard or procedure is that a greater proportion of persons in a particular class fail to attain the sought-after goal or benefits as compared to other classes of persons.

12. 49 Law Ed 2d 520 (Sup. Ct., decided June 25, 1976)
13. But see, Aaron v. Davis, USDC (E.D., Ark., decided May 28, 1976) in which a Federal District Court found a mandatory retirement age for firemen to be violative of the Federal Age Discrimination in Employment Act.
14. Fabio v. City of St. Paul, 126 NW2d 259 (Minn. 1964)
15. Glinski v. City of Detroit Policemen and Firemen Retirement System, 34 Mich. App. 161, 190 NW 2d 728 (1971)
16. Ridaught v. Division of Fla. Highway Patrol, 314 So. 2d 140 (Fla. 1975)
17. 426 Pa. 254 231 A.2d 743 (Pa. 1967)
18. Hatfield v. Arizona Highway Patrol Merit System Council, 97 Ariz. 24, 396 P.2d 256 (1964)
19. In the Matter of the Town of Orange and Int'l Brotherhood of Police Officers, Local 349, Case #7374-A-92, Conn. Bd. of Med. and Arb. (1974).
20. Smith v. San Francisco Police Dept., 33 AELE Pub. 5
21. (Sept. 1975) See, eg, Smith v. Troyan, 520 F.2d 492 (6th Cir. 1975), cert. denied, 49 L. Ed. 2d 385 (June 14, 1976)
22. Ga. Code Ann., Title 78, Chap. 78-9, § 78-911
23. Steigerwait v. St. Petersburg, 316 So. 2d 554 (Fla. 1975)
24. City of Flint and Flint Police Patrolmen's Ass'n, Arbitrator's Award, PSLR, Employment Practices 4-31 (Sept. 1975)
25. La Fleur v. Cleveland Bd. of Education, 414 U.S. 632 (1974)
26. See, Newmon v. Delta Airlines Inc, 374 F. Supp. 238 (N.D. Ga. 1973); See also, La Fleur v. Cleveland Bd. of Education; supra, at note 13.
27. Id., at note 14

28. Tex. Civ. Stats, Title 28, Ch. 22, Art. 1269m, § 9; Vernon's Ann. Mo. Stats, § 84-590
29. Ind. Stats., Title 19, §§ 19-1-7-2, -3
30. Hail v. White, (N.D. Calif. 1973)
31. See, eg, Smith v. Troyan, 520 F.2d 492 (1975), cert. denied, 49 L.ED 2d 385 (1976), where a minimum wt. of 150 lbs. was held an invalid entrance qualification, based on evidence that it excluded 80% of women applicants as opposed to 26% of men applicants, and had no rational relationship to job performance.
32. See, eg, Nev. Rev. Stats, § 617.457; Ariz. Rev. Stats., Title 19, Ch. 8, § 9-932; Ohio Rev. Stats, § 143.31
33. N. M. Stats 1953, Title 39, Ch. 2, § 30-2-6
34. Tafoya v. New Mexico State Police Board, 81 N.M. 710, 472 P.2d 973 (1970)
35. City of Sharon v. Rose of Sharon Lodge No. 3, 315 A.2d 355 (Pa. Cmwlth. 1973)
36. For fuller discussion, see, Managing For Effective Discipline, (IACP 1976)
37. S.D. Comp. Laws, Title 3, § 3-7-15
38. O'Neil v. City and County of San Francisco, 77 Cal. Rptr. 855 (1969)
39. People ex rel Ballinger v. O'Connor, 13 Ill. App. 2d 317, 142 N.E. 2d 144 (1957)
40. Clark v. City of Manchester, 305 A.2d 668 (N.H. 1973)
41. Tafoya v. New Mexico State Police Board, 81 N.M. 710, 472 P.2d 973 (1970)
42. See, generally, Conn. Gen. Stats. Ann., Title 7, Chap. 104, § 7-297; La. Rev. Stats., Ch. 4, §§ 2234, 2294; Ark. Stats, Title 19, Ch. 16, § 19-1809; Ariz. Rev. Stats., Title 9, Ch. 8, §§ 9-925, 9-926, 9-932

43. City of Hagerstown v. Blenard, 302 A.2d 53 (Md. 1973)
44. See, eg, Ky. Rev. Stats., § 95.864; La. Rev. Stats, Ch. 4, § 2376
45. Conn. Gen. Stats. Ann., Title 7, Chap. 104, § 7-298; La. Rev. Stats, Ch. 4, §§ 2294, 2376; Ark. Stats, Title 19, Ch. 16, § 19-1810
46. Haw. Rev. Stats., Title 7, Chap. 88, § 88-168
47. Johnson v. State Dept. of Institutions, 198 So. 2d 159 (La. App. 1967)
48. La. Rev. Stats Chap. 4, § 2376
49. Bouley v. Borough of Bradley Beach, 42 N.J. Super. 159, 126 A.2d 53 (1956)
50. Mass. Gen. Laws Ann., Title 32, § 85F; Me. Rev. Stats. Ann., Title 25, § 1594
51. Oklahoma City v. Schoonover, 535 P.2d 688 (Okla. 1975)
52. Boyd v. City of Santa Ana, 99 Cal. Rptr. 38,491 P.2d 830 (1971)
53. Code of Va., Title 51, § 51-122; Ann. Code of Md., Art. 101, § 64A
54. Neb. Stat., § 18-1723; N.D. Century Code, Title 65, § 65-01-02; Mich. Comp. Laws Ann., § 418.405
55. Fla. Stats Ann., Title 12, § 185.34
56. Neb. Stat., § 18-1723; N.D. Century Code, Title 65, § 65-01-02
57. Conn. Gen. Stats Ann., Title 7, Chap. 113, § 7-433a; Code of Va., Title 51, § 51-122; Mass. Gen. Laws Ann., Title 32, § 94
58. Fla. Stats Ann., Title 12, § 185.34
59. Nev. Rev. Stats., § 617.457
60. City of Coral Gables v. Brasher, 120 So.2d 5 (Fla. 1960)
61. Ducharme v. City of Putnam, 161 Conn. 135, 285 A.2d 318 (1971)
62. Foster v. City of Everett, 133 NE2d 480 (Mass. 1956)

CHAPTER 18

PHYSICAL FITNESS IN BUSINESS/INDUSTRY

Another segment of the present project consisted of an examination of the types of physical fitness programs available to employees of various businesses and industries. Due to the limitations of the current project, it was not possible to conduct a totally comprehensive or detailed review of business and/or industrial settings. Nevertheless, it was felt that such an examination as was possible might reveal different types of programs which have been successful in nonpolice employment situations and which might promise adaptability to police agencies.

To this end, a letter requesting available information on current programs was sent to selected members of the American Association of Fitness Directors in Business and Industry (AAFDBI), identified with the assistance of the President's Council on Physical Fitness. A number of responses were received. Since, however, one emphasis here is on current programs, this chapter will focus on those responses from organizations in which fitness programs are operational. It should be noted that other very helpful responses were received from organizations still in the planning and development stages of their programs.

Five businesses provided detailed descriptions of their physical fitness programs for employees; these programs are outlined briefly in Table 18.1. Not all of these five companies provided the same kinds of information, thus, some of the areas in the table are blank.

It can be seen that, in terms of content, facilities, and equipment, these programs are quite similar to those reported by police agencies which have been described elsewhere in this report. These programs generally emphasize cardiovascular functioning and/or sports programs using in-house facilities and a

great variety of equipment. In fact, the equipment provided for employees of these organizations represent much greater variety and scope than is typically found in police agencies. This is not an unexpected result, however, due to the greater financial resources of these companies in comparison to the resources available to police agencies. Two of the respondents estimated expenses of approximately \$10,000.

Circuit training, mentioned by three of the five companies, is a concept not found in police agency physical fitness programs. This type of training represents a combination of medical measurement and physical activity individually prescribed for each participant. Various cardiovascular measurements (e.g., pulse rate) are taken before actual participation begins. Participants then progress through a series of activities such as the jogging-rowing-bicycling-situp scheme utilized by Metropolitan Life. Each activity is performed for a predetermined period of time (e.g., two minutes jogging, one minute rowing, etc.) which has been established on an individual basis for each participant by the program leader. Cardiovascular measures are taken at the end of each stage of physical activity and during a resting period at the end of the circuit. A variation of this scheme is utilized by Ashland Oil; this program provides nine or ten different stations in the circuit in which every other activity is designed to stimulate 75% to 85% maximum pulse rate. These programs represent a unique design for combining different physical activity in such a way as to prevent boredom and to maintain control over the amount of exercise an individual performs during a given time period.

These companies also provide full-time instructors who are experienced physical therapists or athletic directors, as well as continuing assistance from

medical personnel.

Although the programs are voluntary, as are police agency physical fitness programs, participation rates are much higher than those reported by police agencies. Two of the organizations reported consistent participation by approximately one-third of their employees. It should, perhaps, be noted here for clarification, that these programs are described for home-based or headquarters personnel only, e.g., those employed in the New York City office.

The area of special features, however, particularly differentiates these programs from those described by police agencies. The emphasis on individual prescription and individualized instruction is apparent for business fitness programs. In addition, several companies indicated that regular participation during working hours is available and, indeed, encouraged. Provisions for special counseling and/or therapeutic sessions during regular working hours were also indicated. And, finally, coeducational participation in some of the physical fitness activities was indicated by several companies.

In connection with this final point, a study¹ conducted by the representative of Ashland Oil, who responded to the letter requesting information, yielded some interesting results. This small sample study found, in part, that coeducational programming did not present difficulties to responding organizations. Of 18 companies permitting coeducational membership in fitness programs, 10 indicated either the absence of any problems or the improbability of any problems developing. The major problem mentioned by the other companies concerned the provision of separate dressing facilities.

¹ Stapf, David J. A poll of forty major industries concerning exercise facilities and membership policies. (July 1, 1976)

One response not included in Table 18.1 came from the Department of Leisure Services of the Corporation of the Township of Richmond in British Columbia. As this is a governmental division providing public services, it is not properly a business or industry, but it is worth discussing because of the extent of programming available to the public. A variety of fitness-related programs and classes are provided year-round; these include jogging, fitness courses and weight training courses. All include instruction in proper exercising technique, and all are administered in convenient geographical locations. Beginning and advanced co-educational "keep fit" classes, for example, are taught in local schools, which combine jogging with exercise stations. One of the most interesting programs consists of four specially designed jogging courses which have been built on grass surfaces (to decrease the possibility of shin splints) in natural settings.

It can be seen, then, that diversity in physical fitness programming has been achieved by some businesses and organizations. Although data on the effectiveness of these programs are not available, all five companies included in Table 18.1 indicated that evaluative studies are in progress. These studies will examine both statistical data on absenteeism and productivity, as well as more impressionistic and attitudinal data concerning employee morale and motivation.

Finally, Marcia Fein, Health Fitness Coordinator for the General Foods Corporation in White Plains, New York, provided some "helpful hints" for developing physical fitness programs. These are listed below:

1. Clarify your philosophy: it is important to establish a clear set of goals for health and fitness which will, in turn, give direction and purpose to the program.

2. Create a strong bond between the medical and fitness divisions: needless to say, it is necessary to devise safe procedures for screening, stress testing, and profiling individuals above and below 35 years of age.
3. Provide education: it is necessary to develop an understanding of fitness at all levels of the company structure in order to nurture support and participation. It has been our experience that successful educational sessions have included information on the physical, mental, and emotional benefits of fitness, the analysis of risk factors, and the explanation of various relaxation techniques.
4. Seek support in upper management: for corporate leaders to be interested in such ventures, they must see an eventual return on their initial investment. Thus, it may be useful to suggest payback in terms of decreases in absenteeism, improvement in individual productivity (although, as yet, we do not have conclusive evidence to substantiate these contentions) and a decrease in the power-drain resulting from the loss or disability of highly trained employees.
5. Establish high standards: it is necessary to remember that when functioning within the business realm, the fitness program and its leaders must suit the criteria established for success in the fields of both business and fitness. For, undoubtedly a loosely defined program will serve to reinforce the belief that fitness is a low priority endeavor not worthy of inclusion in a successful business person's schedule.
6. Consider professional preparation: the tone of the program is greatly influenced by the education, experience, personality and motivation of its leaders. Therefore, salaries should be structured to attract such professionals.
7. Choose the program design which is in keeping with your philosophical objectives: the two most common are as follows: (1) the individual-centered program, whereby the person works, independently, to achieve his goals, usually going through a prescribed series of stations in a circuit training room; or (2) the instructor-lead group-oriented program in which individuals are encouraged to work together toward the achievement of their own goals. It is, thus, understandable that our motivational objective to maintain both interest and attendance may provide the impetus for not only our group-oriented class structure, but also the variety of programs we intend to offer.

Table 18.1 Physical Fitness Programs in Business/Industry

<u>Name</u>	<u>Year Begun</u>	<u>Content</u>	<u>Instructor</u>	<u>Participation Rate</u>	<u>Voluntary or Mandatory</u>	<u>Facilities</u>	<u>Equipment</u>	<u>Special Features</u>
Ashland Oil (Kentucky)		Progressive circuit interval program Sports	Full-time supervisor			In-house gymnasium	Treadmill/Universal Gym/Exercycles/ Rowing Machines/ Barbells/Dumbbells/ Punching bag/Medicine balls/Tumbling mats/ Handball, racquet ball, etc. equipmt	Individual perscriptions are written for each participant Standards of qualification exist for members Emphasis is on regularity and health maintenance Facilities are sex segregated
Chase Manhattan Bank (New York City)	1975	Cardiovascular fitness	Medical department		Mandatory			Pre-participation medical screening is required Orientation lectures and periodic testing provided Individual prescriptions are written
Forbes Magazine (New York City)		Individual circuit training Weight/figure control Yoga	Full-time licensed athletic director	1/3 employees	Voluntary	In-house rooftop facilities	Treadmill/Abdominal board/Jump ropes/ Wall pulleys/Monarch bicycle/Medicine balls/Rowing machine/ Thigh-knee weights/ Dumbbells/Floor press machine/ Exercise bench/Speed bag/Varieties of sports equipment	Roof facilities contain a multi-purpose court, golf driving range and lunch area Participation is co-educational Participation during working hours is encouraged
Metropolitan Life (New York City)	1968	Four-station circuit Sports Exercise to music	3 physical education majors	1,000 employees/wk	Voluntary	In-house gymnasium	4 station - jogging/rowing/ bicycling/situps Many varieties of sports equipment	Employees participate during working hours Therapeutic sessions are provided during working hours Consultation on diet and nutrition is provided

Table 18.1 (con't.)

<u>Name</u>	<u>Year Begun</u>	<u>Content</u>	<u>Instructor</u>	<u>Participation Rate</u>	<u>Voluntary or Mandatory</u>	<u>Facilities</u>	<u>Equipment</u>	<u>Special Features</u>
Pepsico (New York)	1951	Jogging Aerobic dancing Yoga Sports Walking	Physical fitness therapist Physician	1/3 employees consistent 1/3 sporadic 1/3 no interest	Voluntary	In-house and outdoors facilities	Treadmill/ Universal gym/ Striking bag/ Stationary bicycle/ Sauna/Whirlpool/ 1.5 mile Track	Individual sets own goals and rate of progress in consultation with instructor Special facilities are available for special needs (e.g., weight control, medical condition)

ANNOTATED BIBLIOGRAPHY

Books

American College of Sports Medicine. Guidelines for Graded Exercise Testing and Exercise Prescription. Philadelphia: Lea & Febiger, 1975.

The format of the Guidelines was developed as a largely descriptive treatment of how to organize and administer exercise testing and prescription. It includes the application of testing and prescription procedures to the entire population. Behavioral objectives are offered to prepare personnel for developing programs.

Astrand, P.O. and Rodahl, K. Textbook of Work Physiology. New York: McGraw-Hill, 1970.

The purpose of the text is to present various factors affecting human physical performance in a manner comprehensible to the physiologist, physical educator, and the clinician. The emphasis is on the regulation of various functions of the body at rest and during exercise. Basic physiological principles are followed by their application to testing, training, nutrition, physical fitness, and health.

Asmussen, E.: "The neuromuscular system and exercise." In: Falls, H.B. (ed.). Exercise Physiology. New York: Academic Press, 1968.

The chapter in the text emphasized the physiology of muscles. Particular attention is given to the measurement and training of strength and muscular fatigue.

Balke, B.: "Prescribing physical activity." In: Lawson, L. (ed.). Sports Medicine. New York: Academic Press, Inc., 1974, pp. 505-523.

In this chapter, the author elaborates on a means for prescribing exercise. Emphasis is placed on an individualized program, taking into account frequency, intensity, and duration of training.

Behnke, A.R. and Wilmore, J.H. Evaluation and Regulation of Body Build and Composition. Englewood Cliffs: Prentice-Hall, 1974.

Techniques for determining body density and body fat by underwater weighing, water displacement, skinfolds, and anthropometric measurements are presented. Discussions on how body composition (fat/lean ratio) is affected by diet and training are offered.

Berger, R.A. Conditioning for Men. Boston: Allyn and Bacon, 1973.

The approach of the book is to provide information necessary for an individual to make a self-evaluation of his strengths and weaknesses in physical ability. General principles of developing an exercise program based on weaknesses are offered. Of special interest in this text are descriptions of weight training and calisthenic exercises.

Books

Clarke, H.H. Muscular Strength and Endurance in Man. Englewood Cliffs: Prentice-Hall, 1966.

The measurement of strength using cable tensiometry is presented in this text. Relationships of strength with muscle fatigue are also discussed. This is an excellent reference source for strength testing techniques.

Consolazio, R., Johnson, R., and Pecora, L. Physiological Measurements of Metabolic Function in Man. New York: McGraw-Hill, 1963.

The basic methods of measuring respiratory metabolism, cardiopulmonary function, and body composition are presented. Of particular importance in this text are the analytical procedures for determining oxygen consumption and energy expenditure.

Cooper, K.H. Aerobics. New York: Bantam Books, 1968.

Written as a motivational tool for the layman of physical fitness, this book describes a unique point system for measuring progress toward maximal health. Exercise is quantified in terms of mode, duration, and intensity (total energy cost) by the aerobics point system. Therefore, an individual is able to follow his progress in an exercise program by using a tangible, meaningful point system. Minimum standards for assessing and maintaining cardiorespiratory fitness are described.

Cooper, K.H. The New Aerobics. New York: M. Evans and Company, Inc., and Bantam Books, Inc., 1970.

As a follow-up to his first book on Aerobics, Cooper updated the point system to include more activities and age-adjusted fitness programs. This book is more of a "Handbook" on specific programs to follow.

Cooper, M. and Cooper K.H. Aerobics for Women. New York: M. Evans and Company, Inc., and J.B. Lippincott Company, 1972.

To meet the need for reaching the female exercises, this book offers specific programs for females. The two previous books on Aerobics by Cooper contained data strictly for men. This book presents the data collected on women and a point system strictly applicable for the female of any age.

Cureton, T.K. The Physiological Effects of Exercise Programs on Adults. Springfield: Charles C Thomas, Co., 1969.

The basis of the book includes summaries of research studies concerning exercise programs for adults. The physiological effects of exercise are broadly summarized and then are followed by specific effects on specific physiological functions of the body. Physiological objectives on a fitness program are discussed.

Books

deVries, H.A. Physiology of Exercise for Physical Education and Athletics. Dubuque: W. C. Brown, 1966.

As a standard textbook for exercise physiology, this book includes the basic physiology underlying the effects of exercise. It also contains sections on the application of basic physiology to physical education and athletics.

Dubin, D. Rapid Interpretation of EKG's. Tampa: COVER Publishing Co., 1970. Written in a programmed-text style, this book starts with the basic electrophysiology of the heart and progresses to interpretation of electrocardiograms (ECG). The emphasis is on teaching the reader to rapidly recognize ECG abnormalities.

Gledhill, N. and Eynon, R.B.: "The intensity of training." In: Taylor A.W., (ed.). Training Scientific Basis and Application. Springfield: Thomas, 1972, pp. 97-102.

This chapter in the text deals with a study examining the effects of different training intensities on cardiorespiratory fitness. In order to produce significant improvements in maximal oxygen intake, the intensity of training had to be strenuous enough to elicit heart rates of at least 135 beats/min. Groups that were highly fit initially only improved when the training stimulus was high (170 beats/min).

Hooks, G. Application of Weight Training to Athletics. Englewood Cliffs: Prentice-Hall, Co., 1970.

The author describes the basic principles for developing muscular strength. Various principles of weight training are outlined. Exercise programs for specific sports are described.

Kasch, F.W. and Boyer, J.L. Adult Fitness Principles and Practices. San Diego: San Diego State College, 1968.

This book is a primer and guide for adult fitness programs. It is a "how to do it" book. Topics include principles for starting a program, practical tests for evaluation, example programs, and exercise precautions.

Kilbom, A.: "How to obtain physical fitness.: In: Larson, O.A. and Malmberg, R.Q. (eds.). Coronary Heart Disease and Physical Fitness. Baltimore: University Park Press, pp. 175-179, 1971.

Kilbom presents information on the components of physical fitness and minimum efforts required to obtain fitness. Of the multiple factors of good physical fitness, oxygen transport and utilization are the most important for decreasing the risk for coronary heart disease. Physical fitness can be obtained, at least in sedentary subjects, by training for 1/2 hour three times a week, and the training intensity need not be maximal.

Books

Larson, L.A. (ed.). Fitness, Health, and Work Capacity: International Standards for Assessment. New York: Macmillan, 1974.

The text represents collected efforts by members of the International Committee for the Standardization of Physical Fitness Tests. Measurement instruments and procedures as well as the basis for health and fitness are presented. Chapters include information on the medical exam, physique and body composition, applied physiology, and physical fitness measurements.

Mathews, D.K. and Fox, E.L. The Physiological Basis of Physical Education and Athletics. Philadelphia: Saunders, 1971.

Written for the physical educator and coach, this text presents essential materials for the safe conduct of sport and physical education programs. The authors show direct application of physiological concepts to practical problems that occur in exercise. Topics of energy sources, strength, endurance, flexibility, interval training, heat balance, and cardiorespiratory system are covered.

Melograno, V.J. and Klinzing, J.E. An Orientation to Total Fitness. Dubuque: Kendall-Hunt, 1974

Total fitness is discussed in its subparts of social, emotional, mental, and physical. Information on warm-up, endurance, muscle training, motorability, mechanics, and weight control is included. Basic principles with example programs within each of the above topics are described.

Morehouse, L.E. and Miller, A.T. Physiology of Exercise. St. Louis: C.V. Mosby, 1971.

As a textbook on exercise physiology, this book offers a basic physiological background necessary to understand the response of the body to exercise. Also included are chapters on fatigue, training, fitness, and health.

Myers, C.R., Golding, L.A., and Sinning, W.E. (eds.). The Y's Way to Physical Fitness. Emmaus: Rodale Press, 1973.

Written in a "cookbook" style, this manual is offered as a guide to the exercise program director. Planning, organizing, and administering fitness programs are discussed along with the basic exercise physiology principles underlying specific programs of exercise. A chapter on testing is a significant contribution to the practical methods for evaluating fitness.

Books

- Naughton, J.P., and Hellerstein, H.K. (eds.). Exercise Testing and Exercise Training in Coronary Heart Disease. New York: Academic Press, 1973. Exercise should be continuous, rhythmic, moderate, and of an endurance nature to produce significant changes in cardiorespiratory condition, body fat, blood fat, muscle tone, and aerobic capacity. Book also contains information concerning the conducting of exercise programs with cardiac patients.
- Pariskova, J.: "Impact of age, diet, and exercise on man's body composition." In: Johl, E. and Simond, E. (eds.). Inter. Res. Sport Phys. Educ. Springfield: Charles C. Thomas, 1964. Dieting alone is not an effective way to reduce fatness. A combination of exercise and diet restriction is recommended. Exercise induces reduction in percent fat along with increases in muscle mass.
- Physical Fitness for Law Enforcement Officers. Washington, D.C.: Federal Bureau of Investigation, 1972. This manual was written to make the law enforcement officer more aware of the importance of physical fitness and to provide guidelines for improving fitness. It includes sections on self-evaluation, self-conditioning, exercise programs for cardiovascular fitness and strength, and weight control.
- Physical Fitness Program. Washington, D.C.: United States Secret Service Training Division, 1972. Part one of this manual provides methods whereby agents can measure their physical condition in relation to others. Part two provides general programs of exercise for all employees and their families.
- Pollock, M.L., Tiffany, J., Gettman, L., Janeway, R., and Lofland, H.: "Effects of frequency of training on serum lipids, cardiovascular function, and body composition." In: Franks, A.O. (ed.). Exercise and Fitness. Chicago: Athletic Institute, 1969, pp. 161-178. Two day and four-day per week training programs were examined and both groups improved significantly in cardiovascular function. Only the four-day group lost fat through the study. No changes in serum cholesterol were observed over the 16-week study. Serum triglycerides were significantly reduced during this same time span.
- Pollock, M.L.: "The quantification of endurance training programs." In: J. Wilmore (ed.). Exercise and Sport Sciences Reviews. New York: Academic Press, 1973, pp. 155-188. This chapter is a review of studies dealing with the quantification of exercise programs in terms of intensity, duration, and frequency. These are discussed with reference to mode of activity, age of participant, and initial level of fitness.

Books

Pollock, M.L., Gettman, L.R., and Milesis, C.A. Physical Fitness Manual for Correctional Institutions. Dallas: Institute for Aerobics Research, 1975.

The manual includes information concerning the need for exercise by inmates. Principles of exercise are discussed and guidelines for medical screening, fitness evaluation, and exercise prescription are provided. The results from two major studies involving state prison and county jail inmates are summarized. Chapters on administrative considerations and physiological and psychological findings are also included.

Rasch, P.J. Weight Training. Dubuque: W. C. Brown Co., 1966.

The scientific principles of weight training are presented along with programs for beginners and advanced lifters. Specialized programs for competitors in various sports are described.

Sidney, K.H., Eynon, R.B., and Cunningham, D.A.: "The effect of frequency of exercise upon physical working capacity and selected variables representative of cardiorespiratory fitness." In: Taylor, A.W. (ed.). Training Scientific Basis and Application. Springfield: Thomas Co., 1972, pp. 144-148.

When total work was held constant, a training frequency of two days per week was found to be similar to four days per week in improving aerobic capacity. A one-day per week program showed little advantage over no training at all.

Skinner, J.: "The cardiovascular system with aging and exercise." In: Brunner D. and Yokl E. (eds.). Physical Activity and Aging. Baltimore: University Park Press, 1970, pp. 100-108.

Data suggest an approximate 21 to 30 percent decrease in oxygen intake over a 30 to 40 year range.

Wilson, P. Adult Fitness and Cardiac Rehabilitation. Baltimore: University Park Press, 1975.

This book contains a compilation of materials concerning the organization and administrative aspects of developing a cardiac rehabilitation program. Emphasis is placed on safety, stress testing, and exercise prescription.

Periodicals

- American College of Sports Medicine: "Prevention of heat injuries during distance running." Med. Sci. Sports. 7:1, vii, 1975.
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- Astrand, I.: "Aerobic work capacity in men and women with special reference to age." Acta. Physio. Scand. 49, Suppl. 169: 211-217, 1960.
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- Barnard, R.J., Gardner, G.W., Diaco, N.V., MacAlpin, R.N., and Kattus, A.A.: "Cardiovascular response to sudden strenuous exercise - heart rate, blood pressure, and ECG." J. Appl. Physiol. 34:833-837, 1973.
A variety of subjects including marathon runners and sedentary men were asked to run on a treadmill at 9 mph, 30% grade for 10 seconds without prior warm-up. At another time, 2 min of easy jogging for warm-up preceded the run. Without warm-up, 68% had abnormal ECG changes and these changes disappeared or were reduced in severity when warm-up was allowed. The study emphasizes the importance of warm-up prior to strenuous physical activity.
- Barnard, R.J., MacAlpin, R.N., Kattus, A.A., and Buckberg, G.D.: "Ischemic response to sudden strenuous exercise in healthy men." Circulation 48:936-942, 1973.
Abnormal increases in blood pressure were observed on 10 men when sudden strenuous exercise was performed without prior warm-up. The abnormal increase in blood pressure greatly increased the oxygen demand of the hearts and abnormal ECG changes were observed. When 15-20 min. of warm-up was allowed, the ECG changes disappeared or were reduced in severity.
- Benoit, F.L., Martin, R.L., and Watten, R.H.: "Changes in body composition during weight reduction in obesity." Ann. Intern. Med. 63:604-612, 1965.
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- Boileau, R.A. and associates: "Body composition changes in obese and lean men during physical conditioning." Med. Sci. Sports 3:183-189, 1971.
College men classified into obese (25-46% fat) and lean (10-21% fat) categories participated in nine weeks of running and walking five days per week. The men lost fat while body density increased.

Periodicals

Brozek, J., Grande, F., Anderson, J., and Keys, A.: "Densitometric analysis of body composition: revision of some quantitative assumptions." Ann. N.Y. Acad. Sci. 110:113-140, 1963.

This reference serves as a basis for calculating body density (measured by various techniques) to percent body fat using the following formula: $\% \text{ Body Fat} = \left(\frac{4.57}{D} \right) - 4.142 \times 100$

Bruce, R.A.: "Exercise testing of patients with coronary heart disease." Ann. Clin. Res. 3:323-332, 1971.

A description of an exercise stress test is provided as a valuable screening device for detecting coronary heart disease. The test requires a treadmill and is multistage starting at 1.7 mph, 10% grade and progressing in speed and grade every three minutes to a person's maximum voluntary effort.

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The characteristics of high serum cholesterol level, high blood pressure (hypertension), and obesity (excessive fat) were identified with a high incidence of coronary heart disease.

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The author suggests guidelines that will help make stress testing and exercise prescription safer.

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This study showed that the cardiorespiratory fitness of Austrian soldiers was much higher than American Air Force personnel and that the decline in fitness from ages 19 to 29 years was less among the Austrians. Also, the 29-year-old Austrians performed better than the 19-year-old Americans.

Periodicals

- Corbin, B., Berryhill, D., and Olree, H.: "Effects of running, exercising on the treadmill, and exercising on the bicycle ergometer at equal heart rates on specified components of physical fitness." In: Abstracts of Research Papers 1968 AAHPER Convention, p. 33.
Twenty college men were trained at equal heart rates 5 days per week for 10 weeks using running, treadmill walking, and bicycle modes of training. Results in fitness tests showed the improvements were best in the running group followed by the bicycle groups and treadmill walk group last.
- Costill, D. and Fox E.: "Energetics of marathon running." Med. Sci. Sports 1:81-86, 1969.
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- Davies, C.T.M. and Knibbs, A.V.: "The training stimulus, the effects of intensity, duration, and frequency of effort on maximum aerobic power output." Int. Z. Angew. Physiol. 29:299-305, 1971.
Men were trained at 80, 50, and 30 percent of maximum oxygen intake; 20, 10, and 5 minutes per session; 5, 3, and 1 days per week for 8 weeks. Greater improvement in aerobic capacity was achieved with higher intensity programs.
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- deVries, H.A.: "Physiological effects of an exercise training regimen upon men aged 52 to 88." J. Gerontol. 25(4):325-366, 1970.
Subjects who participated in a low-intensity exercise program improved but the relative change was less than for younger subjects.

Periodicals

Drinkwater, B.L. and Horvath, S.M.: "Detraining effects on young women." Med. Sci. Sports 4:91-95, 1972.

Three months after track season, cardiorespiratory fitness decreased significantly in seven female athletes who engaged in no training. The fitness levels decreased to levels found in nonathletic girls of the same age.

Fardy, P.S.: "Effects of soccer training and detraining upon selected cardiac and metabolic measure." Res. Quart. 40:502-508, 1969.

Throughout the course of a season of soccer competition cardiorespiratory efficiency improved, but significant reductions occurred after the season during a nontraining period.

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Physical exercise programs have been shown to reduce the severity and number of risk factors such as serum lipids, obesity, high blood pressure, and ECG abnormalities in coronary heart disease. This suggests the protective value of regular exercise.

Gettman, L.R., Pollock, M.L., Ayres, J.J., Durstine, L., Ward, A., Linnerud, A.C.: "Physiological responses of men to 1, 3, and 5 day per week training programs." Res. Quart. In Press, 1976.

This study on county jail inmates found that physiological improvements occurred in direct proportion to frequency of training. However, even though the 5-day group improved the most, it had the most motivation problems and incidence of leg soreness and muscle injury. Therefore, the recommended program for beginning exercisers is 3 days per week, 30 min. per session.

Grimby, G., Saltin, B.: "Physiological analysis of physically well-trained middle-aged and old athletes." Acta. Med. Scand. 179(5):513-526, 1966.

These data showed that men who continued to train all their lives were superior in cardiorespiratory function compared to their sedentary counterparts.

Gwinup, Grant: "Effect of exercise alone on the weight of obese women." Arch. Int. Med. 135:676-680, 1975.

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- Katch, F.I., Michael, Jr., E.D., and Jones, E.M.: "Effects of training on the body composition and diet of females." Res. Quart. 40:99-104, 1969. The results of this study differed from previous investigations which have shown that body composition changes (fat decreases and lean increases) during physical training programs. Female members of tennis and swimming teams were tested during 16 weeks of sports training. No changes in body composition or dietary patterns were observed.

Periodicals

Kendrick, Z.B., Pollock, M.L., Hickman, T.N., and Miller, H.S.: "Effects of training and detraining on cardiovascular efficiency." Amer. Corr. Ther. J. 25:79-83, 1971.

Middle-aged men trained eight miles per week for 20 weeks and then were divided into three groups. Group A continued to train eight miles per week, Group B trained three miles per week, and Group C was inactive. Group A maintained or improved in cardiovascular efficiency, and Groups B and C regressed significantly. Group C lost approximately 50% of its original improvement.

Kilbom, A.L., Hartley, B., Saltin, J., Bjure, J., Grimby, G., and Astrand, I.: "Physical training in sedentary middle-aged and older men." Scan. J. of Clin. and Lab. Inv. 24:315-322, 1969.

These data showed that middle-aged and older men adapted quite well to endurance training. Men with a lower initial level of fitness appeared to improve their fitness the most.

Ladell, W. "The effects of water and salt intake upon the performance of men working in hot and humid environments." J. Physiol. 127:11-46, 1955. Data show the importance of water and salt intake during hot and humid conditions.

Lindell, J. "Year-around police fitness training." Criminal Justice Dig. 3:1-2, 1975.

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Mayhew, J.L. and Gross, P.M.: "Body composition changes in young women with high resistance weight training." Res. Quart. 45:433-439, 1974. Over a 9-week weight training period, 17 college women increased in lean body mass and decreased in relative fat. Total body weight did not change nor did skinfold thicknesses. High resistance weight training can enhance body composition without concomitant masculinizing effects or changes in body weight.

McNamara, J.J., Molot, M.A., Stremple, J.R., and Cutting, R.T.: "Coronary artery disease in combat casualties in Vietnam." JAMA 216:1185-1186, 1971.

Autopsy reports on casualties in Vietnam showed a high incidence of atherosclerosis. Data were similar to those found with casualties from the Korean war.

Milesis, C.A.: "Effects of metered physical training on serum lipids of adult men." J. Sports Med. and Physical Fitness 14:8-13, 1974.

Data showed a significant lowering of serum cholesterol with endurance training.

Periodicals

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- Moody, D.L., Dollins, J., and Buskirk, E.: "The effects of a moderate exercise program on body weight and skinfold thickness in overweight college women." Med. Sci. Sports 1:75-80, 1969. Eleven overweight college women participated in a 6-day per week walk/jog program for eight weeks. Significant losses in fat with gains in fat-free weight occurred.
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- Neuberger, T.: "What the Research Quarterly says about Warm-up." J. Health, Phys. Educ. and Rec. 40:75-77, 1969. A summary of several studies on warm-up supports the contention that improvements in physical performance (such as running, jumping, and throwing) are significant following active warm-up.
- Pascale, L.R., Grossman, M.I., Sloane, H.S., and Frankel, T.: "Correlations between thickness of skinfolds and body density in 88 soldiers." Human Biol. 28:165-176, 1956. Among several skinfold measures, the best predictors of body density were the chest, axilla, and triceps locations. The formula for predicting density is:
$$D = 1.088468 - (.007123 \times \text{Axilla}) - (.004834 \times \text{Chest}) - (.005513 \times \text{Triceps})$$
- Passmore, R. and Durnin, J.U.G.A.: "Human energy expenditure." Physiol. Rev. 35:801-840, 1955. The kilocalorie cost of different activities ranging from low levels to very high levels (running) is presented. This serves as a basis for quantifying various activity programs on the basis of energy cost.

Periodicals

Pohndorf, R.H. and Cathey, R.E.: "Fitness changes during a 14-week basic law enforcement training program." FBI Law Enforce. Bull. Jan., 1975, pp. 20-24.

The purpose was to assess the initial fitness level of 17 law enforcement trainees at a police institute and then see what changes might occur during a 14-week training program. Initially the men had poor cardiovascular efficiency and improved very little in the limited program of 1 1/2 hrs per week of exercise. The candidates were overfat, and their handgrip strengths and balance scores were below average. Flexibility, verticle jump, dips, and agility scores were satisfactory. A definite need for physical fitness tests incorporated into the selection system for law enforcement trainees was stated.

Pollock, M.L., Cureton, T.K., and Greninger, L.: "Effects of frequency of training on working capacity, cardiovascular function, and body composition of adult men." Med. Sci. Sports 1:70-74, 1969.

Men training 30 min for two days per week were compared with a group of men training four days per week on cardiovascular and body composition measures. Both groups improved in cardiovascular endurance; however, only the four-day group significantly decreased body fat. Between-group analyses showed that improvements were manifested in accordance with frequency of participation.

Pollock, M.L., Miller, H., Janeway, R., Linnerud, A.C., Robertson, B., and Valentine, R.: "Effects of walking on body composition and cardiovascular function of middle-aged men." J. Appl. Physiol. 30:126-130, 1971.

Vigorous walking training produced significant improvements in cardiovascular function and body composition of men 40 to 55 years of age. The men trained 40 min., 4 times/week for 20 weeks and progressed from 2.5 miles during week one to 3.25 miles during weeks 16-20. Because of the significant improvements and low incidence of orthopedic problems and low dropout rate, walking training was strongly recommended for the adult population.

Pollock, M.L., Broida, J., and Kendrick, Z.: "Validation of the palpation technique for estimation of training heart rate." Res. Quart. 43:77-81, 1972.

No significant differences were found between heart rates recorded by ECG telemetry and those taken by subjects using the carotid pulse method. Heart rates were recorded by both methods 10 seconds after stopping exercise and were similar to those during the exercise just before stopping. Therefore, counting the heart rate for 10 seconds after stopping exercise is a valid technique for estimating exercise heart rate.

Periodicals

- Pollock, M.L., Broida, J., Kendrick, Z., Miller, H.S., Jr., Janeway, R., and Linnerud, A.C.: "Effects of training two days per week at different intensities on middle-aged men." Med. Sci. Sports 4:192-197, 1972. Training 45 min 2 days/week at 80% and 90% maximum heart rate had a significant effect on cardiovascular function, but little effect on body composition. When total calorie cost of the two programs were held constant no significant differences existed between the 80% and 90% training intensities.
- Pollock, M.L., Miller, H.A., Jr., Linnerud, A.C., Royster, C., Smith, W., and Sonner, W.: "Physiological findings in well-trained middle-aged American men." Brit. J. Sports Med. 7:222-229, 1973. Thirty-two men, 38 to 57 years of age, who had been training for 5.3 years were found to be excellent in work capacity, cardiovascular function, and body composition when compared to sedentary and moderately trained populations of comparable age.
- Pollock, M.L.: "Steps for initiating an endurance exercise program." Rec. Manag. 17:26-32, 1974. With an increased concern about heart disease by the adult population, the primary considerations for starting an exercise program are the following: medical and fitness evaluations; stress test; intensity of exercise at least 60% of maximum heart rate; duration of 15 to 60 minutes per session; and frequency of at least 3 days per week. Special considerations of warm-up and taper-down, leg and foot problems, hot and humid environments, and motivation are discussed.
- Pollock, M.L., Miller, H.S., Linnerud, A.C., Coleman, E., Laughridge, E.E., Ward, B.A.: "Follow-up study on the effects of conditioning four days per week on the physical fitness of adult men." Am. Correct. Ther. J. 28:135-139, 1974. Improvements were shown in cardiovascular function and body composition of middle-aged men with a 4-days/week conditioning regimen.
- Pollock, M.L., Miller, H.S., Linnerud, A.C., Laughridge, E.E., Coleman, A.B., Alexander, M.S.: "Arm pedaling as an endurance training regimen for the disabled." Arch. Phys. Med. Rehab. 55:418-424, 1974. Many disabled persons cannot train by conventional methods such as running, walking, or bicycling. Arm pedaling on a modified bicycle ergometer was found to be an effective training mode as both cardiovascular function and body composition improved significantly in a group of eight disabled men who trained 30 min., 3 days/week for 20 weeks.

Periodicals

- Pollock, M.L., Miller, H.S., and Wilmore, J.: "Physiological characteristics of champion American track athletes 40 to 75 years of age." J. Gerontol. 29:645-649, 1974.
In a group of 25 champion American runners, results showed all to have excellent cardiovascular and body composition characteristics when compared to sedentary and moderately trained subjects of similar age. Maximal performance decreased with age and dramatic reductions occurred after age 60.
- Pollock, M.L., Dimmick, J., Miller, H.S., Kendrick, A., Linnerud, A.C.: "Effects of mode of training on cardiovascular functions and body composition of adult men." Med. Sci. Sports 7:139-145, 1975.
Running, walking, and bicycle training were shown to be similar in effect on cardiovascular and body composition measures when frequency (3 days/week), duration (30 min/session) and intensity (85 to 90% maximum heart rate) of training were the same.
- Pollock, M.L., Miller, H.S., Linnerud, A.C., and Cooper, K.H.: "Frequency of training as a determinant for improvement in cardiovascular function and body composition of middle-aged men." Arch. Phys. Med. Rehab. 58:141-145, 1975.
This report summarized the results from six training investigations conducted either four, three, or two days/week for 20 weeks. All frequencies had a significant effect on cardiovascular function but only three-and four-days/week regimens showed reductions in body weight and fat. The four-day/week programs improved maximum oxygen intake significantly greater than the three and two-day/week programs.
- Pollock, M.L., Laughridge, E.E., Coleman, B., Linnerud, A.C., and Jackson, A.: "Prediction of body density in young and middle-aged women." J. Appl. Physiol. 38:745-749, 1975.
The prediction of body density in women is enhanced when a variety of variables is evaluated. In this study, the highest predictions of body density were found by using combinations of skinfold, girth, and diameter variables. Prediction equations were developed for different age groups. Variables used for young women were thigh and suprailiac skinfolds, knee diameter, and wrist girth. For middle-aged women, the variables included cup size, thigh and suprailiac skinfolds, and waist girth.
- Pollock, M.L., Hichman, T., Kendrick, Z., Linnerud, A.C., and Jackson, A.: "Prediction of body density in young and middle-aged men." J. Appl. Physiol. In press.
It was shown that prediction of body fat was best accomplished by using a combination of skinfold fat, girth, and diameter measures. Prediction equations were developed for different age groups. Variables used for young men included the sum of seven skinfolds, biacromial diameter, and height. For middle-aged men, the variables included chest and axilla skinfold and gluteal and forearm girth.

Periodicals

- Pollock, M.L., Bohannon, R.L., Cooper, K.H., Ayres, J.J., Ward, A., White, S.R., Linnerud, A.C.: "A comparative analysis of four protocols for maximal treadmill stress testing." Amer. Heart J. In Press, 1976. Four commonly used protocols for stress testing (Balke, Bruce, Ellestad, and a continuous multi-stage run) were compared by using heart rate (HR), oxygen intake (VO_2), and electrocardiogram response. All four tests showed similar maximal metabolic responses although the rate of increase in VO_2 and HR were different. The rapid initial increase made the running test undesirable as a screening method. A nomogram was developed comparing the Balke, Bruce, and Ellestad tests.
- Pollock, M.L., Dawson, G., Miller, H.S., Ward, A., Cooper, D., Headley, W., Linnerud, A.C., Nomeir, A.: "Physiologic responses of men 49 to 65 years of age to endurance training." J. Am. Geriatric Soc. In Press, 1976. Twenty-two men 49 to 65 years old, trained 30 min., 3 days/week for 20 weeks. The subjects increased 18% in maximum oxygen intake and decreased in body fat, resting heart rate, and body weight. The changes were similar to other training studies with younger men and show a favorable trainability of older men.
- Robinson, S.: "Experimental studies of physical fitness in relation to age." Arbeitsphysiol. 10:251-323, 1938. This paper showed that men tend to peak in aerobic capacity between 17 and 20 years of age and steadily decrease over the subsequent years. At age 75, aerobic capacity is less than 50 percent of the original peak value.
- Robinson, S., Dill, D.B., Tzunkoff, S.P., Wagner, J.A., and Robinson, R.D.: "Longitudinal studies of aging in 37 men." J. Appl. Physiol. 38:263-267, 1975. Repeated measures of maximum oxygen intake ($VO_{2\text{ max}}$) were taken on 37 men at ages 18 to 22, then again at ages 40 to 44 and 49 to 53 years. At age 40 to 44, $VO_{2\text{ max}}$ had declined 25 percent and had continued to decrease when reevaluated at ages 49 to 53.
- Roskamm, H.: "Optimum patterns of exercise for healthy adults." Can. Med. Assoc. J. 96:895-899, 1967. Eighteen subjects improved 20 percent in working capacity after four weeks of daily training. At this point, one group (Group I) continued training every third day and the other group (Group II) stopped training. Group I maintained their level of working capacity while Group II began to lose the increased level of working performance within two weeks.

Periodicals

Saltin, B., Blomqvist, G., Mitchell, J.H., Johnson, R.L., Wildenthal, K., and Chapman, C.B.: "Response to exercise after bedrest and after training." Circulation 38(suppl. 7): 1-78, 1968.

Five subjects were confined to bed for 20 days and then trained for 60 days. Cardiorespiratory efficiency values decreased during bed rest and improved steadily with training. Heart rate response to a submaximal test increased up to 30 beats/min after bed rest and decreased significantly with training.

Saltin, B., Hartley, L.H., Kilbom, A., Astrand, I.: "Physical training in sedentary middle-aged and older men. II. Oxygen uptake, heart rate, and blood lactate concentration at submaximal and maximal exercise." Scand. J. Clin. Lab. Invest. 24:323-334, 1969.

This study was an attempt to determine if aging affects the response to training. It was found that improvements in oxygen intake with training occurred as readily in middle-aged and old men as in young although the absolute change was less. Therefore, there appears to be some aging effect in men ages 29 to 63 years.

Sharkey, B.J. and Holleman, J.P.: "Cardiorespiratory adaptations to training at specific intensities." Res. Quart. 28:698-704, 1967.

The intensity of training must be high enough to elicit changes in cardiorespiratory endurance (CRE). In a study on 16 men divided into three different training groups, it was found that CRE improved significantly greater in men training at a heart rate of 180 beats/min compared to those training at 150 and 120 beats/min.

Sharkey, B.J.: "Intensity and duration of training and the development of cardiorespiratory endurance." Med. Sci. Sports 2:197-202, 1970.

Thirty-six men were randomly assigned to a 3 x 2 factorial design which included three levels of training intensities (heart rates of 130, 150, and 170 beats/min) and two levels of duration (7500 or 15,000 kpm total work). The six-week training program conducted three days per week showed no significant differences with different combinations of intensity and duration when the total amount of work was held constant.

Shephard, R.J.: "Intensity, duration, and frequency of exercise as determinants of the response to a training regime." Int. Z. Angew. Physiol. 26:262-278, 1969.

Ten exercise sessions were designed for men who trained at 96, 75, and 39 percent of maximum oxygen intake, 5, 3, and 1 days per week, for 20, 10, and 5 minutes per session. The highest intensity groups improved 20 percent in maximum oxygen intake while the 39-percent intensity group improved 5 to 10 percent. It was concluded that a lower threshold of training is possible for improvement with sedentary middle-aged groups who are at low levels of fitness.

Periodicals

Sigel, W., Blomqvist, G., Mitchell, J.H.: "Effects of a quantitated physical training program on middle-aged sedentary males." Circulation 41:19-29, 1970.

Nine sedentary middle-aged men trained 12 minutes, three days per week for 15 weeks and improved 19 percent in aerobic capacity. After completion of the program, five subjects continued to train once a week for another 14-week period. Their aerobic capacity decreased to 6 percent above the initial control level. The remaining four subjects who abstained from training fell below their initial control values.

Skinner, J.S., Holloszy, J.O., and Cureton, T.K.: "Effects of a program of endurance exercises on physical work." Amer. J. Cardiol. 14: 747-752, 1964.

This study found that exercising a minimum of three times per week, approximately 40 minutes per session for a period of six months was effective in increasing cardiorespiratory fitness and decreasing body fat in sedentary middle-aged men.

Stamford, B.A., Hambacher, W., and Fallica, A.: "Effects of daily physical exercise on the psychiatric state of institutionalized geriatric mental patients." Res. Quart. 45:34-41, 1974.

Nine patients walked on a treadmill daily for 12 weeks and were evaluated for physiological and psychological changes. Accompanying a significant physiological effect was a significant change on two of four psychological tests which broadly reflected self-concept, awareness of immediate and expanded environment, and acute and long-term memory.

Stamler, J.: "Serum lipids as predictors of atherosclerotic disease." Atherosclerotic Vascular Disease. pp. 207-227.

High serum cholesterol and triglycerides (blood fat) were identified as risk factors for coronary heart disease.

Tzankoff, S.P., Robinson, S., Pyke, F.S. and Brown, C.A.: "Physiological adjustments to work in older men as affected by physical training." J. Appl. Physiol. 33:346-350, 1972.

Significant improvements were found in maximum oxygen intake with training in men 44 to 66 years of age. When the men were dichotomized by age, 44 to 53 and 54 to 66 years, the older men had lower work capacities initially but their percentage increase with training was greater.

Periodicals

Welham, W.C. and Behnke, A.R.: "The specific gravity of healthy men." JAMA 118:498-501, 1942.

When comparing trained and untrained individuals with the same average heights and weights, a greater proportion of the weight of the physically active person is in the form of lean tissue. In this study, a group of professional football players was compared to a group of naval personnel. It was found that although the football players were heavier, most of them had less body fat than the naval personnel.

Wilmore, J.H. and Behnke, A.R.: "An anthropometric estimation of body density and lean body weight in young men." J. Appl. Physiol. 27:25-31, 1969.

A very practical method for estimating lean body weight using just body weight and waist girth was presented. The formula is:
$$LBW = 98.42 + [1.082 (\text{body weight}) - 4.15 (\text{waist girth})]$$

Wilmore, J.H., Royce, J., Girnadola, R.N., Katch, F.I., and Katch, V.L.: "Physiological alterations resulting from a 10-week program of jogging." Med. Sci. in Sports 2:7-14, 1970.

Different durations of training, 24 min vs 12 min, were compared in a study on 55 men training 3 days/week for 10 weeks. Both groups demonstrated significant improvements in cardiovascular measures. Although the changes in the 24-min group were greater than in the 12-min group, the differences were not statistically significant.

Wilmore, J.: "Individual exercise prescription." Am. J. Cardiol. 33:757-759, 1974.

Basic principles of organizing and administering an adult physical fitness program are discussed. Emphasis is placed upon individualized exercise prescription.

Wilmore, J.H.: "Alterations in strength, body composition and anthropometric measurements consequent to a 10-week weight training program." Med. Sci. Sports 6:133-138, 1974.

Forty-seven women and twenty-six men participated in an intensive 10-week program of weight training. Both groups made similar relative gains in strength. The males were stronger and exhibited greater gains in muscle hypertrophy in the upper extremities. The women were stronger in the legs when strength was expressed per lean body weight. There were no moderate relationships of increased girths and strength but hypertrophy is not a predominant consequence of increased strength.

Periodicals

Yeager, S.A. and Brynteson, P.: "Effects of varying training periods on the development of cardiovascular efficiency of college women."

Res. Quart. 41:589-592, 1970.

Young women who trained on a bicycle ergometer for 10, 20, or 30 minutes per day, three days per week for six weeks improved significantly in aerobic capacity. All durations of exercise were effective in producing improvements.

Zuti, W.B. and Golding, L.A.: "Comparing diet and exercise as weight reduction tools." The Physician and Sports Med. 4:49-53, 1976.

Twenty-five women created a 500 calorie per day deficit through dieting, exercise, or a combination of the two. All of the women lost weight but the greatest fat losses were by those people who exercised along with dieting.

APPENDIX A

APPLICATION FOR AEROBIC PHYSICAL FITNESS PROGRAM

APPLICATION FOR AEROBICS PHYSICAL FITNESS PROGRAM

Please Print: _____ Date _____

Name _____ Age _____ Sex _____

Street Address _____

City _____ State _____ Zip _____

Home Phone _____ Business Phone _____

Business Address _____

Date of Birth _____ Marital Status _____ No. of Depend. _____

Check one: Dallas Police Department
Richardson Police Department
Department of Public Safety

Work Schedule: _____

What time of day would be most convenient for you to exercise?

7:30 to 9:30 am _____ 12:00 am - 1:00 pm _____ 3:30 to 5:30 pm _____

EXERCISE HABITS

Are you currently involved in a regular exercise program? yes _____ no _____

Do you regularly walk or run one or more miles continuously? yes _____ no _____
don't know _____

If yes, average no. of miles you cover per workout or day: _____

What is your average time per mile? _____ (min:sec) don't know _____

Do you practice weight lifting or home calisthenics? yes _____ no _____

Do you frequently participate in competitive sports? yes _____ no _____

If yes, which one or ones?

_____ Golf _____ Bowling _____ Tennis _____ Handball _____ Soccer
_____ Basketball _____ Volleyball _____ Football _____ Baseball _____ Track
Other _____

Average number of times per month _____

(Please complete page 2 also)

APPLICATION FOR AEROBICS PHYSICAL FITNESS PROGRAM (Con't)

PRESENT HEALTH HISTORY

Check the space in front of those questions to which your answer is yes.
Leave others blank

_____ Has a doctor ever said that your blood pressure was too high or too low?

_____ Has a doctor ever said that you had or have heart trouble, an abnormal electrocardiogram (ECG or EKG), heart attack, or coronary?

_____ Has a doctor ever told you your blood cholesterol level was high?

If yes is answered in any of the above, please explain further _____

Please rate your own general health:

Excellent _____ Good _____ Fair _____ Poor _____

PAST HEALTH HISTORY

_____ Diseases of the arteries

_____ Anemia

_____ Diabetes or abnormal blood sugar test

_____ Abnormal chest x-ray

_____ Epilepsy or fits

_____ Asthma

_____ Strokes

_____ Other lung diseases

If yes is answered in any of the above, please explain further _____

APPENDIX B

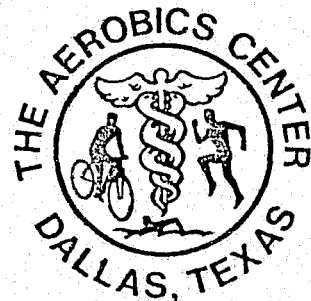
MEDICAL HISTORY QUESTIONNAIRE AND INFORMED CONSENT

MEDICAL HISTORY QUESTIONNAIRE

Institute for Aerobics Research
11811 Preston Road
Dallas, Texas 75230

This is your medical history form for your visit to The Institute for Aerobics Research. All information will be kept confidential. The doctor or exercise physiologist you see at the Institute will use this information in his evaluation of your health. You will want to make it as accurate and complete as possible, yet free of meaningless details. Please fill out this form carefully and thoroughly. Then check it over to be sure you haven't left out anything.

Note: Please print all responses so that your data will be compatible with computer storage and analysis.



Name _____ Exam Date _____, 19 _____

When dates are required, please use numbers to represent the months as follows:

January01	May05	September09
February02	June06	October10
March03	July07	November11
April04	August08	December12

For addresses, please use the official Post Office two-letter abbreviations listed below.

Abbreviations for States (and Territories)

AL	Alabama	NE	Nebraska
AK	Alaska	NV	Nevada
AZ	Arizona	NH	New Hampshire
AR	Arkansas	NJ	New Jersey
CA	California	NM	New Mexico
CZ	Canal Zone (Panama)	NY	New York
CO	Colorado	NC	North Carolina
CT	Connecticut	ND	North Dakota
DE	Delaware	OH	Ohio
FL	Florida	OK	Oklahoma
GA	Georgia	OR	Oregon
GU	Guam	PA	Pennsylvania
HI	Hawaii	PR	Puerto Rico
ID	Idaho	RI	Rhode Island
IL	Illinois	SC	South Carolina
IN	Indiana	SD	South Dakota
IA	Iowa	TN	Tennessee
KS	Kansas	TX	Texas
KY	Kentucky	UT	Utah
LA	Louisiana	VT	Vermont
ME	Maine	VA	Virginia
MD	Maryland	VI	Virgin Islands
MA	Massachusetts	WA	Washington (state)
MI	Michigan	DC	Washington, D. C.
MN	Minnesota	WV	West Virginia
MS	Mississippi	WI	Wisconsin
MO	Missouri	WY	Wyoming
MT	Montana		

Institute for Aerobics Research
11811 Preston Road
Dallas, Texas 75230

ent Medical History Form

All information is private and confidential. Please Print.

DO NOT WRITE IN THIS SPACE; FOR OFFICE USE ONLY.											
PATIENT NUMBER				VISIT		CARD		FORM		CLINIC	
						0 1 M 0 2 B					
1								12			

GENERAL INFORMATION

☐ MR. NAME

☐ MS.

☐ MISS FIRST

☐ MRS.

☐ DR.

ADDRESS

52 NUMBER AND STREET 80

02 12 CITY 31 32 33 STATE 34 35 ZIP CODE 38

40 COUNTRY (IF OUTSIDE U.S.A.) 59

HOME PHONE

SOCIAL SECURITY NUMBER

DATE OF BIRTH

TODAY'S DATE

() 60 AREA CODE 63 69

72 80 03 MONTH DAY YEAR

12 17

18 23 MONTH DAY YEAR

FAMILY PHYSICIAN

Dr.

24 FIRST NAME, IF KNOWN 35 36 INITIAL 37 LAST NAME 51

DOCTOR'S ADDRESS (if known)

52 NUMBER AND STREET 80

PHONE

04 12 CITY 31 32 33 STATE 34 35 ZIP CODE 38 () 39 AREA CODE 42 48

May we send a copy of your consult to your physician?

Yes ☐

No ☐

MARITAL STATUS

51 Single ☐ 1 Married ☐ 2 Divorced ☐ 3 Widowed ☐ 4 Separated ☐ 5

SEX

52 Male ☐ 1 Female ☐ 2 PRESENT AGE 53 54 55

EDUCATION (Check highest level attained)

56 1 Grade School 3 High School 5 College Graduate
2 Junior High School 4 Two-year College (or 4-year college; degree not completed) 6 Postgraduate School

OCCUPATION

57 80

FOR OFFICE USE ONLY

OCCUP CODE ☐

EMPLOYER (use abbreviations if necessary)

05 12 41

EMPLOYER'S ADDRESS

42 NUMBER AND STREET 70

BUSINESS PHONE

06 12 CITY 31 32 33 STATE 34 35 ZIP CODE 38 () 39 AREA CODE 42 48

What is/are your purpose(s) in coming to the Institute?

- ☐ 49 To participate in a research study.
☐ 50 To determine my current level of physical fitness and to receive recommendations for an exercise program.
☐ 51 Other (please explain): 54 80

07 13 46 80

PLEASE PRINT

PRESENT HISTORY

DO NOT WRITE IN THIS SPACE! FOR OFFICE USE ONLY.

PATIENT NUMBER VISIT CARD FORM CLINIC

1 0 M 0 2 B

12

Check the box in front of those questions to which your answer is yes. Leave others blank.

- 10 ☐ Has a doctor ever said that your blood pressure was too high or too low?
☐ Do you ever have pain in your heart or chest?
☐ Are you often bothered by a thumping of the heart?
☐ Does your heart often race like mad?
☐ Do you ever notice extra heart beats or skipped beats?
☐ Are your ankles often badly swollen?
☐ Do cold hands or feet trouble you even in hot weather?
☐ Has a doctor ever said that you had or have heart trouble, an abnormal electrocardiogram (ECG or EKG), heart attack, or coronary?
☐ Do you suffer from frequent cramps in your legs?
☐ Do you often have difficulty breathing?
☐ Do you get out of breath long before anyone else?
☐ Do you sometimes get out of breath when sitting still or sleeping?
☐ Has a doctor ever told you your cholesterol level was high?

Comments:

11

13 46

12

13 46

13

13 46

Do you now have or have you recently had:

- 14 ☐ A chronic, recurrent or morning cough?
☐ Any episode of coughing up blood?
☐ Increased anxiety or depression?
☐ Problems with recurrent fatigue, trouble sleeping or increased irritability?
☐ Migraine or recurrent headaches?
☐ Swollen or painful knees or ankles?
☐ Swollen, stiff or painful joints?
☐ Pain in your legs after walking short distances?
☐ Back pain?
☐ Kidney problems such as passing stones, burning, increased frequency, decreased force of stream or difficulty in starting or stopping your stream?
☐ Prostate trouble (men only)?
☐ Any stomach or intestinal problems such as recurrent heartburn, ulcers, constipation or diarrhea?
☐ Any significant vision or hearing problem?
☐ Any recent change in a wart or mole?
☐ Glaucoma or increased pressure in the eyes?
☐ Exposure to loud noises for long periods?

Comments:

15

13 46

WOMEN ONLY answer the following:

- 16 ☐ Do you have any menstrual period problems?
☐ Do you have problems with recurrent itching or discharge?
☐ Did you have any significant childbirth problems?
☐ Do you have any breast discharges or lumps?
☐ Do you sometimes lose urine when you cough, sneeze or laugh?

Please give number of: Pregnancies Living children First day of last menstrual period

Date of last pelvic exam and/or Paps smear: month year 19 Results: Normal ☐ Abnormal ☐

Comments:

17

13 46

PLEASE PRINT

Medical History

DO NOT WRITE IN THIS SPACE; FOR OFFICE USE ONLY.

PATIENT NUMBER	VISIT	CARD	FORM	CLINIC
		25	M02	B

MEN and WOMEN answer the following:

List any prescribed medications you are now taking:

25

13

46

47

80

List any self-prescribed medications or dietary supplements you are now taking:

26

13

46

47

80

Date of last complete physical examination:

12

 19

14

 never

1

 can't remember

2

 Normal

1

 Abnormal

2

month

year

Date of last chest x-ray:

27

 19

20

 never

1

 can't remember

2

 Normal

1

 Abnormal

2

month

year

Date of last electrocardiogram:

24

 19

26

 never

1

 can't remember

2

 Normal

1

 Abnormal

2

month

year

Date of last dental check-up:

30

 19

32

 never

1

 can't remember

2

 Normal

1

 Abnormal

2

month

year

List any other medical or diagnostic test you have had in the past two years:

28

13

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47

80

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80

List hospitalizations including dates of and reasons for hospitalization:

30

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80

List any drug allergies:

33

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PAST HISTORY

Have you ever had:

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- Heart Attack, how many years ago? _____
- Rheumatic Fever
- Heart murmur
- Diseases of the arteries
- Varicose veins
- Arthritis of legs or arms
- Diabetes or abnormal blood sugar test
- Phlebitis
- Dizziness or fainting spells
- Epilepsy or fits
- Strokes
- Diphtheria
- Scarlet fever
- Infectious mononucleosis
- Anemia

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- Thyroid problems
- Pneumonia
- Bronchitis
- Asthma
- Abnormal chest x-ray
- Other lung diseases
- Injuries to back, arms, legs or joints
- Broken bones
- Jaundice or gallbladder problems
- Polio
- Urinary tract infections, kidney stones, or prostate problems.
- Any nervous or emotional problems

Comments:

35

13

46

47

80

PLEASE PRINT

FAMILY MEDICAL HISTORY

40 FATHER: Alive ☐ Current age General health now: excellent ☐ good ☐ fair ☐ poor ☐ don't know ☐
 Deceased ☐ Age at death Cause of death or reason for poor health now:

MOTHER: Alive ☐ Current age General health now: excellent ☐ good ☐ fair ☐ poor ☐ don't know ☐
 Deceased ☐ Age at death Cause of death or reason for poor health now:

41 SIBLINGS: No. of brothers No. of sisters Age range - Health Problems:

FAMILIAL DISEASES: Have any of your blood relatives had any of the following?

Include grandparents, aunts, and uncles, but exclude cousins, relatives by marriage, and half relatives.

42 ☐ Heart attacks under age 50 ☐ Congenital heart disease
☐ Strokes under age 50 ☐ Heart operations
☐ High blood pressure ☐ Glaucoma
☐ Elevated cholesterol ☐ Obesity (20 or more lbs. overweight)
☐ Diabetes ☐ Leukemia or cancer under age 60
☐ Asthma or hay fever

Comments:

OTHER HEART DISEASES RISK FACTORS

SMOKING

44 Have you ever smoked cigarettes, cigars or a pipe? yes ☐ no ☐
 If no, skip to Diet section.
 Do you smoke presently? yes ☐ no ☐
 If you did or do smoke cigarettes, how many per day?
 If you did or do smoke cigars, how many per day?
 If you did or do smoke a pipe, how many pipefuls per day?
 If you have quit smoking, when was it? MONTH YEAR

Age you started:
 Age you started:
 Age you started:

DIET

45 What do you consider a good weight for yourself? pounds
 What is the most you have ever weighed? (including when pregnant) lbs. At what age? yrs.
 Weight: Now lbs. One year ago lbs. At age 21 lbs.
 Number of meals you usually eat per day.
 Average number of eggs you usually eat per week: (Do not count those in cooking and baking, cakes, casseroles, etc.)
 Number of times per week you usually eat:
 Beef Fish Desserts
 Pork Fowl French fried foods
 Number of servings (cups, glasses or containers) per week you usually consume of:
 Homogenized (whole) milk Buttermilk
 Skim (non-fat) milk Tea (iced or hot)
 Two percent (2% fat) milk Coffee
 Do you ever drink alcoholic beverages? yes ☐ no ☐
 If yes, what is your approximate intake of these beverages?
 Beer None Occasional Often
 Wine Hard Liquor

At any time in the past were you a heavy drinker (consumption of 6 oz. of hard liquor per day or more)? yes ☐ no ☐

Comments:

DO NOT WRITE IN THIS SPACE: FOR OFFICE USE ONLY.

PATIENT NUMBER	VISIT	CARD	FORM	CLINIC
		5	0	M 0 2 B

EXERCISE

50

Are you currently involved in a regular exercise program? yes ☐ no ☐

Do you regularly walk or run one or more miles continuously? yes ☐ no ☐ don't know ☐

If yes, average no. of miles you cover per workout or day: miles

What is your average time per mile? minutes: seconds don't know ☐

Do you practice weight lifting or home calisthenics? yes ☐ no ☐

Are you now involved in the Aerobics program? yes ☐ no ☐

If yes, your average Aerobics points per week:

Have you taken in the past 6 months: ☐ 12 minute test ☐ 1.5 mile ☐ neither

If yes, your miles in 12 minutes: or your time for 1.5 miles: minutes : seconds

Do you frequently participate in competitive sports? yes ☐ no ☐

If yes, which one or ones?

<input type="checkbox"/> Golf	<input type="checkbox"/> Bowling	<input type="checkbox"/> Tennis	<input type="checkbox"/> Handball	<input type="checkbox"/> Soccer
<input type="checkbox"/> Basketball	<input type="checkbox"/> Volleyball	<input type="checkbox"/> Football	<input type="checkbox"/> Baseball	<input type="checkbox"/> Track
<input type="checkbox"/> Other	<input type="text"/>			

Average number of times per month

51

In which of the following high school or college athletics did you participate?

<input type="checkbox"/> None	<input type="checkbox"/> Football	<input type="checkbox"/> Basketball	<input type="checkbox"/> Baseball	<input type="checkbox"/> Soccer
<input type="checkbox"/> Track	<input type="checkbox"/> Swimming	<input type="checkbox"/> Tennis	<input type="checkbox"/> Wrestling	<input type="checkbox"/> Golf
<input type="checkbox"/> Other	<input type="text"/>			

In which of the following high school or college athletics did you earn a varsity letter?

<input type="checkbox"/> None	<input type="checkbox"/> Football	<input type="checkbox"/> Basketball	<input type="checkbox"/> Baseball	<input type="checkbox"/> Soccer
<input type="checkbox"/> Track	<input type="checkbox"/> Swimming	<input type="checkbox"/> Tennis	<input type="checkbox"/> Wrestling	<input type="checkbox"/> Golf
<input type="checkbox"/> Other	<input type="text"/>			

52

What activity or activities would you prefer in a regular exercise program for yourself?

<input type="checkbox"/> Walking and/or running	<input type="checkbox"/> Bicycling (outdoors)	<input type="checkbox"/> Swimming
<input type="checkbox"/> Stationary running	<input type="checkbox"/> Stationary cycling	<input type="checkbox"/> Tennis
<input type="checkbox"/> Jumping rope	<input type="checkbox"/> Handball, basketball or squash	
<input type="checkbox"/> Other	<input type="text"/>	

53

Comments:

Explain any other significant medical problems that you consider important for us to know:

5 5	<input type="text"/>
5 6	<input type="text"/>
5 7	<input type="text"/>
5 8	<input type="text"/>
5 9	<input type="text"/>
6 0	<input type="text"/>
6 1	<input type="text"/>

INFORMED CONSENT FOR EXERCISE TESTING

INSTITUTE FOR AEROBICS RESEARCH
11811 Preston Road
Dallas, Texas 75230

The undersigned hereby voluntarily consents to engage in a maximum exercise test to determine maximum oxygen intake and cardiovascular function. The test will be monitored continuously by an electrocardiogram recording and oscilloscope. This test will facilitate evaluation of cardiopulmonary function and assist the physician or exercise physiologist in prescribing or evaluating exercise programs. It is my understanding that I will be questioned and examined by a physician prior to taking the test and will be given a resting electrocardiogram to exclude contraindications to such testing.

Exercise testing will be performed by running, walking, swimming or riding a bicycle, with the workload increasing every few minutes until fatigue or breathlessness or other symptoms dictate cessation of the test. Blood pressure and electrocardiogram will be monitored by a physician or trained exercise physiologist. In the latter case, a physician will be readily available in case of emergency.

There exists the possibility that certain changes may occur during the progress of the test. These changes could include abnormal heart beats, abnormal blood pressure and in rare instances a "heart attack". Professional care in selection and supervision of individuals provides appropriate precaution against such problems.

The benefits of such testing are the scientific assessment of working capacity and the clinical appraisal of health hazards which will facilitate prescription of conditioning-rehabilitative exercise. Records will be held in strict confidence from non-medical people (such as employers and insurance agents) unless consent is obtained. The welfare of persons being tested is safeguarded by professional care and by the availability of emergency treatment should it be necessary.

Finally, I permit registration of my name for possible follow-up purposes in the future.

Further, the undersigned releases and discharges the Institute for Aerobics Research and the International Association of Chiefs of Police, their officers, agents, staff, faculty, physicians, technicians and any others connected therewith from all claims or damages whatsoever that the undersigned or his representatives may have arising from, or incident to this test.

Signed _____

Witness _____

Date _____

Physician or Exercise Physiologist Supervising Test

APPENDIX C

ATTITUDE QUESTIONNAIRES

NAME _____
DEPARTMENT _____
DATE _____

PROJECT PARTICIPATION QUESTIONNAIRE

Please answer the following questions as completely as possible.

1. How did you find out about this research project? _____

2. Why did you volunteer for this research project? _____

3. What do you hope to gain from participation in this research project? _____

4. Do you anticipate any problems or hardships in your family life due to your participation in this project? _____

5. Do you anticipate any problems or hardships in your job due to your participation in this project? _____

6. a) How often do you read books, magazines, articles, etc. about the following topics? (Check one column for each item)

	Daily	Frequently	Occasionally	Rarely	Never
1. Sports	_____	_____	_____	_____	_____
2. Physical fitness	_____	_____	_____	_____	_____
3. Medicine	_____	_____	_____	_____	_____

b. What books, magazines, articles, etc. on these topics have you read recently?

1. Sports _____

2. Physical Fitness _____

3. Medicine _____

Name _____

Unit _____

Date _____

Service Number _____

ATTITUDE QUESTIONNAIRE

Directions. The statements below reflect certain attitudes and interests of persons. Read each statement and decide whether it is true or false as applied to you. Indicate your answer by placing a circle around the T (TRUE) or F (FALSE). In some cases you may have difficulty deciding which response is best, but please make some decision and answer every item. Please do not make an attempt to be consistent in your answers during the test, but respond to each item individually. Even if an item asks about things you haven't experienced, answer it as best you can on the basis of what you have heard, seen, or read.

- | | | |
|---|---|---|
| T | F | 1. I would rather see a play than a movie. |
| T | F | 2. I prefer exercising to reading. |
| T | F | 3. I generally prefer talking with friends to playing a family table game such as monopoly. |
| T | F | 4. I would much rather play softball than go for a ride in a car. |
| T | F | 5. Most of my friends work harder than I do. |
| T | F | 6. My body is strong and muscular compared to other men my age. |
| T | F | 7. I would be interested in learning to play a musical instrument. |
| T | F | 8. Most sports require too much time and energy to be worthwhile. |
| T | F | 9. I would have made a good accountant. |
| T | F | 10. I am in better physical condition than most men my age. |
| T | F | 11. The mechanical properties of motors interest me a great deal. |
| T | F | 12. On a Sunday afternoon, I would prefer to go to a movie rather than to go on a picnic. |
| T | F | 13. I am quite limber and agile compared to others my age. |

- | | | | |
|---|---|-----|---|
| T | F | 14. | I often stick up for my own point of view even when no one agrees with me. |
| T | F | 15. | I enjoy people who talk a great deal. |
| T | F | 16. | I prefer team sports to individual sports because of the experience of playing with different people. |
| T | F | 17. | I like to be in sports that don't require a great amount of running. |
| T | F | 18. | I know that my health improves when I exercise. |
| T | F | 19. | I just don't have the coordination necessary to look like a graceful skier. |
| T | F | 20. | I prefer woodworking to tinkering with a motor.. |
| T | F | 21. | One of my favorite interests is listening to music. |
| T | F | 22. | I would enjoy participating in activities such as cross-country skiing, and channel swimming. |
| T | F | 23. | Music, art, or intellectual pursuits are more refreshing to me than physical activity. |
| T | F | 24. | I would rather visit an amusement park than watch a tennis match. |
| T | F | 25. | I like the social opportunities afforded by physical activity programs. |
| T | F | 26. | I am better coordinated than most people I know. |
| T | F | 27. | I would enjoy difficult mountain climbing. |
| T | F | 28. | I love to go to jazz or rock concerts. |
| T | F | 29. | I don't think that I'd enjoy participating in a judo program. |
| T | F | 30. | I enjoy the feeling of physical well-being one gets after a day's tramp in the woods. |
| T | F | 31. | I would rather watch a good movie than a hockey match. |
| T | F | 32. | I would like to belong to some type of exercise group. |

- T F 33. I am a good deal stronger than most of my friends.
- T F 34. I would rather play poker than softball.
- T F 35. Compared to other people I am somewhat clumsy.
- T F 36. I enjoy hard physical work.
- T F 37. I like to engage in recreational exercise rather than in organized, competitive athletics.
- T F 38. I am stronger than a good many of my friends.
- T F 39. Most people I know think I have very good physical skills.
- T F 40. My friends seem to be more physically active than I am.
- T F 41. I would rather walk than run through an open meadow or field.
- T F 42. Sports provide me with a welcome escape from the pressures of present-day life.
- T F 43. I like the rough and tumble of athletic competition.
- T F 44. I prefer to watch an exciting basketball game to playing it myself.
- T F 45. I rather enjoy the physical risk involved when I play football.
- T F 46. I would enjoy participating in a vigorous weight-lifting program.
- T F 47. Long distance running would seem to be an enjoyable activity.
- T F 48. I doubt that I could ever get into good physical condition.
- T F 49. My legs have as much spring as those of champion high jumpers.
- T F 50. I don't enjoy doing things that get me sweaty and dirty.
- T F 51. I prefer not to participate in physical activities that involve risk of injury.
- T F 52. I would enjoy belonging to a whitewater canoe club.
- T F 53. When tensions are high, I prefer to lie down and rest rather than to absorb myself in physical activity.

- T F 54. If I wanted to, I could become an excellent tennis player.
- T F 55. I enjoy performing gymnastic stunts because of the coordinated movements involved.
- T F 56. It makes no difference to me how strong or fit I am.
- T F 57. I would like to meet more people by engaging in various types of physical activities.
- T F 58. After a day at work, I prefer to take it easy instead of participating in vigorous sport activities.
- T F 59. It is difficult for me to catch a thrown ball.
- T F 60. With a fair amount of practice I could maintain a high bowling average.
- T F 61. I enjoy the discipline of long and strenuous physical training.
- T F 62. I can run faster than most of my friends.
- T F 63. Watching an athletic contest provides a welcome relief from the cares of life.
- T F 64. With practice I could become a very good golfer.
- T F 65. I have more important things to do than to spend time on developing and maintaining physical fitness.
- T F 66. I would rather run in a track meet than play badminton.
- T F 67. I could do better at long distance hiking than the average man of my age.
- T F 68. I exhibit a fair amount of leadership in a sports situation.
- T F 69. I lack confidence in performing physical activities.
- T F 70. Even with practice I doubt that I could learn to do a hand-stand wall.
- T F 71. Playing tennis appeals to me more than does golfing.
- T F 72. I can run for longer distances than most men of my age.

- T F 73. I'm a natural athlete.
- T F 74. The thought of getting sweaty and dirty often keeps me from exercising.
- T F 75. I love to run.
- T F 76. Getting into good physical shape takes too much effort to be really worth it.
- T F 77. I have a strong throwing arm for baseball or softball.
- T F 78. Karate competition must be fun.
- T F 79. It would be very difficult for me to learn to do a back dive.
- T F 80. I would prefer to listen to a concert than to watch a gymnastics match.
- T F 81. I am well-equipped to excel at physical activities.
- T F 82. Being strong and highly fit is not really that important to me.
- T F 83. Absorbing myself in a good sport activity provides an escape from the routine of a work day.
- T F 84. Even with practice I doubt that I could ever learn to do a cartwheel well.
- T F 85. Exercise relieves me of emotional strain.
- T F 86. I would play sports more often if I didn't get so tired.
- T F 87. I could probably get into good physical condition faster than most men my age.
- T F 88. I often doubt my physical abilities.
- T F 89. I would rather play touch football than go to an amusement park.
- T F 90. Participation in physical activity improves me as a social person.
- T F 91. I'm not very good at most physical skills.
- T F 92. I enjoy the exhilarated feeling one gets after doing calisthenics.

- T F 93. I'm not able to meet many worthwhile people through participation in sports.
- T F 94. Poor timing handicaps me in certain physical activities.
- T F 95. I am a natural leader in sport activities.
- T F 96. I would rather play active sports like soccer and basketball than participate in activities like badminton and softball.
- T F 97. I believe it is important that a person belongs to a group that participates in sport activities together.
- T F 98. I would rather watch either a baseball or basketball game than visit a museum or art gallery.
- T F 99. Target archery appeals to me more as an activity than does tennis.
- T F 100. I believe one of the greatest values of physical activity is the thrill of competition.

SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *feel* right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I am regretful	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel rested	①	②	③	④
9. I feel anxious	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel "high strung"	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel over-excited and "rattled"	①	②	③	④
19. I feel joyful	①	②	③	④
20. I feel pleasant	①	②	③	④



CONSULTING PSYCHOLOGISTS PRESS
577 College Avenue, Palo Alto, California 94306

SELF-EVALUATION QUESTIONNAIRE

STAI FORM X-2

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I tire quickly	①	②	③	④
23. I feel like crying	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I am losing out on things because I can't make up my mind soon enough	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I am inclined to take things hard	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I try to avoid facing a crisis or difficulty	①	②	③	④
35. I feel blue	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	①	②	③	④

NAME _____
DEPARTMENT _____
DATE _____

PHYSICAL FITNESS AND JOB
RELATEDNESS QUESTIONNAIRE - PART I

For each of the following items, please check the single space which corresponds to your opinion about physical fitness and its relationship to the performance of police duties.

1. In your present assignment, how often do you perform the following activities ?

	Very Often	Often	Rarely	Never
Chasing a fleeing suspect on foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climbing a fence in pursuit of a suspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running up flights of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pushing a stalled car by hand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting a sick or injured person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Struggling with a resistant suspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Separating two or more fighters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climbing a ladder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting a heavy object	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. In chasing a suspect on foot or running up a flight of stairs, how would you rate your speed compared to other officers your age ?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very Fast	Faster than Average	About Average	Slower than Average	Slow

3. In chasing a suspect on foot or running up flights of stairs, how would you rate your endurance compared to other officers your age ?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very Good	Better than Average	About Average	Less than Average	Limited

4. In climbing a fence or ladder, how would you rate your agility ?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very High	Better than Average	About Average	Less than Average	Low

5. In pushing a stalled car and lifting people or objects, how would you rate your physical strength compared to other officers your age?

☐
Very
High

☐
Better than
Average

☐
About
Average

☐
Less than
Average

☐
Low

6. In struggling with a resistant suspect or separating two or more fighters, how would you rate your physical combat skills compared to other officers your age?

☐
Very
High

☐
Better than
Average

☐
About
Average

☐
Less than
Average

☐
Low

7. How would you rate the present medical standards required for original entrance into your department?

☐
Very
Easy

☐
Easy

☐
Don't Know

☐
Difficult

☐
Very
Difficult

8. Could you now pass the present medical standards required for original entrance into your department?

☐
Definitely

☐
Probably
Yes

☐
Don't Know

☐
Probably
No

☐
Definitely
No

9. How important is it in the performance of your job that you are up to the required medical standards?

☐
Definitely
Important

☐
Important

☐
Don't Know

☐
Probably
Unimportant

☐
Definitely
Unimportant

10. How would you rate the present physical standards required for original entrance into your department?

☐
Very
Easy

☐
Easy

☐
Don't Know

☐
Difficult

☐
Very
Difficult

11. Could you now pass the present physical standards required for original entrance into your department?

☐
Definitely

☐
Probably
Yes

☐
Don't Know

☐
Probably
No

☐
Definitely
No

12. How important is it in the performance of your job that you are up to the required physical standards?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Definitely Important	Probably Important	Don't Know	Probably Unimportant	Definitely Unimportant

13. How would you rate the present physical standards required for successful completion of recruit training for new officers in your department?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very Easy	Easy	Don't Know	Difficult	Very Difficult

14. Could you now pass the present physical standards required for successful completion of recruit training for new officers in your department?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Definitely Yes	Probably Yes	Don't Know	Probably No	Definitely No

15. Would you favor mandatory examinations of your physical condition at periodic intervals of time by a department physician?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Definitely Yes	Probably Yes	Undecided	Probably No	Definitely No

16. Would you favor a mandatory physical fitness program in your department?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Definitely Yes	Probably Yes	Undecided	Probably No	Definitely No

17. If your department had a mandatory physical fitness program, personnel over what age should be excluded?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40 years	45 years	50 years	55 years	60 years

18. How would you rate the general physical condition of those officers with whom you work most closely?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very High	High	Moderate	Low	Very Low

19. How would you rate the general physical condition of all sworn personnel in your department?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very High	High	Moderate	Low	Very Low

NAME _____
 DEPARTMENT _____
 DATE _____

PHYSICAL FITNESS AND JOB RELATEDNESS QUESTIONNAIRE - PART II

1. Compared to other occupations, how physically dangerous is police work?
 (Circle one number).

<u>Much Less Dangerous</u>	<u>Less Dangerous</u>	<u>Slightly Less Dangerous</u>	<u>Slightly More Dangerous</u>	<u>More Dangerous</u>	<u>Much Mor Dangerou</u>
1	2	3	4	5	6

2. Compared to other occupations, how emotionally dangerous is police work?
 (Circle one number).

<u>Much Less Dangerous</u>	<u>Less Dangerous</u>	<u>Slightly Less Dangerous</u>	<u>Slightly More Dangerous</u>	<u>More Dangerous</u>	<u>Much Mor Dangerou</u>
1	2	3	4	5	6

3. How tense or relaxed would you feel in handling the following situations or duties?
 (Circle one number per item).

	<u>Very Tense</u>	<u>Moderately Tense</u>	<u>Slightly Tense</u>	<u>Slightly Relaxed</u>	<u>Moderately Relaxed</u>	<u>Very Relaxed</u>
a. family fights/ disturbances	6	5	4	3	2	1
b. silent alarms	6	5	4	3	2	1
c. officer needs assistance	6	5	4	3	2	1
d. person with gun	6	5	4	3	2	1
e. possible homicide	6	5	4	3	2	1
f. child beating	6	5	4	3	2	1
g. robbery in progress	6	5	4	3	2	1
h. delivering death messages	6	5	4	3	2	1
i. taking rape reports	6	5	4	3	2	1
j. auto accidents	6	5	4	3	2	1
k. prowler	6	5	4	3	2	1
l. sudden death/DOA	6	5	4	3	2	1
m. shooting	6	5	4	3	2	1
n. unknown nature of call	6	5	4	3	2	1
o. high speed auto chase	6	5	4	3	2	1
p. mentally disturbed person	6	5	4	3	2	1
q. burglary	6	5	4	3	2	1
r. routine patrol	6	5	4	3	2	1

4. To what extent is management aware of the physical demands you must meet in your job? (Circle one number)

<u>Extremely Aware</u>	<u>Moderately Aware</u>	<u>Slightly Aware</u>	<u>Slightly Unaware</u>	<u>Moderately Unaware</u>	<u>Extremely Unaware</u>
6	5	4	3	2	1

5. To what extent is management concerned about helping you meet the physical demands you face in your job? (Circle one number)

<u>Extremely Concerned</u>	<u>Moderately Concerned</u>	<u>Slightly Concerned</u>	<u>Slightly Unconcerned</u>	<u>Moderately Unconcerned</u>	<u>Extremely Unconcerned</u>
6	5	4	3	2	1

6. What kind of effect do your work hours have on the following aspects of your life? (Circle one number per item)

	<u>Very Positive</u>	<u>Moderately Positive</u>	<u>Slightly Positive</u>	<u>Slightly Negative</u>	<u>Moderately Negative</u>	<u>Very Negative</u>
recreation	6	5	4	3	2	1
family life	6	5	4	3	2	1
sleep	6	5	4	3	2	1
friendships with other police officers	6	5	4	3	2	1
friendships with non- police officers	6	5	4	3	2	1
eating habits	6	5	4	3	2	1
ability to stay alert	6	5	4	3	2	1
holidays	6	5	4	3	2	1
social life	6	5	4	3	2	1
digestion	6	5	4	3	2	1
general energy level	6	5	4	3	2	1
ability to deal with household chores	6	5	4	3	2	1
ability to perform personal errands	6	5	4	3	2	1
ability to hold a second job	6	5	4	3	2	1
ability to go to school	6	5	4	3	2	1

7. How do you generally feel when you get up? (Circle one number)

<u>Completely Rested</u>	<u>Somewhat Rested</u>	<u>Somewhat Tired</u>	<u>Very Drowsy</u>
1	2	3	4

8. a) In the past year have you had any vehicular accidents while off-duty?

_____ Yes _____ No (Skip to Question 9)

b) If "yes" in (a), how many off-duty vehicular accidents have you had? _____

c) If "yes" in (a), in how many of these accidents were you found to be legally at fault? _____

9. a) On the average, how many regular on-duty hours do you spend in court per week? _____

b) On the average, how many hours per week do you spend in court during which you are not on duty? _____

10. Please indicate the extent to which you agree or disagree with the following statements. (Circle one number per item)

	<u>Strongly Agree</u>	<u>Moderately Agree</u>	<u>Slightly Agree</u>	<u>Slightly Disagree</u>	<u>Moderately Disagree</u>	<u>Strongly Disagree</u>
a. I have to spend too many hours in court	6	5	4	3	2	1
b. The courts are often too lenient with offenders	6	5	4	3	2	1
c. Many lawyers try to make officers look foolish	6	5	4	3	2	1
d. Most judges treat officers with respect	6	5	4	3	2	1
e. Juries are often prejudiced against officers	6	5	4	3	2	1
f. There is a big difference between whether a person is really guilty and whether the court says he or she is.	6	5	4	3	2	1

11. How does your spouse (if not married, girlfriend or boyfriend) feel about your working as a police officer? (Circle one number)

Extremely Pleased

4

Pleased

3

Displeased

2

Extremely Displeased

1

12. a) Have you ever had serious personal problems with your spouse (if not married, girlfriend or boyfriend) since becoming or deciding to become a police officer? (Check one)

_____ Yes

_____ No

- b) If yes, do you think your job had: (Check one)

_____ 1. great deal to do with the problems

_____ 2. something to do with the problems

_____ 3. very little to do with the problems

- c) If yes, (if you have had serious problems) what were the outcomes: (Check one)

_____ reconciliation

_____ divorce

_____ separation

IF YOU HAVE CHILDREN, PLEASE ANSWER QUESTION 13

13. a) What effect do you think your job has (or has had) on your children? (Circle one number)

<u>Very Positive</u>	<u>Moderately Positive</u>	<u>Slightly Positive</u>	<u>Slightly Negative</u>	<u>Moderately Negative</u>	<u>Very Negative</u>
1	2	3	4	5	6

- b) If a negative effect, is this because: (Check any that apply)

_____ 1. you bring the tension of the job home and take it out on your children?

_____ 2. you have become too strict with your children?

_____ 3. you and your family are expected to be beyond reproach?

_____ 4. other children make fun of your children or "give them a hard way to go" because of your job?

_____ 5. you have had too little time to devote to the upbringing of your children because of your work hours?

_____ 6 other _____

Specify _____

14. Since becoming a police officer, to what extent have you experienced the following? (Circle one number per item)

	<u>Not at All</u>	<u>To a Slight Degree</u>	<u>To a Moderate Degree</u>	<u>To a Great Degree</u>
a. increased feelings of isolation from your community	1	2	3	4
b. a more cynical attitude	1	2	3	4
c. increased feeling of "I don't care"	1	2	3	4
d. becoming insensitive to your wife and/or family	1	2	3	4
e. a loss of respect for the criminal justice system	1	2	3	4
f. anger against community leaders	1	2	3	4
g. problems with your sex life	1	2	3	4
h. poor social interactions with your neighbors	1	2	3	4

15. Of the 5 people on the department you work with most often, how many have serious problems with the following? (Circle one number per item)

a. alcohol	0	1	2	3	4	5
b. marriage	0	1	2	3	4	5
c. children	0	1	2	3	4	5
d. finances	0	1	2	3	4	5
e. drugs	0	1	2	3	4	5
f. neighbors	0	1	2	3	4	5

16. a) In your career as a police officer, how many officers have you known personally who have attempted or successfully committed suicide? _____
- b) In how many of these cases do you think the effects of the job on the individual played a major role? _____
17. a) In your career as a police officer, how many officers have you known who have had a severe or fatal heart attack? _____
- b) If you have known officers who have had heart attacks, how many officers had attacks during regular duty hours? _____
18. In your job as a police officer, what one thing causes you the most tension? _____
- _____
- _____
19. What are the most exciting things about your job as a police officer? _____
- _____
- _____
20. What are the most boring things about your job as a police officer? _____
- _____
- _____
21. What do you like most about your job as a police officer? _____
- _____
- _____
22. What do you like least about your job as a police officer? _____
- _____
- _____

NAME _____
DEPARTMENT _____
DATE _____

HEALTH OPINION QUESTIONNAIRE

The International Association of Chiefs of Police is interested in finding out how police officers your age think and feel about a number of health matters. This information will be very useful in developing physical fitness programs suited to the needs of the police.

In the three questions below, check (✓) the one answer which best describes your opinion or belief. Please answer each question.

1. Compared to other police officers your age, would you say that your own health is poor, fair, or good?

☐ Poor ☐ Fair ☐ Good ☐ Don't Know

2. How concerned are you over your general state of health? Little? Moderately? or A great deal?

☐ Not at all ☐ Little ☐ Moderately
☐ Great deal ☐ Don't know

3. To what extent do you feel you can control the general state of your health through your own actions? Little? Moderately? or A great deal?

☐ Not at all ☐ Little ☐ Moderately
☐ Great deal ☐ Don't know

4. Please read each of the items listed below. Write number 1 next to the item which you feel has the most important effect on the health of a person your age. Write number 2 next to the item which you feel has the second most important effect on the health of a person your age. Number the other items 3, 4 and 5 in terms of how important you feel they are in affecting your health.

_____ The kind of food a person eats and drinks.

_____ The amount of food a person eats and drinks.

_____ The amount of sleep and rest a person gets.

_____ The amount of stress and tension in a person's life.

_____ The amount of physical activity and exercise a person gets.

5. In what ways, if any, do you feel you should take better care of your health than you do at present? _____
- _____
- _____

In each question below, check (✓) the one answer which best describes your opinion or belief. Please answer each question.

6. How physically fit do you feel you are at present? (Check one)
- ☐ Not really at all ☐ A little ☐ Moderately so
☐ Very much
-
7. If you count both work and play, would you say that the amount of physical activity you get is little, moderate, or a great deal?
- ☐ Little ☐ Moderate ☐ Great deal ☐ Don't know
-
8. In your free time, how much exercise such as walking, sports, gardening, etc., do you get? Would you say only a little, a moderate amount, or a great deal?
- ☐ Little ☐ Moderate ☐ Great deal ☐ Don't know
-
9. Did you ever get regular physical exercise at any point in your life?
- ☐ Yes ☐ No
(Go to Question 10)
- 9a. Was this only a little, a moderate amount, or a great deal?
- ☐ Little ☐ Moderate ☐ Great deal ☐ Don't know

GENERAL HEALTH OPINIONS

10. Good health is more a matter of luck than what a person does about his health.
- ☐ Strongly agree ☐ Agree ☐ Disagree
☐ Strongly disagree
-
11. Most often, it's not possible to prevent sickness - if you are going to be sick - you will be sick.
- ☐ Strongly agree ☐ Agree ☐ Disagree
☐ Strongly disagree

12. A person's health is more a matter of what is born into him than what he does about his health.

☐ Strongly agree

☐ Agree
☐ Strongly disagree

☐ Disagree

-
13. In general, doctors today take more interest in their patients than doctors did 25 years ago.

☐ Strongly agree

☐ Agree
☐ Strongly disagree

☐ Disagree

-
14. Doctors today know a lot more about how to prevent and treat sickness than doctors did 25 years ago.

☐ Strongly agree

☐ Agree
☐ Strongly disagree

☐ Disagree

-
15. Most people are satisfied with the care and treatment they receive from their doctors.

☐ Strongly agree

☐ Agree
☐ Strongly disagree

☐ Disagree

-
16. Most people feel that enough is being done in this country to discover the causes of disease.

☐ Strongly agree

☐ Agree
☐ Strongly disagree

☐ Disagree

-
17. Most people feel that enough is being done at present to discover new cures for disease.

☐ Strongly agree

☐ Agree
☐ Strongly disagree

☐ Disagree

-
18. More tax money should be spent on medical research.

☐ Strongly agree

☐ Agree
☐ Strongly disagree

☐ Disagree

-
19. How often do you get voluntary medical checkups even though you are feeling well?

☐ Every year

☐ Every 2 years
☐ Never

☐ 3 years or longer

OPINIONS ABOUT HEART ATTACKS

20. How likely do you think it is that a person your age will have a heart attack?

☐ Very likely ☐ Likely ☐ Fairly likely
☐ Not really likely at all

21. How likely do you think it is that you will have a heart attack in the next 10 years?

☐ Very likely ☐ Likely ☐ Fairly likely
☐ Not really likely at all

22. If you were to have a heart attack, what kinds of problems do you feel this would cause for yourself and your family? _____

23. If you're going to have a heart attack, there is nothing that you can really do to prevent it.

☐ Strongly agree ☐ Agree ☐ Disagree
☐ Strongly disagree

24. Heart attacks are more a matter of bad luck than what a person does or doesn't do to prevent them.

☐ Strongly agree ☐ Agree ☐ Disagree

25. Heart attacks are caused more often by something born into a person than by what he does about his own health.

☐ Strongly agree ☐ Agree ☐ Disagree
☐ Strongly disagree

26. There may be some things that you can do to prevent a heart attack but it really isn't worth the effort it takes.

☐ Strongly agree ☐ Agree ☐ Disagree
☐ Strongly disagree

27. It is quite possible to prevent many kinds of heart attacks.

☐ Strongly agree ☐ Agree ☐ Disagree
☐ Strongly disagree

28. By taking certain health actions, a person can generally prevent a heart attack.

☐ Strongly agree

☐ Agree

☐ Disagree

☐ Strongly disagree

-
29. How important do you feel the kind of food you eat is in preventing you from having a heart attack?

☐ Very important

☐ Important

☐ A little
important

☐ Not really important at all

-
30. How important do you feel the amount of food you eat is in preventing you from having a heart attack?

☐ Very important

☐ Important

☐ A little
important

☐ Not really important at all

-
31. How important do you feel the amount of sleep and rest you get is in preventing you from having a heart attack?

☐ Very important

☐ Important

☐ A little
important

☐ Not really important at all

-
32. How important do you feel controlling the amount of stress and tension in your life is in preventing you from having a heart attack?

☐ Very important

☐ Important

☐ A little
important

☐ Not really important at all

-
33. How important do you feel the amount of physical activity and exercise you get is in preventing you from having a heart attack?

☐ Very important

☐ Important

☐ A little
important

☐ Not really important at all

Thank you for your cooperation.

NAME _____
DEPARTMENT _____
DATE _____

BACKGROUND INFORMATION REPORT FORM

The purpose of this questionnaire is to obtain biographical information in addition to what you have provided on other forms. Please answer all questions as completely as possible.

I. IDENTIFICATION INFORMATION

1. What is your height? _____
2. What is your race? _____
3. On what date did you join the police department in which you are currently employed? _____
4. What is your present rank? _____
5. a) What is your present assignment? _____
b) For how many months have you been employed in this assignment? _____
6. a) Do you work on a permanent shift or a rotating shift? _____
b) If you work on a permanent shift, what are your duty hours? _____
(Skip to Question 7)
c) If you work on a rotating shift, how often does your shift rotate? _____
d) If you work on a rotating shift, what are your present duty hours? _____
e) If you work on a rotating shift, what were the duty hours on your previous shift? _____
7. a) Are you presently attending college or another educational institution?
_____ Yes _____ No (Skip to Question 8)
b) If "yes" answered in (a), how many hours per week do you spend in class? _____

8. a) Do you have a part-time job at the present time?
 _____ Yes _____ No (Skip to Question 9)
- b) If "yes" answered in (a), what is your part-time job? _____

- c) If "yes" answered in (a), how many hours per week do you work in your part-time job? _____
9. How many dependent children live with you? _____
10. a) Did you ever serve in the Armed Forces?
 _____ Yes _____ No (Skip to Question 11)
- b) If "yes" answered in (a), in what branch of the Armed Forces did you serve?

- c) If "yes" answered in (a), what were your rank and major assignment in the Armed Forces?
 Rank _____
 Major Assignment _____
- d) If "yes" answered in (a), what was your date of discharge from the Armed Forces? _____
- e) If "yes" answered in (a), did any formal exercise or physical fitness program exist for military personnel?
 _____ No
 _____ Yes Please describe this program and indicate whether or not you participated in it.

II MEDICAL INFORMATION

11. Please indicate how frequently you use the following medications and supplements (Check one column per item)

	<u>Daily</u>	<u>Frequently</u>	<u>Occasionally</u>	<u>Rarely</u>	<u>Never</u>
a. aspirin	_____	_____	_____	_____	_____
b. antacids	_____	_____	_____	_____	_____
c. allergy medications	_____	_____	_____	_____	_____
d. cold medicines	_____	_____	_____	_____	_____
e. laxatives	_____	_____	_____	_____	_____
f. vitamins	_____	_____	_____	_____	_____
g. other (Please specify)	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

12. a) How many hours of sleep do you normally get in a 24-hour period? _____
b) During what hours do you normally sleep (e.g., 12 to 6)? _____
13. a) Have you ever quit smoking?
_____ Yes _____ No (Skip to Question 14)
b) If "yes" answered in (a), why did you quit smoking? _____

c) If "yes" answered in (a), did you start smoking again after you quit?
_____ Yes _____ No (Skip to Question 14)
d) If "yes" answered in both (a) and (c), what caused you to start smoking again? _____

14. Has a doctor ever recommended some form of exercise or physical fitness program for you?
_____ No _____ Yes. Please explain _____

15. Please indicate how frequently you experience lower back pain under the following circumstances. (Check one column per item)
- | | <u>Daily</u> | <u>Frequently</u> | <u>Occasionally</u> | <u>Rarely</u> | <u>Never</u> |
|------------------------------|--------------|-------------------|---------------------|---------------|--------------|
| a) on waking up | _____ | _____ | _____ | _____ | _____ |
| b) while driving | _____ | _____ | _____ | _____ | _____ |
| c) while sitting | _____ | _____ | _____ | _____ | _____ |
| d) while lifting objects | _____ | _____ | _____ | _____ | _____ |
| e) while working or standing | _____ | _____ | _____ | _____ | _____ |
16. For how many more years do you expect to live? _____

III: PREVIOUS EMPLOYMENT

17. a) Did any of your previous employers (other than the military) sponsor sports programs for their employees?
_____ Yes _____ No (Skip to Question 18)
b) If "yes" answered in (a), please provide the name and address of this company or business. _____

18. a) Did any of your previous employers (other than the military) sponsor formal physical fitness and/or weight reduction programs for their employees?

_____ Yes _____ No (Skip to Question 19)

- b) If "yes" answered in (a), please provide the name and address of this company or business. _____

- c) If "yes" answered in (a), please describe this physical fitness/weight reduction program. _____

- d) If "yes" answered in (a), did you participate?

_____ Yes _____ No. Why not? _____

IV. EXERCISE AT HOME

19. a) Do you engage in any regular exercise program at home?

_____ Yes _____ No (Skip to 19e)

- b) If "yes" answered in (a), how frequently do you exercise at home? _____

- c) If "yes" answered in (a), during what time of day do you usually exercise? _____

- d) If "yes" answered in (a), who developed this exercise program (e.g., yourself, the military, a television program, etc.)? _____

- e) If "no" answered in (a), why do you not engage in an exercise program at home? _____

20. a) Have you become involved in any new sports or exercise programs since the completion of your formal education (i.e., things in which you were not involved in school)?

_____ Yes _____ No (Skip to 20e)

- b) If "yes" answered in (a), what types of sports or exercise programs are these? _____

c) If "yes" answered in (a), how often do you participate in these programs?

d) If "yes" answered in (a), what prompted your interest in these programs?

e) If "no" answered in (a), why have you not become involved in any new sports or exercise programs? _____

21. a) Have you ever engaged in karate, jujitsu, or similar programs?

_____ Yes _____ No (Skip to Question 22)

b) If "yes" answered in (a), please describe the nature of the program.

c) If "yes" answered in (a), please indicate the extent of your participation.

d) If "yes" answered in (a), what, if any, benefits did you derive from this experience? _____

22. a) Have you ever engaged in yoga or similar forms of transcendental meditation?

_____ Yes _____ No (Skip to Question 23)

b) If "yes" answered in (a), please describe the nature of the program. _____

c) If "yes" answered in (a), please indicate the extent of your participation.

d) If "yes" answered in (a), what, if any, benefits did you derive from this experience? _____

ANSWER QUESTIONS 23, 24, and 25 IF YOU ARE MARRIED

23. a) Does your husband/wife engage in any regular exercise program at home?
_____ Yes _____ No (Skip to 23e)
- b) If "yes" answered in (a), how frequently does your husband/wife exercise at home? _____
- c) If "yes" answered in (a), during what time of day does your husband/wife exercise at home? _____
- d) If "yes" answered in (a), who developed your husband's/wife's exercise program (e.g., himself/herself, the military, a television program, etc.)? _____

- e) If "no" answered in (a), why does your husband/wife not engage in an exercise program at home? _____

24. a) Does your husband/wife ever comment on your overall physical condition?
_____ Yes _____ No (Skip to Question 22)
- b) If "yes" answered in (a), are his/her comments generally positive or negative? _____
25. a) Do you ever comment on your husband's/wife's overall physical condition?
_____ Yes _____ No (Skip to Question 26)
- b) If "yes" answered in (a), are your comments generally positive or negative? _____

ANSWER QUESTIONS 26, 27 and 28 IF YOU HAVE CHILDREN

26. a) Do your children regularly engage in any formal physical/sports program?
_____ Yes _____ No (Skip to Question 27).
- b) If "yes" answered in (a), please describe the nature of the formal physical/sport program. _____

27. a) Do your children exercise regularly at home?
_____ Yes _____ No (Skip to Question 25)
- b) If "yes" answered in (a), please describe the nature of this exercise. _____

28. Do you think your children get enough exercise or physical activity?
_____ Yes _____ No

V. RETIREMENT PLANS

29. At what age do you plan to retire from the police department? _____

30. Suppose you are considering leaving the police department before you reach the mandatory retirement age. What would be the most important reasons and/or incentives for you to leave? _____

31. At the present time, what do you think you would like to do after you retire from the police department? List as many things as apply. _____

32. Suppose that you have just retired from the police department. What types of employment, if any, would you seek? Please be as specific as possible. _____

APPENDIX D

AEROBICS EXERCISE LOG

Total time of entire workout

[illegible]

APPENDIX E

QUESTIONNAIRE CONCERNING ATTRITION RATE

QUESTIONNAIRE CONCERNING ATTRITION RATE
POLICE PHYSICAL TRAINING PROGRAM

NAME _____ DEPARTMENT _____

AGE _____ HEIGHT _____ WEIGHT _____ GROUP _____

MALE _____ FEMALE _____

1. How many weeks of training did you complete? _____

2. Did you enjoy the training? _____

3. Did you enjoy your group assignment? _____

4. If answer to 3 is no, what group or type of program would you prefer?

5. List reason(s) for discontinuing the program:

a. Too much time involved _____

g. Lack of interest _____

b. Interferes with school _____

h. Boring _____

c. Interferes with job _____

i. Not satisfied with group

d. Interferes with second job _____

assignment _____

e. Interferes with family life _____

j. Training schedule too

f. Injury of: Ankle & Foot _____

rigid _____

Shin _____ Knee _____

k. Personal rewards not up to

Other (please explain) _____

expectation _____

l. Other (please explain) _____

6. Do you have a second job? _____ How many hours/week? _____

7. Are you going to school? _____ Where? _____

How many hours per week? _____

8. Are you on a fixed or rotating shift? _____

9. What shift do you work? _____

10. Staff supervision was good _____ average _____ unsatisfactory _____

11. Other comments concerning program _____

APPENDIX F

EVALUATION OF AEROBICS EXERCISE PROGRAM

EVALUATION OF AEROBICS EXERCISE PROGRAM

Please answer the following questions in relation to your personal experience with the exercise program.

NAME _____ DEPARTMENT _____

AGE _____ HEIGHT _____ WEIGHT _____ GROUP _____

MALE _____ FEMALE _____

1. Did you enjoy the training? _____
2. Did you enjoy your group assignment? _____
3. If answer to #2 is no, what group would you prefer? _____
4. What type of exercise program would you prefer? _____
5. (Answer only if you were in the Combined group) Which type of workouts did you prefer - Interval or Continuous? _____
6. Do you have a second job? _____ How many hours per week? _____
7. Are you going to school? _____ If so, where? _____
How many hours per week? _____
8. Are you on a fixed or rotating shift? _____
What hours do you work? _____
9. Do you feel that the Aerobics program was a worthwhile undertaking?

10. As a result of the program do you feel that you sleep better? _____
11. Do you have a better sense of well-being? _____
12. Do you feel less tense? _____
13. Would you recommend the program to others? _____
14. Do you plan to continue a personal exercise program? _____
15. Was there sufficient communication with the Aerobics Staff? _____
Staff supervision was Good _____ Average _____ Unsatisfactory _____

EVALUATION OF AEROBICS EXERCISE PROGRAM (con't)

16. Please state briefly why you volunteered for the Aerobics program?

17. Please state briefly why you continued in the program and completed it?

18. Other comments you may want to make.

APPENDIX G

SURVEY OF
PHYSICAL FITNESS PROGRAMS
IN STATE AND LOCAL POLICE AGENCIES

BOULEVARD

ORIENT

FRANCE

APPENDIX 

**SURVEY OF
PHYSICAL FITNESS PROGRAMS
IN STATE AND LOCAL POLICE AGENCIES**



**Professional Standards Division
International Association of Chiefs of Police
Eleven Firstfield Road
Gaithersburg, Maryland 20760**

I. IDENTIFICATION

Name of your Agency: _____

Address: _____
(STREET)

(CITY/TOWN) (STATE) (ZIP CODE)

County in which your agency is located: _____

Official designation of your jurisdiction (e.g., state, county, city, village, town, borough, etc.): _____

Your Name: _____
(PERSON COMPLETING QUESTIONNAIRE)

Your Title: _____

Your Telephone Number: _____
(AREA CODE) (EXCHANGE-NUMBER) (EXTENSION)

FOR IACP USE ONLY

63 ____ 01 STUDY, ID, CARD NO.

/09 STRATUM ☐ ☐

/10-11 STATE ☐ ☐

INSTRUCTIONS FOR COMPLETING QUESTIONNAIRE

This survey is one part of a larger project dealing with the physical fitness of police officers. While the focus of this survey is, therefore, physical fitness programs, it is difficult to separate this issue from other areas relating to the medical and physical condition of police officers. Due to this lack of precise distinction, this questionnaire addresses a variety of medical and physical programs and procedures covering the whole of a police officer's career from selection through retirement. In this way, we hope to obtain as complete a picture as possible of the present availability of medical and physical programs in police agencies across the nation.

This survey questionnaire consists of 17 separate sections, which are listed below in the order in which they appear in this booklet. The numbers in parentheses indicate the question numbers which are found in each section.

I.	IDENTIFICATION	
II.	CURRENT PHYSICAL FITNESS PROGRAMS	(1 - 31)
III.	DISCONTINUED PHYSICAL FITNESS PROGRAMS	(32 - 36)
IV.	SPORTS ACTIVITIES	(37 - 39)
V.	SPECIAL GROUP RATES	(40 - 41)
VI.	FUNDING	(42 - 46)
VII.	WEIGHT MAINTENANCE PROGRAMS	(47 - 55)
VIII.	PERIODIC MEDICAL EXAMINATIONS	(56 - 66)
IX.	PERIODIC PHYSICAL PERFORMANCE TESTS	(67 - 76)
X.	ENTRANCE LEVEL MEDICAL EXAMINATION	(77 - 82)
XI.	ENTRANCE LEVEL PHYSICAL PERFORMANCE TESTS	(83 - 92)
XII.	RECRUIT TRAINING	(93 - 108)
XIII.	NUMBER OF EMPLOYEES	(109 -116)
XIV.	SELECTION REQUIREMENTS	(117 -119)
XV.	PERFORMANCE EVALUATION	(120 -122)
XVI.	RETIREMENT	(123 -135)
XVII.	ADMINISTRATIVE AND LEGAL ISSUES	(136 -150)

We realize this questionnaire is lengthy and complex. To facilitate responses, therefore, we have developed some 11 initial screening questions, which begin on the pages immediately following these instructions. Please answer these questions first. Your responses to these questions will determine which sections of this booklet are appropriate for you.

Each of these 11 questions identifies either a particular type of physical and/or medical procedure or program or a related subject such as requests for funding. We are seeking detailed information on the specific aspects of physical fitness which are relevant to your police agency. Therefore, for each question where a "yes" is appropriate for your agency, there is a group of follow-up questions in the booklet which you should complete. For each question where a "no" response is indicated, that group of follow-up questions will not be completed. (Note: A "no" response to Screening Question E requires a response to one item in Section VI.)

For example, if your police agency has a physical fitness training program at the present time, then you would answer "yes" to Screening Question A and complete the follow-up Questions 1 - 31. If your agency has had such a program within the past 10 years but it has been discontinued, then you would answer "no" to Screening Question A and "yes" to Screening Question B; you would then skip Questions 1 - 31, and answer Questions 32 - 36. Finally, if your agency has not had a physical fitness training program at any time during the past 10 years, you would answer "no" to both Screening Questions A and B and skip Questions 1 through 36.

Please answer all 11 of these Screening Questions first. Not only will this ensure completeness, but it will also help you determine the amount of further effort necessary to complete this questionnaire. As you complete each section of the survey, please return to these initial Screening Questions to determine the next section which you should answer.

These Screening Questions cover the first 108 questions in this survey. Regardless of your answers to the 11 Screening Questions, all agencies should complete Questions 109 through 150. Thus, if your agency utilizes none of the programs mentioned in the 11 Screening Questions, you would answer "no" to Questions A through K and then complete Question 42 on page 20 and Questions 109 - 150.

Please do not separate the pages of this booklet in order to use a typewriter. Please respond to all questions in ink and print where descriptive answers are appropriate.

The left hand margin of every page as well as the individual answer boxes for most questions contain numbers. Please disregard these numbers. This survey is being scored in part by computer, and the numbers represent directions for the computer key-punch operators. Please respond to each question by placing a check (✓) or an X in the appropriate box.

There are several questions throughout this survey which require responses to more than one statement (see, for example, Question 3 on page 8). The directions to these questions state "Check whether or not each applies." In answering these questions, please check the "Yes" box for those statements which are true of your police agency, and check the "No" box for those statements which are not true of your police agency.

Throughout this questionnaire we have indicated requests for certain written documents which describe specific programs, policies, or issues. A complete list of all requested documents is provided at the end of the questionnaire.

In the directions for answering or skipping questions, Q stands for "question" and Qs stands for "questions."

Finally, we suggest that you make a photocopy of the completed questionnaire for your own records. This will aid us, as well, should we wish to contact you for further information regarding specific questions in the survey.

DEFINITIONS OF TERMS

For purposes of this questionnaire, the following definitions have been developed. You should refer to these definitions when responding to the Screening Questions.

PHYSICAL FITNESS TRAINING PROGRAM

Any fairly regular program of exercise designed to develop and/or maintain good physical conditioning. The program may be voluntary or mandatory and may be administered either with or without instruction.

WEIGHT MAINTENANCE PROGRAM, POLICY OR REGULATION

Any voluntary or mandatory program, policy or regulation designed to develop and/or maintain "proper" weight. Standards may involve a specific weight or a proportional weight to height requirement.

MEDICAL EXAMINATION

Any examination of body functions performed by a qualified physician in the doctor's office, a hospital or clinic, or other facilities.

PHYSICAL PERFORMANCE TEST

Any test of muscular activities, including physical agility, strength, endurance, coordination, speed, etc. This test may be administered by a variety of people.

NOTE: For purposes of this survey, the term "patrol officers" (or "police officers") includes deputy sheriffs, and the term "chief" includes sheriff.

CARD 01

PLEASE ANSWER THESE QUESTIONS FIRST

SCREENING QUESTIONS

- A. Does your police agency currently have an established physical fitness training program for sworn police personnel?

01/12

☐ Yes (Answer Qs. 1 - 31, beginning on page 8).

☐ No

- B. During the past ten years, has your police agency had a physical fitness training program for sworn police personnel which was later discontinued for any reason?

/13

☐ Yes (Answer Qs. 32 - 36, beginning on page 16).

☐ No

- C. Does your police agency provide any organized team or racket sports activities for sworn police personnel?

/14

☐ Yes (Answer Qs. 37 - 39 on page 18).

☐ No

- D. Does your police agency receive any special group rates for the use of local "outside" facilities such as the YMCA/YWCA, health clubs, community sports facilities, etc.?

/15

☐ Yes (Answer Qs. 40 and 41 on page 19).

☐ No

- E. During the past ten years, has your police agency requested funding from any source for a physical fitness program or for physical fitness training equipment?

/16

☐ Yes (Answer Qs. 43 - 46, beginning on page 20).

☐ No (Answer Q. 42 on page 20).

- F. Does your police agency currently have any kind of weight maintenance program, policy, or regulation for sworn police personnel?

/17

☐ Yes (Answer Qs. 47 - 55, beginning on page 22).

☐ No

G. Other than on return to duty following illness or injury, are sworn police personnel in your agency required to have medical examinations during their careers? (For example, on an annual basis, at the time of promotion, periodically, etc.)

/18 ☐ 1 Yes (Answer Qs. 56 - 66, beginning on page 24).

☐ 2 No

H. Are sworn police personnel in your agency required to take physical performance tests (i.e., test of agility, strength, endurance, etc.) during their careers? (For example, on an annual basis, at the time of promotion, periodically, etc.)

/19 ☐ 1 Yes (Answer Qs. 67 - 76, beginning on page 27),

☐ 2 No

I. Does your police agency require a medical examination for applicants to the position of sworn police officer (i.e., at the entrance level or selection stage)?

/20 ☐ 1 Yes (Answer Qs. 77 - 82, beginning on page 29).

☐ 2 No

J. Does your police agency require a physical performance test (i.e., agility, strength, endurance, etc.) for applicants to the position of sworn police officer (i.e., at the entrance level or selection stage)?

/21 ☐ 1 Yes (Answer Qs. 83 - 92, beginning on page 31).

☐ 2 No

K. Does your police agency require new sworn police personnel to complete a basic training or academy course of instruction?

/22 ☐ 1 Yes (Answer Qs. 93 - 108, beginning on page 34).

☐ 2 No

ALL AGENCIES PLEASE ANSWER QUESTIONS 109 TO 150
BEGINNING ON PAGE 37

II. CURRENT PHYSICAL FITNESS PROGRAMS

1. Is this physical fitness training program mandatory for sworn police personnel?

01/23

☐ YES☐ NO

2. Are any sworn police personnel exempt from participating in this physical fitness training program?

/24

☐ YES (ANSWER Q.3-6)☐ NO (SKIP TO Q.7)

3. What is (are) the basis (bases) for exemption from participation in the physical fitness training program for sworn police personnel? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

/25

☐ ☐ EXEMPTIONS ARE BASED ON RANK ATTAINED (ANSWER Q.4)

/26

☐ ☐ EXEMPTIONS ARE BASED ON AGE ATTAINED (ANSWER Q.5)

/27

☐ ☐ EXEMPTIONS ARE BASED ON MEDICAL REASONS (ANSWER Q.6)

/28

☐ ☐ PROGRAM IS VOLUNTARY (SKIP TO Q.7)

/29

☐ ☐ OTHER (PLEASE SPECIFY): _____

4. If exemptions are based on rank attained, which sworn police personnel are exempt? (CHECK ONLY ONE)

/30

☐ ALL SWORN POLICE PERSONNEL ABOVE SERGEANT☐ ALL SWORN POLICE PERSONNEL ABOVE LIEUTENANT☐ ALL SWORN POLICE PERSONNEL ABOVE CAPTAIN☐ OTHER (PLEASE SPECIFY): _____

5. If exemptions are based on age attained, what is the age above which sworn police personnel are exempt?

/31-32

Age above which sworn personnel are exempt: _____

6. If exemptions are based on medical reasons what types of medical disabilities allow exemption from participation in the physical fitness training program?
-
-

7. When did your police department implement this physical fitness training program?

01/33-36

Date of program implementation: _____

8. What reasons or conditions existing in your department led to the implementation of this physical fitness training program?
(CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|--|
| /37 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | NUMBER OF HEART ATTACKS AMONG POLICE PERSONNEL |
| /38 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HIGH INJURY RATE AMONG POLICE PERSONNEL |
| /39 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LACK OF FITNESS RELATIVE TO COMBATTING/ARRESTING CITIZENS |
| /40 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DESIRE TO IMPROVE OVERALL JOB PERFORMANCE OF POLICE PERSONNEL |
| /41 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DESIRE TO REDUCE ABSENTEEISM AMONG POLICE PERSONNEL |
| /42 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | GENERAL OBESE APPEARANCE OF POLICE PERSONNEL |
| /43 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | EVIDENCE OF STRESS AMONG POLICE PERSONNEL |
| /44 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ADMINISTRATIVE DECISION TO IMPROVE OVERALL PHYSICAL FITNESS OF POLICE OFFICERS |
| /45 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | CIVIL SERVICE COMMISSION REGULATION |
| /46 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | CITY OR COUNTY COUNCIL/STATE LEGISLATIVE ACTION |
| /47 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

9. Did your police department receive any "outside" help in developing, establishing, or equipping this physical fitness training program?

/48

- ☐ 1 YES (ANSWER Q.10)
☐ 2 NO (SKIP TO Q.11)

10. What was (were) the source (sources) of this help?
(CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
01/49	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LOCAL PUBLIC OR PRIVATE SCHOOL
/50	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LOCAL BUSINESS OR INDUSTRY
/51	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LOCAL COMMUNITY GROUP OR ASSOCIATION
/52	<input type="checkbox"/> 1	<input type="checkbox"/> 2	INSURANCE COMPANY
/53	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LOCAL CONSULTING OR COUNSELING AGENCY
/54	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LOCAL DOCTORS OR MEDICAL ASSOCIATION
/55	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LEAA
/56	<input type="checkbox"/> 1	<input type="checkbox"/> 2	OTHER CRIMINAL JUSTICE AGENCY
/57	<input type="checkbox"/> 1	<input type="checkbox"/> 2	OTHER (PLEASE SPECIFY): _____

11. Have any special administrative or departmental problems arisen as a result of establishing this physical fitness training program?

/58 ☐ 1 YES (ANSWER Q.12)
 ☐ 2 NO (SKIP TO Q.13)

12. What types of problems have resulted from establishing this program?
(CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
/59	<input type="checkbox"/> 1	<input type="checkbox"/> 2	SCHEDULING OF PERSONNEL PARTICIPATION
/60	<input type="checkbox"/> 1	<input type="checkbox"/> 2	ASSIGNMENT OF PERSONNEL TO ADMINISTER THE PROGRAM
/61	<input type="checkbox"/> 1	<input type="checkbox"/> 2	BUDGETARY PROBLEMS
/62	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LACK OF ADEQUATE FACILITIES
/63	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LACK OF COOPERATION FROM SCHOOL OFFICIALS, PARK OFFICIALS, OR OTHERS OVER THE USE OF THEIR FACILITIES/EQUIPMENT
/64	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LACK OF ADEQUATE EQUIPMENT
/65	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LACK OF INTEREST OR PARTICIPATION IN THIS PROGRAM BY SWORN PERSONNEL
/66	<input type="checkbox"/> 1	<input type="checkbox"/> 2	INCREASED ABSENTEEISM DUE TO SICK LEAVE
/67	<input type="checkbox"/> 1	<input type="checkbox"/> 2	INCREASED ABSENTEEISM DUE TO INJURIES SUFFERED
/68	<input type="checkbox"/> 1	<input type="checkbox"/> 2	OBJECTIONS FROM POLICE OFFICERS ASSOCIATION OR UNION
/69	<input type="checkbox"/> 1	<input type="checkbox"/> 2	LOCAL GOVERNMENT OFFICIALS QUESTION THE NECESSITY AND/OR LEGALITY OF THE PROGRAM
/70	<input type="checkbox"/> 1	<input type="checkbox"/> 2	OTHER (PLEASE SPECIFY): _____

63 _ _ _ 02

13. What does your physical fitness training program consist of or emphasize?
(CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- /09 ☐ ☐ RUNNING/JOGGING
 /10 ☐ ☐ CALISTHENICS
 /11 ☐ ☐ WEIGHTLIFTING
 /12 ☐ ☐ SELF-DEFENSE/PERSONAL COMBAT SKILLS
 /13 ☐ ☐ ORGANIZED TEAM SPORTS
 /14 ☐ ☐ RACKET SPORTS AND/OR HANDBALL
 /15 ☐ ☐ SWIMMING
 /16 ☐ ☐ OTHER (PLEASE SPECIFY): _____

14. What facilities are available for this physical fitness training program?
(CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- /17 ☐ ☐ POLICE ACADEMY OR TRAINING FACILITIES
 /18 ☐ ☐ SPECIAL FACILITIES IN POLICE DEPARTMENT HEADQUARTERS
 /19 ☐ ☐ SPECIAL FACILITIES IN POLICE DEPARTMENT DISTRICT OR SUB-STATIONS
 /20 ☐ ☐ POLICE DEPARTMENT GYMNASIUM/TRACK
 /21 ☐ ☐ LOCAL COMMERCIAL FACILITIES
 /22 ☐ ☐ LOCAL PUBLIC/PRIVATE SCHOOL FACILITIES
 /23 ☐ ☐ LOCAL YMCA OR SIMILAR FACILITIES
 /24 ☐ ☐ LOCAL HEALTH CLUB OR SIMILAR FACILITIES
 /25 ☐ ☐ NO SPECIFIC FACILITIES ARE AVAILABLE (SKIP TO Q.16)
 /26 ☐ ☐ OTHER (PLEASE SPECIFY): _____

15. During what hours are these facilities available to sworn police personnel?

/27-30 Hours when facilities are open: _____

16. What types of equipment, if any, are utilized in this physical fitness training program? (CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
02/31	<input type="checkbox"/>	<input type="checkbox"/>	WEIGHT TRAINING EQUIPMENT
/32	<input type="checkbox"/>	<input type="checkbox"/>	CABLES
/33	<input type="checkbox"/>	<input type="checkbox"/>	EXERCYCLES
/34	<input type="checkbox"/>	<input type="checkbox"/>	TREADMILLS
/35	<input type="checkbox"/>	<input type="checkbox"/>	UNIVERSAL GYM
/36	<input type="checkbox"/>	<input type="checkbox"/>	NAUTILUS EQUIPMENT
/37	<input type="checkbox"/>	<input type="checkbox"/>	NO SPECIAL EQUIPMENT IS UTILIZED
/38	<input type="checkbox"/>	<input type="checkbox"/>	OTHER (PLEASE SPECIFY): _____

17. Who instructs the participants in this physical fitness training program and/or in the use of the training equipment?
(CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
/39	<input type="checkbox"/>	<input type="checkbox"/>	POLICE ACADEMY OR TRAINING PERSONNEL
/40	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PUBLIC OR PRIVATE SCHOOL OR UNIVERSITY COACHES
/41	<input type="checkbox"/>	<input type="checkbox"/>	SELLERS OR MARKETERS OF THE EQUIPMENT
/42	<input type="checkbox"/>	<input type="checkbox"/>	PHYSICAL FITNESS COUNSELORS FROM "OUTSIDE" THE DEPARTMENT
/43	<input type="checkbox"/>	<input type="checkbox"/>	OTHER (PLEASE SPECIFY): _____

18. How many sworn police personnel participate on a regular basis in this physical fitness program during each month?

/44-48 Number of regular participants per month: _____

19. Are sworn police personnel required to complete any kind of medical examination prior to entering the physical fitness training program?

/49 ☐ YES (ANSWER Q.20)
 ☐ NO (SKIP TO Q.21)

20. What does this medical examination include?
(CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- 02/50 ☒ ☐ RESTING EKG
 /51 ☒ ☐ EKG DURING "BENCH STEP" TEST
 /52 ☒ ☐ EKG DURING TREADMILL OR EXERCYCLE
 /53 ☒ ☐ RECOVERY PERIOD EKG
 /54 ☒ ☐ BLOOD PRESSURE MEASURES
 /55 ☒ ☐ PULMONARY MEASURES
 /56 ☒ ☐ BLOOD SERIES
 /57 ☒ ☐ OTHER (PLEASE SPECIFY): _____

21. Are sworn police personnel required to participate a minimum number of hours per week in the physical fitness training program?

- /58-59 ☐ YES (PLEASE SPECIFY THE NUMBER OF HOURS PER WEEK): _____
☒ NO

22. Do you keep any kind of record of the participation of individual sworn persons in this program?

- /60 ☒ YES (ANSWER Q.23)
☐ NO (SKIP TO Q.24)

23. How do you record the participation of individual sworn persons in this program? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- /61 ☒ ☐ OFFICERS ARE ASSIGNED A SPECIFIC PARTICIPATION TIME
 /62 ☒ ☐ OFFICERS MUST SIGN IN AND OUT WHEN PARTICIPATING
 /63 ☒ ☐ OFFICERS MUST VERIFY THEIR PARTICIPATION
 /64 ☒ ☐ TRAINING PROGRAM ADMINISTRATORS VERIFY OFFICERS' PARTICIPATION
 /65 ☒ ☐ EXERCISE ACTIVITY LOG
 /66 ☒ ☐ OTHER (PLEASE SPECIFY): _____

24. What types of incentives, if any, are employed to encourage sworn personnel to participate in the physical fitness training program? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- 02/67 ☐ 1 ☐ 2 COMPENSATORY TIME OFF
- /68 ☐ 1 ☐ 2 COMPENSATORY OVERTIME PAY
- /69 ☐ 1 ☐ 2 SALARY INCREASES
- /70 ☐ 1 ☐ 2 EXTRA POINTS IN PROMOTIONAL PROCESS
- /71 ☐ 1 ☐ 2 FORMAL COMMENDATIONS/RECOGNITION
- /72 ☐ 1 ☐ 2 PREFERENCE IN SPECIAL ASSIGNMENTS
- /73 ☐ 1 ☐ 2 NO SPECIAL INCENTIVES ARE EMPLOYED
- /74 ☐ 1 ☐ 2 OTHER (PLEASE SPECIFY): _____

25. During the past twelve months (January 1, 1975 through December 31, 1975) have any sworn police personnel been injured while participating in this physical fitness training program?

- /75 ☐ 1 YES (ANSWER Qs. 26-30)
- ☐ 2 NO (SKIP TO Q.31)

26. How many sworn personnel have been injured while participating in this physical fitness training program during the past twelve months?

/76-77 Number of participants who have been injured: _____

27. What was the nature of the injury suffered by each injured participant in the physical fitness training program? (PLEASE LIST INJURIES SEPARATELY FOR EACH PERSON)

28. Did any of these sworn police personnel lose any working time as the result of injuries suffered in this physical fitness training program?

- /78 ☐ 1 YES (ANSWER Q.29)
- ☐ 2 NO (SKIP TO Q.30)

63 03

29. What was the total number of days of working time lost by injured participants in the physical fitness program during the past twelve months?

03/09-11

Total number of working days lost: _____

30. Have any claims against group or individual health insurance been filed during the past twelve months as the result of injuries suffered in this physical fitness training program?

/12

☐ 1 YES☐ 2 NO

31. Has your physical fitness training program ever been formally evaluated for its effectiveness and/or job relatedness?

/13

☐ 1 YES (PLEASE ENCLOSE A COPY OF THIS STUDY OR EVALUATION)☐ 2 NO

NOTE: PLEASE ENCLOSE COPIES OF ANY GENERAL ADMINISTRATIVE ORDERS, STUDIES, OR OTHER DOCUMENTS WHICH DESCRIBE THE PHYSICAL FITNESS TRAINING PROGRAM.

PLEASE RETURN TO QUESTION B, p.6

III. DISCONTINUED PHYSICAL FITNESS PROGRAMS

32. When was this physical fitness training program for sworn police personnel implemented?

03/14-17

Date physical fitness training program implemented: _____

33. When was this physical fitness training program for sworn police personnel discontinued?

/18-21

Date physical fitness training program discontinued: _____

34. What reasons or conditions existing in your department led to the implementation of this physical fitness training program?
(CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|--|
| /22 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | NUMBER OF HEART ATTACKS AMONG POLICE PERSONNEL |
| /23 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HIGH INJURY RATE AMONG POLICE PERSONNEL |
| /24 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LACK OF FITNESS RELATIVE TO COMBATTING/ARRESTING CITIZENS |
| /25 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DESIRE TO IMPROVE OVERALL JOB PERFORMANCE OF POLICE PERSONNEL |
| /26 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DESIRE TO REDUCE ABSENTEEISM AMONG POLICE PERSONNEL |
| /27 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | GENERAL OBESE APPEARANCE OF POLICE PERSONNEL |
| /28 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | EVIDENCE OF STRESS AMONG POLICE PERSONNEL |
| /29 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ADMINISTRATIVE DECISION TO IMPROVE OVERALL PHYSICAL FITNESS OF POLICE OFFICERS |
| /30 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | CIVIL SERVICE COMMISSION REGULATION |
| /31 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | CITY OR COUNTY COUNCIL/STATE LEGISLATIVE ACTION |
| /32 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

35. Why was this physical fitness training program for sworn police personnel discontinued? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- | | | | |
|-------|----------------------------|----------------------------|---|
| 03/33 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LACK OF INTEREST ON THE PART OF SWORN PERSONNEL |
| /34 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LACK OF SUPPORT FROM TOP MANAGEMENT/COMMAND PERSONNEL |
| /35 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LACK OF FUNDING |
| /36 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | INADEQUATE FACILITIES AND/OR EQUIPMENT |
| /37 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HIGH NUMBER OF INJURIES TO PARTICIPANTS |
| /38 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | NEEDED TO REASSIGN THE PERSON RESPONSIBLE FOR ADMINISTERING THE PROGRAM |
| /39 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | STUDIES SHOWED THE PROGRAM WAS NOT BENEFICIAL OR EFFECTIVE |
| /40 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LEGAL ACTION |
| /41 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | COLLECTIVE BARGAINING RESULTED IN DISCONTINUANCE |
| /42 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

36. Was your physical fitness training program formally evaluated for effectiveness and/or job relatedness before being discontinued?

- | | | |
|-----|----------------------------|---|
| /43 | <input type="checkbox"/> 1 | YES (PLEASE ENCLOSE A COPY OF THIS STUDY OR EVALUATION) |
| | <input type="checkbox"/> 2 | NO |

NOTE: PLEASE ENCLOSE COPIES OF ANY GENERAL ADMINISTRATIVE ORDERS, STUDIES, OR OTHER DOCUMENTS WHICH DESCRIBE THIS PHYSICAL FITNESS TRAINING PROGRAM.

PLEASE RETURN TO QUESTION C, p.6.

IV. SPORTS ACTIVITIES

37. What sports activities does your police department provide for sworn police personnel? (CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
03/44	<input type="checkbox"/>	<input type="checkbox"/>	BASKETBALL
/45	<input type="checkbox"/>	<input type="checkbox"/>	FOOTBALL
/46	<input type="checkbox"/>	<input type="checkbox"/>	SOFTBALL/BASEBALL
/47	<input type="checkbox"/>	<input type="checkbox"/>	SOCCER
/48	<input type="checkbox"/>	<input type="checkbox"/>	HANDBALL
/49	<input type="checkbox"/>	<input type="checkbox"/>	BOWLING
/50	<input type="checkbox"/>	<input type="checkbox"/>	SWIMMING
/51	<input type="checkbox"/>	<input type="checkbox"/>	TENNIS
/52	<input type="checkbox"/>	<input type="checkbox"/>	HOCKEY
/53	<input type="checkbox"/>	<input type="checkbox"/>	OTHER (PLEASE SPECIFY): _____

38. What facilities are available for participants in these sports? (CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
/54	<input type="checkbox"/>	<input type="checkbox"/>	POLICE ACADEMY OR TRAINING FACILITIES
/55	<input type="checkbox"/>	<input type="checkbox"/>	SPECIAL FACILITIES IN POLICE DEPARTMENT HEADQUARTERS
/56	<input type="checkbox"/>	<input type="checkbox"/>	SPECIAL FACILITIES IN POLICE DEPARTMENT DISTRICT OR SUB-STATIONS
/57	<input type="checkbox"/>	<input type="checkbox"/>	POLICE DEPARTMENT GYMNASIUM/TRACK
/58	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL COMMERCIAL FACILITIES
/59	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL PUBLIC/PRIVATE SCHOOL FACILITIES
/60	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL YMCA OR SIMILAR FACILITIES
/61	<input type="checkbox"/>	<input type="checkbox"/>	LOCAL HEALTH CLUB OR SIMILAR FACILITIES
/62	<input type="checkbox"/>	<input type="checkbox"/>	NO SPECIFIC FACILITIES ARE AVAILABLE
/63	<input type="checkbox"/>	<input type="checkbox"/>	OTHER (PLEASE SPECIFY): _____

39. During each month, how many sworn police personnel participate regularly in these sports programs?

/64-68 Number of regular participants per month: _____

PLEASE RETURN TO QUESTION D, p.6

V. SPECIAL GROUP RATES

40. Please describe the nature of these group rates and indicate the facilities or organization to which they apply (e.g. YMCA, etc.)

03/69-71

41. During each month, how many sworn police personnel take advantage of these group rates by regularly using the facilities provided?

Number of officers who participate regularly: _____

PLEASE RETURN TO QUESTION E, p.6.

VI. FUNDING

.63 04

42. Why have you never requested funding for physical fitness training programs or physical fitness training equipment for sworn police personnel? (CHECK WHETHER OR NOT EACH APPLIES. DO NOT ANSWER THE OTHER QUESTIONS IN THIS SECTION)

YES NO

- 04/09 ☐ ☐ THE COUNCIL, MANAGER, MAYOR, OR STATE LEGISLATURE WOULD NEVER APPROVE IT
- /10 ☐ ☐ THIS IS LOW ON THE LIST OF DEPARTMENTAL PRIORITIES
- /11 ☐ ☐ WE ALREADY HAVE SUFFICIENT PHYSICAL FITNESS FACILITIES AND EQUIPMENT IN OUR DEPARTMENT
- /12 ☐ ☐ WE HAVE ACCESS TO SUFFICIENT PHYSICAL FITNESS FACILITIES AND EQUIPMENT OUTSIDE THE POLICE DEPARTMENT
- /13 ☐ ☐ SWORN PERSONNEL HAVE INDICATED A LACK OF INTEREST IN SUCH PROGRAMS OR EQUIPMENT
- /14 ☐ ☐ OTHER (PLEASE SPECIFY): _____

43. From whom did you request this funding for physical fitness programs or equipment? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- /15 ☐ ☐ LOCAL OR STATE GOVERNMENT (i.e., CITY OR COUNTY COUNCIL OR LEGISLATURE)
- /16 ☐ ☐ STATE PLANNING ASSOCIATION
- /17 ☐ ☐ LEAA
- /18 ☐ ☐ POLICE FOUNDATION
- /19 ☐ ☐ OTHER CRIMINAL JUSTICE AGENCY
- /20 ☐ ☐ PRIVATE FOUNDATION
- /21 ☐ ☐ LOCAL BUSINESS OR INDUSTRY
- /22 ☐ ☐ LOCAL COMMUNITY ORGANIZATION
- /23 ☐ ☐ INSURANCE COMPANY
- /24 ☐ ☐ OTHER (PLEASE SPECIFY): _____

44. For what specifically did you request this funding? (e.g., if funding was requested for equipment, list the specific equipment sought; if funding was requested for a program, describe the program.)

45. Was your request for funding granted?

04/25

☐ YES (ANSWER Q.46)

☐ NO

46. Has the funding been used?

/26

☐ YES

☐ NO

PLEASE RETURN TO QUESTION F, p.6.

VII. WEIGHT MAINTENANCE PROGRAMS

47. Who developed this weight maintenance program, policy, or regulation for sworn police personnel? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- 04/27 ☐ 1 ☐ 2 POLICE ACADEMY OR DEPARTMENTAL TRAINING PERSONNEL
- /28 ☐ 1 ☐ 2 MEDICAL EXAMINER OR MEDICAL DOCTORS
- /29 ☐ 1 ☐ 2 LIFE/HEALTH INSURANCE COMPANY PERSONNEL
- /30 ☐ 1 ☐ 2 LOCAL PUBLIC OR PRIVATE SCHOOL PERSONNEL
- /31 ☐ 1 ☐ 2 LOCAL YMCA, HEALTH CLUB, OR SIMILAR PERSONNEL
- /32 ☐ 1 ☐ 2 OTHER (PLEASE SPECIFY): _____

48. Are these weight maintenance standards mandatory for sworn police personnel?

- /33 ☐ 1 YES
- ☐ 2 NO

49. Are any sworn police personnel exempt from participation in this weight maintenance program, policy, or regulation?

- /34 ☐ 1 YES (ANSWER Qs. 50-53)
- ☐ 2 NO (SKIP TO Q.54)

50. What is (are) the basis (bases) for exemption from participation in the weight maintenance program, policy, or regulation for sworn police personnel? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- /35 ☐ 1 ☐ 2 EXEMPTIONS ARE BASED ON RANK ATTAINED (ANSWER Q.51)
- /36 ☐ 1 ☐ 2 EXEMPTIONS ARE BASED ON AGE ATTAINED (ANSWER Q.52)
- /37 ☐ 1 ☐ 2 EXEMPTIONS ARE BASED ON MEDICAL REASONS (ANSWER Q.53)
- /38 ☐ 1 ☐ 2 PROGRAM IS VOLUNTARY (SKIP TO Q.54)
- /39 ☐ 1 ☐ 2 OTHER (PLEASE SPECIFY): _____

51. If exemptions are based on rank attained, which sworn police personnel are exempt? (CHECK ONLY ONE)

04/40

- ☐ 1 ALL SWORN POLICE PERSONNEL ABOVE SERGEANT.
☐ 2 ALL SWORN POLICE PERSONNEL ABOVE LIEUTENANT.
☐ 3 ALL SWORN POLICE PERSONNEL ABOVE CAPTAIN.
☐ 4 OTHER (PLEASE SPECIFY): _____

52. If exemptions are based on age attained, what is the age above which sworn police personnel are exempt?

/41-42

Age above which sworn personnel are exempt: _____

53. If exemptions are based on medical reasons, what types of medical disabilities allow exemption from participation in the weight maintenance program, policy or regulation?

54. How often must sworn police personnel "weigh in" to fulfill the requirements of the weight maintenance program, policy, or regulation? (CHECK ONLY ONE)

/43

- ☐ 1 EVERY 3 MONTHS.
☐ 2 EVERY 6 MONTHS.
☐ 3 EVERY YEAR.
☐ 4 EVERY 2 YEARS.
☐ 5 VARIES WITH RANK OF OFFICER.
☐ 6 VARIES WITH AGE OF OFFICER.
☐ 7 OTHER (PLEASE SPECIFY): _____

55. Has your weight maintenance program ever been formally evaluated for effectiveness and/or job relatedness?

/44

- ☐ 1 YES (Please enclose a copy of this study or evaluation.)
☐ 2 NO

NOTE: PLEASE ENCLOSE COPIES OF ANY GENERAL ADMINISTRATIVE ORDERS, STUDIES, OR OTHER DOCUMENTS WHICH DESCRIBE THE WEIGHT MAINTENANCE PROGRAM, POLICY, OR REGULATION. ALSO ENCLOSE A COPY OF THE SPECIFIC STANDARDS WHICH ARE USED AND INDICATE THE SOURCE OF THOSE STANDARDS (e.g., A WEIGHT/HEIGHT TABLE DEVELOPED BY AN INSURANCE COMPANY, ETC.)

PLEASE RETURN TO QUESTION G, p. 7.

VIII. PERIODIC MEDICAL EXAMINATIONS

56. Are these periodic medical examinations mandatory for sworn police personnel?

04/45

☐ YES☐ NO

57. Are any current sworn personnel exempt from taking these periodic medical examinations?

/46

☐ YES (ANSWER Q. 58)☐ NO (SKIP TO Q. 59)

58. Who is (are) exempt from taking periodic medical examinations? (e.g., personnel over/under a specific age, personnel above/below a specific rank, etc.)

59. How frequently are medical examinations required for sworn police personnel? (CHECK ONLY ONE)

/47

☐ EVERY 6 MONTHS.☐ EVERY YEAR.☐ EVERY 18 MONTHS.☐ EVERY 2 YEARS.☐ EVERY 3 YEARS.☐ VARIES WITH THE AGE OF OFFICER.☐ OTHER (PLEASE SPECIFY): _____

60. Are satisfactory medical examinations required as a condition for promotion?

/48

☐ YES☐ NO

04/49 61. Who conducts the medical examinations for sworn police personnel?
(CHECK ONLY ONE.)

- ☐ 1 POLICE DEPARTMENT DOCTOR OR MEDICAL EXAMINER.
- ☐ 2 POLICE DEPARTMENT APPROVED DOCTOR.
- ☐ 3 OTHER DOCTOR OR LOCAL HOSPITAL/CLINIC.

/50 62. Who pays for the medical examinations for sworn police personnel?

- ☐ 1 POLICE DEPARTMENT.
- ☐ 2 GROUP HEALTH INSURANCE.
- ☐ 3 INDIVIDUAL POLICE OFFICER.
- ☐ 8 OTHER (PLEASE SPECIFY): _____

/51 63. Does the medical examination for sworn police personnel include a visual acuity test?

- ☐ 1 YES
- ☐ 2 NO

/52 64. Are the standards for passing this medical examination for sworn police personnel "graded" or differentiated by age of the officer?

- ☐ 1 YES (PLEASE ENCLOSE A COPY OF THESE STANDARDS.)
- ☐ 2 NO

/53 65. Are the standards for passing the medical examination based upon job/task analysis studies of the various ranks and/or positions in your department?

- ☐ 1 YES (PLEASE ENCLOSE A COPY OF THIS STUDY.)
- ☐ 2 NO

66. Has your program of medical examinations for sworn police personnel ever been formally evaluated for effectiveness and/or job relatedness?

04/54

- ☐ 1 YES (PLEASE ENCLOSE A COPY OF THIS STUDY OR EVALUATION.)
☐ 2 NO

NOTE: PLEASE ENCLOSE COPIES OF ANY GENERAL ADMINISTRATIVE ORDERS, STUDIES, OR OTHER DOCUMENTS WHICH DESCRIBE THE PERIODIC MEDICAL EXAMINATION.

PLEASE RETURN TO QUESTION H, p. 7.

IX. PERIODIC PHYSICAL PERFORMANCE TESTS

67. Are these periodic physical performance tests mandatory for sworn police personnel?

☐ 1 YES

☐ 2 NO

68. Are any sworn police personnel exempt from taking periodic physical performance tests?

☐ 1 YES (ANSWER Q.69)

☐ 2 NO (SKIP TO Q.70)

69. Who is (are) exempt from taking periodic physical performance tests? (e.g., personnel over/under a certain age, personnel above/below a certain rank, etc.)

70. How frequently are physical performance tests required for sworn police personnel? (CHECK ONLY ONE).

☐ 1 EVERY 6 MONTHS.

☐ 2 EVERY YEAR.

☐ 3 EVERY 18 MONTHS.

☐ 4 EVERY 2 YEARS.

☐ 5 EVERY 3 YEARS.

☐ 6 VARIES WITH THE AGE OF THE OFFICER.

☐ 8 OTHER (PLEASE SPECIFY) _____

71. Are satisfactory physical performance tests required as a condition for promotion?

☐ 1 YES

☐ 2 NO

72. What does this physical performance test consist of? (DESCRIBE EVENTS AND EQUIPMENT USED).

73. Who conducts/administers the physical performance tests to sworn police personnel? (CHECK ONLY ONE)

- ☐ 1 POLICE ACADEMY OR DEPARTMENTAL TRAINING PERSONNEL.
☐ 2 POLICE DEPARTMENT PERSONNEL OTHER THAN ACADEMY OR TRAINING PERSONNEL
☐ 3 LOCAL COLLEGE/JUNIOR COLLEGE INSTRUCTORS.
☐ 8 OTHER (PLEASE SPECIFY): _____

74. Are the standards for passing this physical performance test for sworn police personnel "graded" or differentiated by age of the officer?

- ☐ 1 YES (PLEASE ENCLOSE A COPY OF THESE STANDARDS.)
☐ 2 NO

75. Are the standards for passing the physical performance test based upon job/task analysis studies of the various ranks and/or positions in your department?

- ☐ 1 YES (PLEASE ENCLOSE A COPY OF THIS STUDY.)
☐ 2 NO

76. Has your program of physical performance tests for sworn police personnel ever been formally evaluated for effectiveness and/or job relatedness?

- ☐ 1 YES (PLEASE ENCLOSE A COPY OF THIS STUDY OR EVALUATION.)
☐ 2 NO

NOTE: PLEASE ENCLOSE COPIES OF ANY GENERAL ADMINISTRATIVE ORDERS, STUDIES, OR OTHER DOCUMENTS WHICH DESCRIBE THESE PERIODIC PHYSICAL PERFORMANCE TESTS.

PLEASE RETURN TO QUESTION I, p.7.

X. ENTRANCE LEVEL MEDICAL EXAMINATION

77. Who established the specific disqualifying factors on the entrance level medical examination for applicants for sworn police positions? (CHECK WHETHER OR NOT EACH APPLIES.)

YES NO

- 04/63 ☐ ☐ POLICE DEPARTMENT POLICY, RULES, OR REGULATIONS.
 /64 ☐ ☐ CIVIL SERVICE COMMISSION.
 /65 ☐ ☐ CENTRAL PERSONNEL AGENCY.
 /66 ☐ ☐ STATE OR LOCAL LAWS.
 /67 ☐ ☐ NO SPECIFIC DISQUALIFYING STANDARDS EXIST; LEFT TO DISCRETION OF EXAMINING PHYSICIAN.
 /68 ☐ ☐ OTHER (PLEASE SPECIFY): _____

78. Of those male and female applicants who took the medical examination during the past twelve months (January 1, 1975 through December 31, 1975) approximately what percent of male and female applicants failed?

/69-70 PERCENT OF MALES TAKING EXAM WHO FAILED: _____

CHECK HERE IF NO MALES TOOK THE EXAM ☐ 98

/71-72 PERCENT OF FEMALES TAKING EXAM WHO FAILED: _____

CHECK HERE IF NO FEMALES TOOK THE EXAM ☐ 98

79. How is the entrance level medical examination scored? (CHECK ONLY ONE)

- /73 ☐ APPLICANT MUST PASS EVERY INDIVIDUAL STANDARD.
☐ MINIMUM TOTAL SCORE NECESSARY FOR PASSING.
☐ NO STANDARD METHOD; LEFT TO DISCRETION OF EXAMINING PHYSICIAN.
☐ OTHER (PLEASE SPECIFY): _____

80. How are the results of the entrance level medical examination used? (CHECK WHETHER OR NOT EACH APPLIES.)

YES NO

- /74 ☐ ☐ AS QUALIFYING STANDARD ONLY.
 /75 ☐ ☐ WEIGHTED IN TOTAL ELIGIBILITY SCORE.
 /76 ☐ ☐ USED FOR RANKING APPLICANTS.
 /77 ☐ ☐ OTHER (PLEASE SPECIFY): _____

81. Can applicants request and obtain retesting on the medical examination?

- ☐ YES (PLEASE SPECIFY ANY CONDITIONS, E.G., BY ANOTHER PHYSICIAN,
AFTER WAITING ONE MONTH, ETC.): _____

☐ NO

82. Has your selection stage medical examination ever been validated, i.e.,
examined empirically in relation to the job?

☐ YES (PLEASE ENCLOSE A COPY OF THE STUDY.)

☐ NO

NOTE: PLEASE ENCLOSE COPIES OF ANY DOCUMENTS OR STUDIES WHICH DESCRIBE
THE ENTRANCE LEVEL MEDICAL EXAMINATION.

PLEASE RETURN TO QUESTION J, p.7.

XI. ENTRANCE LEVEL PHYSICAL PERFORMANCE TEST

.63 _ _ _ 05

83. Is the selection stage physical performance (agility, strength, endurance, etc.) test the same for male and female applicants for sworn police positions?

05/09

☐ YES☐ NO (PLEASE EXPLAIN): _____

84. Who developed and established the entrance level physical performance test and the qualifying scores for the applicants for sworn police positions? (CHECK WHETHER OR NOT EACH APPLIES.)

YES NO

/10

☐ ☐ POLICE DEPARTMENT RULES, REGULATIONS, OR POLICY.

/11

☐ ☐ POLICE ACADEMY OR DEPARTMENTAL TRAINING PERSONNEL.

/12

☐ ☐ CIVIL SERVICE COMMISSION.

/13

☐ ☐ CENTRAL PERSONNEL AGENCY.

/14

☐ ☐ STATE OR LOCAL LAWS.

/15

☐ ☐ OTHER (PLEASE SPECIFY) _____

85. Is the selection stage physical performance test administered after the medical examination?

/16

☐ YES☐ NO

8

86. Are medical personnel in attendance during the selection stage physical performance test?

/17

☐ YES (PLEASE SPECIFY, E.G., DOCTOR, NURSE, ETC.): _____☐ NO

87. Of the male and female applicants who took the physical performance test during the past twelve months (January 1, 1975 through December 31, 1975), approximately what percent of male and female applicants failed?

05/18-19

PERCENT OF MALE APPLICANTS TAKING TEST WHO FAILED: _____

CHECK HERE IF NO MALES TOOK THE TEST ☒ 98

/20-21

PERCENT OF FEMALE APPLICANTS TAKING TEST WHO FAILED: _____

CHECK HERE IF NO FEMALES TOOK THE TEST ☒ 98

88. What facilities are used for conducting the selection stage physical performance testing? (CHECK ONLY ONE)

/22

☐ 1 POLICE ACADEMY OR DEPARTMENTAL TRAINING FACILITIES.☐ 2 LOCAL PUBLIC OR PRIVATE SCHOOL GYMNASIUM AND/OR TRACK.☐ 3 YMCA FACILITIES.☐ 8 OTHER (PLEASE SPECIFY): _____

89. How is the selection stage physical performance test scored? (CHECK ONLY ONE.)

/23

☐ 1 MUST PASS EACH INDIVIDUAL EVENT.☐ 2 MUST PASS A CERTAIN NUMBER OF EVENTS (E.G., 4 OUT OF 5).☐ 3 MUST ATTAIN A MINIMUM TOTAL SCORE IN ANY MANNER.☐ 8 OTHER (PLEASE SPECIFY): _____

90. How are the results of the selection stage physical performance test used? (CHECK WHETHER OR NOT EACH APPLIES.)

YES NO

/24

☐ 1 ☐ 2 AS A QUALIFYING STANDARD ONLY.

/25

☐ 1 ☐ 2 WEIGHTED IN TOTAL ELIGIBILITY SCORE.

/26

☐ 1 ☐ 2 USED FOR RANKING APPLICANTS.

/27

☐ 1 ☐ 2 OTHER (PLEASE SPECIFY): _____

91. Can applicants request and obtain retesting on the physical performance test?

/28

☐ 1 YES (PLEASE SPECIFY ANY CONDITIONS, E.G., MUST WAIT ONE MONTH, ETC.): _____☐ 2 NO

92. Has your selection stage physical performance test ever been validated, i.e., examined empirically in relation to the job?

05/29

☐ 1 YES (PLEASE ENCLOSE A COPY OF THE STUDY.)

☐ 2 NO

NOTE: PLEASE ENCLOSE ANY DOCUMENTS OR STUDIES WHICH DESCRIBE THE ENTRANCE LEVEL PHYSICAL PERFORMANCE TEST.

PLEASE RETURN TO QUESTION K, p.7.

XII. RECRUIT TRAINING

93. What is the total number of hours of recruit training for new police officers?

05/30-33

Total number of hours of recruit training: _____

94. How many total hours of recruit training time are devoted to physical fitness or conditioning training, not including self-defense or personal combat skills?

/34-36

Number of hours of physical fitness/conditioning: _____

95. Is physical fitness or conditioning training a part of the daily routine for recruits in this training or academy program?

/37

☐ 1 YES (SKIP TO QUESTION 97)☐ 2 NO (ANSWER QUESTION 96)

96. How frequently are physical fitness/conditioning training sessions held?

Frequency of physical fitness/training sessions: _____

97. Is the physical fitness or condition of recruits specifically evaluated during or at the end of the training period?

/38

☐ 1 YES (ANSWER QUESTIONS 98 AND 99)☐ 2 NO (SKIP TO QUESTION 100)

98. How frequently is the physical fitness or condition of recruits specifically evaluated? (CHECK ONLY ONE.)

/39

☐ 1 ONLY AT THE END OF THE TRAINING PERIOD.☐ 2 DAILY.☐ 3 WEEKLY.☐ 4 EVERY TWO WEEKS.☐ 5 MONTHLY.☐ 6 EVERY SIX WEEKS.☐ 7 EVERY TWO MONTHS.☐ 8 OTHER (PLEASE SPECIFY): _____

99. What methods are used to evaluate the physical fitness or condition of recruits? (CHECK WHETHER OR NOT EACH APPLIES.)

YES NO

- ☐ ☐ SUPERVISOR/INSTRUCTOR EVALUATION.
- ☐ ☐ PERFORMANCE ON CALISTHENICS OR SIMILAR EVENTS.
- ☐ ☐ PERFORMANCE ON JOB/WORK SAMPLES.
- ☐ ☐ PEER RATINGS.
- ☐ ☐ SELF-EVALUATION.
- ☐ ☐ OTHER (PLEASE SPECIFY): _____

100. What are the specific abilities required of recruits at the end of the training period? (e.g., run a mile in 6 minutes, do 40 push-ups, get over a 6-foot fence in 10 seconds, etc.) PLEASE ENCLOSE A COPY OF THESE STANDARDS.

101. Are the physical fitness/condition requirements at the end of the training period the same for male and female recruits?

- ☐ YES
- ☐ NO (PLEASE EXPLAIN): _____
- _____
- _____

102. Does your police department conduct its own training program for recruits?

- ☐ YES
- ☐ NO

103. Do you share training facilities with other police agencies in your area or region? (e.g., regional training institute or academy.)

- ☐ YES
- ☐ NO

104. During the past twelve months (January 1, 1975 through December 31, 1975) what is the total number of recruits who entered the training program?

05/49-51

Total number of recruits entering training program: _____

105. Of these recruits who entered the training program during the past twelve months, how many did not successfully complete the training program?

/52-53

Number of voluntary terminations: _____

/54-55

Number of involuntary terminations: _____

/56-57

Total number of terminations: _____

NOTE: THE TOTAL NUMBER OF TERMINATIONS SHOULD EQUAL THE SUM OF THE VOLUNTARY AND INVOLUNTARY TERMINATIONS.

106. How many of these terminations were the result of failure to complete the physical ability requirements during or at the end of the training program?

/58-59

Number of terminations for physical ability reasons: _____

107. Is it possible for a recruit to be recycled through all or part of the training program?

/60

☐ YES (ANSWER QUESTION 108)

☐ NO (SKIP TO QUESTION 109)

108. Does this recycling include retraining on the physical fitness/condition requirements?

/61

☐ YES

☐ NO

NOTE: PLEASE ENCLOSE COPIES OF ANY DOCUMENTS OR STUDIES WHICH DESCRIBE THE PHYSICAL FITNESS OR CONDITIONING PROGRAM FOR RECRUITS.

PLEASE CONTINUE TO ANSWER QUESTIONS 109-150

XIII. NUMBER OF EMPLOYEES

109. What is the total number of authorized sworn police positions in your department, as of December 31, 1975?

05/62-66 Total number of authorized sworn positions: _____

3 _ _ _ 0

110. How many employees are presently working within your department, as of December 31, 1975? (PLEASE GIVE THE EXACT NUMBER FOR EACH CATEGORY.)

		Total Employees		Sworn Employees		Non-Sworn Employees	
		Male	Female	Male	Female	Male	Female
06/09-38	Full-time	_____	_____	_____	_____	_____	_____
/39-62	Part-time	_____	_____	_____	_____	_____	_____
3 _ _ _ 07	Provisional	_____	_____	_____	_____	_____	_____
07/09-32	or Temporary	_____	_____	_____	_____	_____	_____

NOTE: THESE NUMBERS SHOULD ADD ACROSS. FOR EXAMPLE, THE NUMBER OF FULL-TIME, SWORN MALE EMPLOYEES PLUS THE NUMBER OF FULL-TIME NON-SWORN MALE EMPLOYEES SHOULD BE EQUAL TO THE TOTAL NUMBER OF FULL-TIME MALE EMPLOYEES.

111. How many full-time sworn police officers have attained the following ages? Please complete the following table by indicating the exact number of officers in each rank who fall within each age group.

FULL-TIME SWORN EMPLOYEES

		Patrol Officers	Cpl.	Inv. Det.	Sgt.	Lt.	Capt.	Maj./ Insp.	Dep. Chief	Chief	Other
/33-60	Under 30	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
3 _ _ _ 0											
08/09-36	30 - 40	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
/37-64	41 - 50	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_ _ _ 0											
09/09-36	51 and older	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

NOTE: THE TOTAL NUMBER IN THIS TABLE SHOULD BE THE SAME AS THE NUMBER OF FULL-TIME SWORN MALE EMPLOYEES PLUS THE NUMBER OF FULL-TIME SWORN FEMALE EMPLOYEES GIVEN IN QUESTION 110.

112. Does your agency have district or sub-stations?

/37 ☐ YES (ANSWER QUESTIONS 113 AND 114)

☐ NO (SKIP TO QUESTION 115)

113. How many district or sub-stations are there in your agency?

09/38-39

Number of stations: _____

114. What is the average number of full-time sworn police personnel assigned to each station?

/40-43

Average number of sworn personnel per station: _____

115. How many full-time sworn police personnel in your department are assigned to each of the following police activities?

/44-47

Administrative functions (i.e. planning, research, personnel, training, inspection, community relations, etc.)

Number

/48-52

Patrol (i.e. walk, motor, tactical, etc.)

/53-56

Traffic (i.e. enforcement, safety, education, etc.)

/57-60

Criminal investigation (i.e. homicide, robbery, prostitution, narcotics, etc.)

/61-64

Juvenile

/65-68

Courts, detentions, prisoner transport

/69-72

Staff functions (i.e. communications, records, identification, laboratory, etc.)

NOTE: THE TOTAL NUMBER IN THIS CHART SHOULD BE EQUAL TO THE
NUMBER OF FULL-TIME SWORN MALE EMPLOYEES PLUS THE NUMBER
OF FULL-TIME SWORN FEMALE EMPLOYEES GIVEN IN QUESTION 110

XIV. SELECTION REQUIREMENTS

.63 _ _ _ 10

116. Are male and female applicants hired for the same entry level sworn position in your police agency?

☐ YES

☐ NO (PLEASE EXPLAIN): _____

117. Which of the following entrance standards or requirements are a part of the selection process for sworn police personnel? Please indicate whether you do or do not have these requirements for male and female applicants for sworn positions. (CHECK WHETHER OR NOT EACH APPLIES.)

		<u>Male Applicants</u>		<u>Female Applicants</u>	
		<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
/10,11	Age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/12,13	Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/14,15	Weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/16,17	Color Vision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/18,19	Visual Acuity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/20,21	Ability to Swim	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/22,23	Medical Examination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/24,25	Physical Agility, Strength, Endurance or Similar Test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

118. What are the specific entrance requirements for male and female applicants for sworn police positions in your department? Please indicate the specific requirements in the chart below.

		<u>Male Applicants</u>		<u>Female Applicants</u>	
10/26-27, 28-29, 30-31, 32-33 /34-36, 37-39 /40-42, 43-45 /46-48, 49-51 /52-54, 55-57	Age:	Minimum	_____	_____	_____
		Maximum	_____	_____	_____
	Height:	Minimum	_____	_____	_____
		Maximum	_____	_____	_____
	Weight:	Minimum	_____	_____	_____
		Maximum	_____	_____	_____
/58, 59	Proportional to Height (Check appropriate answer)	Yes	No	Yes	No
		<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/60-62, /63-65, /66-68, /69-71	Vision:	Uncorrected	_____	_____	_____
	Corrected	_____	_____	_____	
/72, 73	Glasses or contact lenses accepted (Check appropriate answer)	Yes	No	Yes	No
		<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/74, 75	Ability to Swim:	Please Specify	_____	_____	_____

XV. PERFORMANCE EVALUATION

3 11

119. Is physical fitness or condition a factor in the periodic performance evaluation of probationary officers, officers in field training programs, and/or all police officers?

		<u>Yes</u>	<u>No</u>
1/09	Probationary police officers	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/10	Officers in field training programs	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/11	Police officers	<input type="checkbox"/> 1	<input type="checkbox"/> 2

120. What methods are used to evaluate the physical fitness or condition of these police officers? (CHECK WHETHER OR NOT EACH APPLIES.)

	<u>Probationary Police Officers</u>		<u>Officers in Field Training Programs</u>		<u>Police Officers</u>		
	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	
12,13,14	Supervisory Evaluations	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
15,16,17	Job/Work Samples	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
18,19,20	Performance on Specific Tasks	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
21,22,23	Peer Ratings	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
24,25,26	Self-Evaluation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
27,28,29	Other (Please Specify)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2

XVI. RETIREMENT

12

122. During the past 12 months (January 1, 1975 through December 31, 1975), how many sworn police personnel left your police agency for any reason, including retirement? (Do NOT include those recruits who failed to complete the training or probationary period.)

/09-12

Number of sworn police personnel who left your agency: _____

123. Why did these sworn police personnel leave your department? Please indicate the exact number of sworn personnel who left for each of the following reasons.

/13-16

Death in line of duty

Number

/17-20

Death off-duty

/21-24

Scheduled retirement by reason of age

/25-28

Scheduled retirement by reason of length of service

/29-32

Early retirement for medical/physical disability

/33-36

All other reasons

NOTE: THE TOTAL NUMBER IN THIS QUESTION SHOULD BE THE SAME AS
THE NUMBER GIVEN IN Q.122

124. Of those sworn police personnel who died either in line of duty or off-duty during the past 12 months, how many were killed as the result of accidental deaths such as shootings and traffic accidents?

/37-40

Number of deaths resulting from accidents in line of duty: _____

/41-44

Number of deaths resulting from off-duty accidents: _____

125. Of those sworn police personnel who died either in line of duty or off-duty during the past 12 months, how many died as the result of medical or other health disabilities such as heart attacks and terminal diseases?

12/45-48

Number of medical/health deaths in line of duty: _____

/49-52

Number of off-duty medical/health deaths: _____

NOTE: TWO REASONS FOR DEATHS ARE GIVEN IN Qs. 124- & 125; THESE ARE DEATHS FOR ACCIDENTAL REASONS AND DEATHS FOR MEDICAL/HEALTH REASONS. THE NUMBERS PROVIDED IN Qs. 124 & 125 FOR DEATHS IN LINE OF DUTY AND DEATHS OFF-DUTY SHOULD REFLECT THE NUMBERS OF DEATHS GIVEN IN Q.123.

126. What were the ages of the sworn personnel who died by reason of medical/health reasons (both in line of duty and off-duty) during the past 12 months? (PLEASE INDICATE THE NUMBER OF OFFICERS IN EACH AGE GROUP WHO DIED FOR MEDICAL/HEALTH REASONS)

Number of officers who died for medical/health reasons in line of duty:

/53-55

UNDER 30 YEARS _____

/56-58

30-40 YEARS _____

/59-61

41-50 YEARS _____

/62-64

51 YEARS AND OLDER _____

Number of officers who died for medical/health reasons off-duty:

/65-67

UNDER 30 YEARS _____

/68-70

30-40 YEARS _____

/71-73

41-50 YEARS _____

/74-76

51 YEARS AND OLDER _____

NOTE: THE TOTAL NUMBER OF DEATHS FOR MEDICAL/HEALTH REASONS SHOULD EQUAL THE NUMBER LISTED IN Q. 125.

63 _ _ _ 13

127. Of those sworn police personnel who left your agency on early retirement for medical/physical disabilities, how many left for each of the following reasons and what were their ages? (PLEASE INDICATE THE EXACT NUMBER OF SWORN PERSONNEL WHO RETIRED EARLY FOR EACH OF THESE REASONS BY THE AGE GROUP OF THESE OFFICERS AT THE TIME OF THEIR RETIREMENT.)

		Number			
		Under 30	30-40	41-50	51 and older
13/09-20	Heart attack	_____	_____	_____	_____
/21-32	Stroke	_____	_____	_____	_____
/33-44	Peptic ulcer	_____	_____	_____	_____
/45-56	Circulatory disease (e.g., arteriosclerosis)	_____	_____	_____	_____
/57-68	Lung disease (e.g., TB/emphysema)	_____	_____	_____	_____
/69-80	Liver disease	_____	_____	_____	_____
14					
4/09-20	High blood pressure	_____	_____	_____	_____
/21-32	Diabetes	_____	_____	_____	_____
/33-44	Terminal disease (e.g., cancer)	_____	_____	_____	_____
/45-56	Arthritis	_____	_____	_____	_____
/57-68	Back trouble	_____	_____	_____	_____
/69-80	Permanent injury suffered in line of duty	_____	_____	_____	_____
15					
5/09-20	Permanent injury suffered off-duty	_____	_____	_____	_____
/21-32	Psychiatric/psychological reasons	_____	_____	_____	_____
/33-44	Other (PLEASE SPECIFY):	_____	_____	_____	_____

NOTE: THE TOTAL NUMBER OF PEOPLE GIVEN IN Q.127 SHOULD BE THE SAME AS THE NUMBER OF PEOPLE WHO RETIRED EARLY FOR MEDICAL/PHYSICAL REASONS GIVEN IN Q.123

128. In addition to those officers who have left your agency, how many sworn police officers have been assigned permanent desk duty or limited duty during the past 12 months for reasons of medical or physical disabilities?

15/45-48

Number of sworn personnel given desk/limited duty: _____

129. Of these sworn police personnel who have been assigned permanent desk duty or limited duty, how many were given these assignments for each of the following reasons? (PLEASE INDICATE THE EXACT NUMBER OF SWORN PERSONNEL GIVEN THESE ASSIGNMENTS FOR THESE REASONS BY THE AGE GROUPS OF THESE OFFICERS AT THE TIME THE ASSIGNMENT WAS GIVEN.)

		Number			
		Under 30	30-40	41-50	51 and older
/49-60	Heart attack	_____	_____	_____	_____
/61-72	Stroke	_____	_____	_____	_____
.63 _____ 16	Peptic ulcer	_____	_____	_____	_____
16/09-20		_____	_____	_____	_____
/21-32	Circulatory disease (e.g. arteriosclerosis)	_____	_____	_____	_____
/33-44	Lung disease (e.g., TB/emphysema)	_____	_____	_____	_____
/45-56	Liver disease	_____	_____	_____	_____
/57-68	High blood pressure	_____	_____	_____	_____
/69-80	Diabetes	_____	_____	_____	_____
.63 _____ 1/	Terminal disease (e.g., cancer)	_____	_____	_____	_____
17/09-20		_____	_____	_____	_____
/21-32	Arthritis	_____	_____	_____	_____
/33-44	Back trouble	_____	_____	_____	_____
/45-56	Permanent injury suffered in line of duty	_____	_____	_____	_____
/57-68	Permanent injury suffered off-duty	_____	_____	_____	_____
/69-80	Psychiatric/psychological reasons	_____	_____	_____	_____
.63 _____ 1	Other (PLEASE SPECIFY):	_____	_____	_____	_____
18/09-20		_____	_____	_____	_____

130. Do your laws, regulations, or policies stipulate a retirement age for sworn police personnel?

18/21

☐ YES (ANSWER Q.131)

☐ NO (SKIP TO Q.132)

131. What are the minimum and maximum retirement ages for sworn police personnel?

/22-23

Minimum retirement age: _____

/24-25

Maximum retirement age: _____

132. Do your laws, regulations, or policies stipulate rules concerning retirement after a specific length of service on the police force?

/26

☐ YES (ANSWER Q.133)

☐ NO (SKIP TO Q.134)

133. What are the minimum and maximum number of years of service for retirement of sworn police personnel?

/27-28

Minimum number of years on the force: _____

/29-30

Maximum number of years on the force: _____

134. Are the minimum and maximum retirement ages or years on the force based on studies of the medical/physical condition of older or more experienced sworn police personnel?

/31

☐ YES (PLEASE ENCLOSE A COPY OF THE STUDY)

☐ NO

XVII. ADMINISTRATIVE AND LEGAL ISSUES

135. Do your personnel regulations, policies, or general orders provide for any of the following programs for sworn police personnel?
(CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
18/32	<input checked="" type="checkbox"/>	<input type="checkbox"/>	WEIGHT MAINTENANCE PROGRAM
/33	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PHYSICAL FITNESS TRAINING PROGRAM
/34	<input checked="" type="checkbox"/>	<input type="checkbox"/>	INDIVIDUAL OR TEAM SPORTS PROGRAM
/35	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PERIODIC MEDICAL EXAMINATION OR REQUALIFICATION
/36	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PERIODIC PHYSICAL PERFORMANCE TEST OR REQUALIFICATION (e.g., agility, strength, endurance, etc.)
/37	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NONE OF THESE

136. Do your personnel regulations, policies, or general orders provide for any administrative disciplinary actions to be taken against police personnel who fail to adhere to or comply with any of the programs listed in Q. 135?

/38 ☒ YES (ANSWER Qs. 137-140)
 ☐ NO (SKIP TO Q.141)

137. To which of these programs do the administrative disciplinary actions stated in personnel regulations, policies, or general orders apply?
(CHECK WHETHER OR NOT EACH APPLIES)

	<u>YES</u>	<u>NO</u>	
/39	<input checked="" type="checkbox"/>	<input type="checkbox"/>	WEIGHT MAINTENANCE PROGRAM
/40	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PHYSICAL FITNESS TRAINING PROGRAM
/41	<input checked="" type="checkbox"/>	<input type="checkbox"/>	INDIVIDUAL OR TEAM SPORTS PROGRAM
/42	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PERIODIC MEDICAL EXAMINATION OR REQUALIFICATION
/43	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PERIODIC PHYSICAL PERFORMANCE TEST OR REQUALIFICATION (e.g., agility, strength, endurance, etc.)

138. What types of administrative actions may be taken against sworn police personnel who fail to comply with the programs stipulated in Q.137? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

18/44	<input checked="" type="checkbox"/>	<input type="checkbox"/>	MORE FREQUENT "WEIGH INS"
/45	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LOSS OF ANNUAL LEAVE DAYS
/46	<input checked="" type="checkbox"/>	<input type="checkbox"/>	MONETARY FINE
/47	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SUSPENSION
/48	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DISMISSAL
/49	<input checked="" type="checkbox"/>	<input type="checkbox"/>	REASSIGNMENT
/50	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TRANSFER
/51	<input checked="" type="checkbox"/>	<input type="checkbox"/>	INELIGIBILITY FOR PROMOTION
/52	<input checked="" type="checkbox"/>	<input type="checkbox"/>	VERBAL REPRIMAND
/53	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LETTER IN PERSONNEL FILE
/54	<input checked="" type="checkbox"/>	<input type="checkbox"/>	INDIVIDUAL COUNSELING TO DEVELOP REMEDIAL PROGRAM
/55	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OTHER (PLEASE SPECIFY): _____

139. During the past twelve months (January 1, 1975 through December 31, 1975), have any of these administrative actions been taken against any sworn police personnel who failed to comply with the programs stipulated in Q.137?

/56 ☒ YES (ANSWER Q.140)
 ☐ NO (SKIP TO Q.141)

140. How many individual cases have required the applications of such administrative actions during the past twelve months (January 1, 1975 through December 31, 1975)?

/57-59 Number of individual cases requiring administrative action: _____

8

141. During the past twelve months (January 1, 1975 through December 31, 1975) have any lawsuits or other legal actions been filed, heard, or decided concerning any of the following programs or procedures?
(CHECK WHETHER OR NOT EACH APPLIES)

YES NO

- | | | | |
|-------|----------------------------|----------------------------|--|
| 18/60 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | WEIGHT MAINTENANCE PROGRAM |
| /61 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PHYSICAL FITNESS TRAINING PROGRAM |
| /62 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | INDIVIDUAL OR TEAM SPORTS PROGRAM |
| /63 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PERIODIC MEDICAL EXAMINATION OR REQUALIFICATION FOR SWORN POLICE PERSONNEL |
| /64 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PERIODIC PHYSICAL PERFORMANCE TEST OR REQUALIFICATION FOR SWORN PERSONNEL (e.g., agility, strength, endurance, etc.) |
| /65 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | RETIREMENT POLICY OR PROVISIONS |
| /66 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ENTRANCE LEVEL MEDICAL EXAMINATION FOR APPLICANTS |
| /67 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ENTRANCE LEVEL PHYSICAL PERFORMANCE TEST FOR APPLICANTS (e.g., agility, strength, endurance, etc.) |
| /68 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | TRAINING PROGRAM OR ACADEMY PROCEDURES OR SCORING METHODS |
| /69 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PROBATIONARY PROCEDURES OR EVALUATION METHODS |
| /70 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | NO LEGAL ACTIONS FILED, HEARD, OR DECIDED |
| /71 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

142. Are any or all of the sworn police personnel in your department members of a police union or other collective bargaining agency?

- /72 ☐ 1 YES (ANSWER Qs. 143-146)
 ☐ 2 NO (SKIP TO Q.147)

143. Are there any contractual agreements between sworn police personnel and either the department or the city (county or state) which would prohibit the establishment of a physical fitness training program in your department?

- /73 ☐ 1 YES (ANSWER Q.144)
 ☐ 2 NO (SKIP TO Q.145)

144. Please describe the nature and provisions of this contractual agreement which would prohibit the establishment of a physical fitness training program.

145. Are there any contractual agreements between sworn police personnel and either the department or the city (county or state) which establish a physical fitness training program in your department?

☐ 1 YES (ANSWER Q.146)

☐ 2 NO (SKIP TO Q.147)

146. Please describe the nature and provisions of this contractual agreement which establish a physical fitness training program in your department.

147. Are all or any of the sworn police personnel in your department covered by a group health insurance program?

☐ 1 YES (ANSWER Q.148)

☐ 2 NO (SKIP TO Q.150)

148. Are there any provisions of this group health insurance program or policy which might affect the establishment of a physical fitness program in your department?

☐ 1 YES (ANSWER Q.149)

☐ 2 NO (SKIP TO Q.150)

149. Please describe the particular provisions which might affect the establishment of a physical fitness training program.

150. Is your police agency currently developing a program for sworn police personnel in any of the following areas? (CHECK WHETHER OR NOT EACH APPLIES)

YES NO

19/09	<input type="checkbox"/> 1	<input type="checkbox"/> 2	WEIGHT MAINTENANCE
/10	<input type="checkbox"/> 1	<input type="checkbox"/> 2	PHYSICAL FITNESS TRAINING
/11	<input type="checkbox"/> 1	<input type="checkbox"/> 2	INDIVIDUAL OR TEAM SPORTS
/12	<input type="checkbox"/> 1	<input type="checkbox"/> 2	PERIODIC MEDICAL EXAMINATION OR REQUALIFICATION
/13	<input type="checkbox"/> 1	<input type="checkbox"/> 2	PERIODIC PHYSICAL PERFORMANCE TEST OR REQUALIFICATION (e.g., agility, strength, endurance, etc.)

/14-15

PLEASE INDICATE THE TOTAL NUMBER OF HOURS NECESSARY TO COMPLETE THIS QUESTIONNAIRE: _____

THANK YOU FOR COMPLETING THIS SURVEY QUESTIONNAIRE.

Please enclose with this questionnaire any general/administrative orders, studies, descriptions, legal or other documents dealing with the following topics relative to your police agency:

- . Physical fitness training program
- . Weight maintenance program
- . Medical requirements/tests during an officer's career
- . Physical requirements/tests during an officer's career
- . Entrance level medical examination
- . Entrance level physical performance test
- . Physical training requirements/tests during academy/training period
- . Physical training requirements/evaluations during probationary period
- . Medical/physical conditions covered in the retirement policy
- . Any validation/evaluative studies of these requirements or procedures
- . Any court cases or other legal actions concerning these requirements or procedures
- . Any collective bargaining agreements which may affect these requirements or procedures
- . Any group health insurance policies which may affect these requirements or procedures

DON'T FORGET TO MAKE A PHOTOCOPY OF THE COMPLETED QUESTIONNAIRE FOR YOUR RECORDS!

APPENDIX H

QUESTIONNAIRE RETURNS BY STRATUM

APPENDIX H
QUESTIONNAIRE RETURNS BY STRATUM

State	I		II		III		IV		V	
	For.	Ret.	For.	Ret.	For.	Ret.	For.	Ret.	For.	Ret.
Alabama	4	3	2	0	3	0	1	1	3	1
Alaska	0	-	0	-	0	-	1	1	0	-
Arizona	2	2	2	0	1	0	1	1	0	-
Arkansas	1	1	1	0	2	0	1	1	4	0
California	20	16	21	9	8	4	1	1	3	2
Colorado	2	2	3	3	1	0	1	1	3	2
Connecticut	5	0	6	3	3	1	1	1	0	-
Delaware	0	-	0	-	0	-	1	1	0	-
Florida	7	5	4	2	5	4	1	0	3	0
Georgia	4	1	2	1	4	1	1	1	8	1
Hawaii	1	1	0	-	0	-	0	-	0	-
Idaho	0	-	0	-	1	0	1	1	2	0
Illinois	3	3 ^a	12	9 ^a	10	3	1	1	5	1
Indiana	6	1	3	1	4	2	1	0	4	0
Iowa	2	2	3	1	4	0	1	0	4	0
Kansas	3	2	2	1	3	0	1	1	5	3
Kentucky	2	2	1	0	3	1	1	1	6	0
Louisiana	3	2	2	0	2	0	1	1	3	1
Maine	0	-	1	1	2	1	1	0	1	1
Maryland	1	0	1	0	1	0	1	1	2	1

^a One of these was not included in the statistical analysis.

APPENDIX H (con't.)

State	I		II		III		IV		V	
	For.	Ret.	For.	Ret.	For.	Ret.	For.	Ret.	For.	Ret.
Massachusetts	5	2	11	3	7	3	1	1	1	1
Michigan	7	3	8	4	5	1	1	1	4	1
Minnesota	3	3	4	1	4	2	1	1	4	2
Mississippi	1	1	1	1	3	1	1	1	3	0
Missouri	4	4	2	0	5	2	1	1	6	1
Montana	0	-	1	1	1	0	1	0	2	0
Nebraska	2	2	0	-	1	0	1	1	4	0
Nevada	1	1	1	1	0	-	1	1	1	0
New Hampshire	0	-	1	0	2	1	1	1	0	-
New Jersey	6	2	7	5	1	4	1	0	1	1
New Mexico	1	1	1	0	1	1	1	1	1	0
New York	6	5	5	2	8	3	1	1	3	1
North Carolina	4	3	1	0	3	1	1	1	5	1
North Dakota	0	-	0	-	1	0	1	1	3	1 ^a
Ohio	9	5	8	4	10	4	1	1	4	0
Oklahoma	2	1	2	1	3	1	1	0	4	0
Oregon	1	1	1	1	2	1	1	1	1	0
Pennsylvania	5	1	5	3	12	6	1	1	3	2
Rhode Island	1	0	2	2	1	0	1	1	0	-
South Carolina	1	1	1	1	3	1	1	1	3	0
South Dakota	0	-	1	1	1	0	1	1	3	1
Tennessee	4	2	1	1	3	0	1	1	4	0
Texas	10	8	6	3	9	6	1	1	12	2

APPENDIX H (con't.)

State	I		II		III		IV		V	
	For.	Ret.	For.	Ret.	For.	Ret.	For.	Ret.	For.	Ret.
Utah	1	0	0	-	2	1	1	0	2	0
Vermont	0	-	0	-	1	0	1	1	1	0
Virginia	7	7	2	1	2	0	1	1	4	1
Washington	3	3	2	1	2	2	1	1	2	0
West Virginia	0	-	2	2	1	0	1	1	2	0
Wisconsin	2	0	4	4	5	4	1	1	4	1
Wyoming	0	-	0	-	0	-	1	1	2	0
District of Columbia	1	1	-	-	-	-	-	-	-	-

APPENDIX I

STRATUM I: CITIES OVER 100,000

APPENDIX I

STRATUM I: CITIES OVER 100,000

ALABAMA

Birmingham
Mobile
Montgomery

ARIZONA

Phoenix
Tucson

ARKANSAS

Little Rock

CALIFORNIA

Anaheim
Fremont
Fresno
Garden Grove
Glendale
Huntington Beach
Long Beach
Los Angeles
Oakland
Riverside
Sacramento
San Bernardino
San Diego
San Francisco
Stockton
Torrance

COLORADO

Colorado Springs
Denver

DISTRICT OF COLUMBIA

FLORIDA

Fort Lauderdale
Hialeah
Jacksonville
Miami
Tampa

GEORGIA

Macon

HAWAII

Honolulu

ILLINOIS

Chicago
Peoria
Rockford

INDIANA

Hammond

IOWA

Cedar Rapids
Des Moines

KANSAS

Kansas City
Wichita

KENTUCKY

Lexington
Louisville

APPENDIX I (con't.)

LOUISIANA

New Orleans
Shreveport

MASSACHUSETTS

Boston
Worcester

MICHIGAN

Flint
Lansing
Livonia

MINNESOTA

Duluth
Minneapolis
St. Paul

MISSISSIPPI

Jackson

MISSOURI

Independence
Kansas City
Springfield
St. Louis

NEBRASKA

Lincoln
Omaha

NEVADA

Las Vegas

NEW JERSEY

Jersey City
Newark

NEW MEXICO

Albuquerque

NEW YORK

Albany
New York City
Rochester
Syracuse
Yonkers

NORTH CAROLINA

Charlotte
Greensboro
Raleigh

OHIO

Canton
Cincinnati
Cleveland
Columbus
Toledo

OKLAHOMA

Oklahoma City

OREGON

Portland

PENNSYLVANIA

Philadelphia

SOUTH CAROLINA

Columbia

TENNESSEE

Knoxville
Memphis

APPENDIX I (con't.)

TEXAS

Amarillo
Beaumont
Corpus Christi
Dallas
El Paso
Fort Worth
Lubbock
San Antonio

VIRGINIA

Alexandria
Hampton
Newport News
Norfolk
Portsmouth
Richmond
Virginia Beach

WASHINGTON

Seattle
Spokane
Takoma

APPENDIX J

STRATUM II: CITIES BETWEEN 25,000 AND 99,999

APPENDIX J

STRATUM II: CITIES BETWEEN 25,000 AND 99,999

CALIFORNIA

Arcadia
Bell Garden
Bowney
Fairfield
Newport Beach
Orange
Rialto
San Carlos
Upland

COLORADO

Arvada
Lakewood
Wheatridge

CONNECTICUT

New Britain
Shelton
Vernon

FLORIDA

Key West
Sarasota

GEORGIA

Albany

ILLINOIS

Arlington Heights
Calumet City
Decatur
Evergreen Park
Highland Park
Lombard
Oak Park
Quincy
Wilmette

INDIANA

Bloomington

IOWA

Ames

KANSAS

Hutchinson

MAINE

Bangor

MASSACHUSETTS

Danvers
Framingham
Natick

MICHIGAN

Battle Creek
Hamtramck
Oak Park
Roseville

MINNESOTA

Fridley

MISSISSIPPI

Meridian

MONTANA

Missoula

NEVADA

North Las Vegas

NEW JERSEY

Bayonne
East Orange
Long Beach
Paramus
Westfield

APPENDIX J (con't.)

NEW YORK

Jamestown
Long Beach

OHIO

Barberton
Lakewood
Maple Heights
Newark

OKLAHOMA

Bartlesville

OREGON

Medford

PENNSYLVANIA

Hazzleton
Reading
Williamsport

RHODE ISLAND

Newport
Woonsocket

SOUTH CAROLINA

Greenville

SOUTH DAKOTA

Sioux Falls

TENNESSEE

Jackson

TEXAS

Arlington
Irving
Richardson

VIRGINIA

Chesapeake

WASHINGTON

Bremerton

WEST VIRGINIA

Charleston
Weirton

WISCONSIN

Brookfield
Janesville
New Berlin
Waukesha

APPENDIX K

STRATUM III: CITIES BETWEEN 2,500 AND 24,999

APPENDIX K

STRATUM III: CITIES BETWEEN 2,500 AND 24,999

CALIFORNIA

Corning
Gilroy
Rio Vista
Woodland

CONNECTICUT

New Milford

FLORIDA

Cape Canaveral
Haines City
Madeira Beach
Palm Beach Gardens

GEORGIA

Statesboro

ILLINOIS

Chicago Ridge
Newton
Schaumburg

INDIANA

Corydon
North Manchester

KENTUCKY

Columbia

MAINE

Skowhegan

MASSACHUSETTS

Medfield
Oxford
Westminster

MICHIGAN

Mount Clemens

MINNESOTA

Apple Heights
Plymouth

MISSISSIPPI

Tupelo

MISSOURI

Gladstone
Maryville

NEW HAMPSHIRE

Plymouth

NEW JERSEY

Bordentown
Egg Harbor
Haworth
North Haledon

NEW MEXICO

Lovington

NEW YORK

Amityville
Hornell
Manlius

NORTH CAROLINA

Tarboro

APPENDIX K (con't.)

OHIO

Athens
Ontario
Seven Hills
Willowick

OKLAHOMA

Hugo

OREGON

La Grande

PENNSYLVANIA

Aldan
Brackenridge
Littlestown
North Catasauqua
Towanda
White Oak

SOUTH CAROLINA

Great Falls

TEXAS

Bowie
Duncanville
Live Oak
New Boston
Silsbee
Waxahachie

UTAH

Woods Cross

WASHINGTON

Grandview
Port Townsend

WISCONSIN

Ashland
Franklin
Menomonie
West Milwaukee

APPENDIX L

STRATUM IV: STATE POLICE AGENCIES

APPENDIX L

STRATUM IV: STATE POLICE AGENCIES

Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
Georgia
Idaho
Illinois
Kansas
Kentucky
Louisiana
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Nebraska
Nevada
New Hampshire
New Mexico
New York
North Carolina
North Dakota
Ohio
Oregon
Pennsylvania
Rhode Island

South Carolina
South Dakota
Tennessee
Texas
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

APPENDIX M

STRATUM V: COUNTY POLICE AND SHERIFF AGENCIES

APPENDIX M

STRATUM V: COUNTY POLICE AND SHERIFF AGENCIES

ALABAMA

Clarke

CALIFORNIA

Los Angeles^a
Placer
Trinity

COLORADO

La Plata
Saguache

GEORGIA

Cobb

ILLINOIS

Rock Island

KANSAS

Graham
Pottawatomie
Sumner

LOUISIANA

Ouachita

MAINE

Aroostook

MARYLAND

Worcester

MASSACHUSETTS

Middlesex

MICHIGAN

Wayne

MINNESOTA

Clearwater
Traverse

MISSOURI

Holt

NEW JERSEY

Gloucester

NEW YORK

Alleghany

NORTH CAROLINA

Warren

NORTH DAKOTA

Barnes

PENNSYLVANIA

Fulton
Perry

SOUTH DAKOTA

Faulk

TEXAS

Grayson
Refugio

VIRGINIA

Chesterfield
Northhampton^a

WISCONSIN

Pierce

^a Not in the random sample but received a survey.

APPENDIX N

SURVEY OF
PHYSICAL FITNESS ATTITUDES
AMONG SWORN POLICE PERSONNEL

SURVEY OF
PHYSICAL FITNESS ATTITUDES
AMONG SWORN POLICE PERSONNEL



International Association of Chiefs of Police
Eleven Firstfield Road
Gaithersburg, Maryland 20760

INSTRUCTIONS FOR COMPLETING QUESTIONNAIRE

The physical fitness of police officers is an area of much interest among law enforcement personnel today. While this interest arises from a variety of sources, it is basically reflective of a wide-ranging concern over the total well being of today's police officers. For our purposes, such interest and concern focus on the medical and physical condition of police officers in relation to the rigorous demands and requirements of their job. This survey is one part of a larger project designed to examine the physical fitness of police officers.

Your police agency has already responded to an earlier survey which examined the availability of specific types of programs for the development and maintenance of physical fitness among police officers. From this survey, we have accumulated a great deal of knowledge about the availability and administration of a number of medical and physical programs and procedures from initial selection through retirement. Such general descriptive information is important to our research. Equally important, however, are the opinions of the police officers themselves concerning these programs.

This survey consists of 5 separate sections, which are listed below in the order in which they appear in this booklet. The numbers in parentheses refer to the questions which are found in each section.

- I. IDENTIFICATION (1 - 19)
Information on your background and your present job assignment.
- II. MEDICAL (20 - 43)
Information on medical and health related topics.
- III. PHYSICAL PERFORMANCE AND JOB REQUIREMENTS (44 - 56)
Information on the agility, strength, endurance, and similar requirements of your job.
- IV. PHYSICAL FITNESS/SPORTS PROGRAMS (57 - 94)
Information on your participation in several types of programs which may be provided by your police agency.
- V. PARTICIPATION IN SPORTS/EXERCISE PROGRAMS (95 - 126)
Information on your participation in sports or similar programs while in school or in addition to what may be provided by your police agency; includes similar information on your family.

The value of a survey like this, of course, depends in part on the number of people who respond to it. We would greatly appreciate completion and return of this questionnaire at your earliest convenience. Although the questionnaire appears rather lengthy in both number of pages and number of questions, most questions require only a check mark as an answer. Thus, the questionnaire should not take long to complete.

Selection of specific officers to participate in this survey was done on a random basis; in other words, a certain number of police officers were selected from all the police agencies who responded to our earlier survey. Because your police agency granted permission for us to send you this questionnaire, they are aware of the particular people in your department who received this booklet. They will not, however, be made aware of your answers. Under no circumstances will your answers to these questions be released to members of your own or any other agency. The confidentiality is further preserved by the facts that no individual names appear on this booklet and that all surveys are mailed directly to the IACP.

The questions in this survey are a mixture of both factual data and opinions. All questions should be self-explanatory. Directions are provided throughout the booklet for answering or skipping certain questions depending upon how you answered a previous question. Please pay particular attention to these directions.

Please do not separate the pages of this booklet in order to use a typewriter. Please answer all questions in ink and print clearly where descriptive answers are appropriate. When you have completed the survey, please return it to the IACP in the enclosed self-addressed, pre-paid envelope.

Throughout this survey, there are a number of questions which require responses to more than one statement (see, for example, Question 61 on page 17). The directions to these questions state "Check whether or not each statement applies." In answering these questions, please check the "Yes" column for those statements which you consider true or applicable and check the "No" column for those statements which you think are not true or not applicable.

DEFINITION OF TERMS

For purposes of this questionnaire, the following definitions have been developed. You should refer to these definitions when responding to the questions in this booklet.

MEDICAL STANDARDS

Standards or requirements relating to an examination of body functions performed by a qualified physician in the doctor's office, a hospital or clinic, or other facilities.

PHYSICAL PERFORMANCE
STANDARDS

Standards or requirements relating to tests of muscular activities, including physical agility, strength, endurance, coordination, speed, etc.

PHYSICAL FITNESS TRAINING
PROGRAM

Any fairly regular program of exercise designed to develop and/or maintain good physical conditioning. The program may be voluntary or mandatory and may be administered either with or without instruction.

I. IDENTIFICATION

1. Sex:

/11

- ☐ 1 MALE
☐ 2 FEMALE

2. Ethnic or Racial Background:

/12

- ☐ 1 HISPANIC - A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
- ☐ 2 WHITE, NOT OF HISPANIC ORIGIN - A person having origins in any of the original peoples of Europe, North Africa, the Middle East, or the Indian subcontinent.
- ☐ 3 BLACK, NOT OF HISPANIC ORIGIN - A person having origins in any of the black racial groups.
- ☐ 4 ASIAN OR PACIFIC ISLANDER - A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Pacific Islands. This area includes, for example, China, Japan, Korea, the Phillipine Islands, and Samoa.
- ☐ 5 AMERICAN INDIAN OR ALASKAN NATIVE - A person having origins in any of the original peoples of North America.

3. Marital Status:

/13

- ☐ 1 NEVER MARRIED
☐ 2 CURRENTLY MARRIED
☐ 3 SEPARATED
☐ 4 DIVORCED
☐ 5 WIDOWED

/14-17

4. Date of Birth: _____
Month, Year

/18-20

5. Height: _____ feet and _____ inches.

/21-23 6. Weight: _____ pounds.

/24 7. Current Religious Preference:

- ☐ 1 NO PREFERENCE
- ☐ 2 JEWISH
- ☐ 3 PROTESTANT
- ☐ 4 ROMAN CATHOLIC
- ☐ 5 OTHER (PLEASE SPECIFY): _____

8. Highest educational level attained:

- /25
- ☐ 1 LESS THAN A HIGH SCHOOL DIPLOMA
 - ☐ 2 HIGH SCHOOL DIPLOMA OR EQUIVALENCY CERTIFICATE
 - ☐ 3 SOME COLLEGE BUT NO DEGREE
 - ☐ 4 ASSOCIATES DEGREE (2 YEARS)
 - ☐ 5 BACHELOR'S DEGREE
 - ☐ 6 MASTER'S DEGREE
 - ☐ 7 OTHER (PLEASE SPECIFY): _____

9. On what date did you join the police agency in which you are currently employed?

/26-29 Date joined police agency: _____

10. What is your current rank: (CHECK ONLY ONE)

- /30
- ☐ 1 POLICE/PATROL OFFICER, DEPUTY SHERIFF, OR STATE TROOPER
 - ☐ 2 DETECTIVE/INVESTIGATOR
 - ☐ 3 CORPORAL
 - ☐ 4 SERGEANT
 - ☐ 5 LIEUTENANT
 - ☐ 6 CAPTAIN
 - ☐ 7 ABOVE CAPTAIN (PLEASE SPECIFY): _____
 - ☐ 8 OTHER (PLEASE SPECIFY): _____

11. What is your current primary assignment? (CHECK ONLY ONE)

- ☐ 1 ADMINISTRATIVE FUNCTIONS (i.e., PLANNING, RESEARCH, PERSONNEL, TRAINING, INSPECTION, COMMUNITY RELATIONS, ETC.)
- ☐ 2 PATROL (i.e., WORK, MOTOR, TACTICAL, ETC.)
- ☐ 3 TRAFFIC (i.e., ENFORCEMENT, SAFETY, EDUCATION, ETC.)
- ☐ 4 CRIMINAL INVESTIGATION (i.e., HOMICIDE, ROBBERY, PROSTITUTION, NARCOTICS, ETC.)
- ☐ 5 JUVENILE
- ☐ 6 COURTS, DETENTION, OR PRISONER TRANSPORT
- ☐ 7 STAFF FUNCTIONS (i.e., COMMUNICATIONS, RECORDS, IDENTIFICATION, LABORATORY, ETC.)

12. When did you begin your present assignment? _____
month, year

13. What type of shift do you work? (CHECK ONLY ONE)

- ☐ 1 PERMANENT HOURS (ANSWER Q.14)
- ☐ 2 ROTATING SHIFT (ANSWER Q.15)
- ☐ 3 OTHER (PLEASE SPECIFY AND SKIP TO Q.16): _____

14. If you work a permanent shift, what hours do you normally work?

Work begins at: _____

Work ends at: _____ (SKIP TO Q.16)

0000

15. If you work a rotating shift, how often is your shift rotated or changed? (CHECK ONLY ONE)

- ☐ 1 EVERY WEEK
- ☐ 2 EVERY 2 WEEKS
- ☐ 3 EVERY MONTH (OR EVERY 4 WEEKS)
- ☐ 4 EVERY 6 WEEKS
- ☐ 5 EVERY 2 MONTHS
- ☐ 6 EVERY 3 MONTHS
- ☐ 7 EVERY 4 MONTHS
- ☐ 8 OTHER (PLEASE SPECIFY): _____
- ☐ 9

/42-43

16. At what age do you plan to retire from the police department? _____
17. Suppose you are considering leaving the police department before you reach the mandatory retirement age. What would be the most important reasons and/or incentives for you to retire "early"?

18. At the present time, what do you think you would like to do after you retire from the police department? List the two or three most important things to you.

19. Suppose you have just retired from the police department. What types of employment, if any, would you seek? Please be as specific as possible.

II. MEDICAL

20. How do you generally feel when you wake up? (CHECK ONLY ONE)

- ☐ 1 COMPLETELY RESTED
☐ 2 SOMEWHAT RESTED
☐ 3 SOMEWHAT TIRED
☐ 4 VERY DROWSY

21. At any time in your life, did you suffer a traumatic or serious injury to your back?

- ☐ 1 YES (ANSWER Q. 22)
☐ 2 NO (ANSWER Q.23)

22. What was the nature of this injury? _____

23. How frequently do you experience lower back pain in the following situations? (CHECK ONE COLUMN PER ITEM)

		<u>Almost</u> <u>Continually</u>	<u>Frequently</u>	<u>Occasionally</u>	<u>Rarely</u>	<u>Never</u>
/46	On waking up	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
/47	While driving	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
/48	While sitting	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
/49	While lifting objects	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
/50	While walking or standing	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

24. Realistically speaking, how many more years do you expect to live?

25. How do you view your current weight? (CHECK ONLY ONE)

- ☐ 1 WEIGH LESS THAN I'D LIKE
☐ 2 WEIGH JUST WHAT I'D LIKE
☐ 3 1 TO 10 POUNDS OVER WHAT I'D LIKE TO WEIGH
☐ 4 11 TO 20 POUNDS OVER WHAT I'D LIKE TO WEIGH
☐ 5 20 POUNDS OR MORE OVER WHAT I'D LIKE TO WEIGH

26. How many days of sick leave did you take during the year 1975?
(January 1, 1975 through December 31, 1975)

/54-56

_____ days

27. During the year 1975 (January 1 through December 31), how many times did you receive medical attention or treatment for any reason?

/57

- ☐ 1 NONE
☐ 2 1 TO 3 TIMES
☐ 3 4 TO 6 TIMES
☐ 4 7 TO 9 TIMES
☐ 5 10 TO 12 TIMES
☐ 6 12 TO 15 TIMES
☐ 7 MORE THAN 15 TIMES (PLEASE SPECIFY): _____

28. How often do you voluntarily have a medical check-up, even though you feel O.K.? (CHECK ONLY ONE)

/58

- ☐ 1 EVERY 6 MONTHS
☐ 2 EVERY YEAR
☐ 3 EVERY TWO YEARS
☐ 4 EVERY THREE YEARS
☐ 5 NEVER
☐ 6 OTHER (PLEASE SPECIFY): _____

29. Of the five police officers in your agency with whom you work most closely, how many have serious problems with the following? (CHECK ONE NUMBER PER ITEM)

/59

a. Alcohol ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

/60

b. Marriage ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

/61

c. Children ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

/62

d. Finances ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

/63

e. Drugs ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

/64

f. Neighbors ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

30. In your career as a police officer, how many officers have you known personally who have attempted or successfully committed suicide?

Number of officers: _____ (IF NONE, SKIP TO Q.32)

31. Do you think the effects of the job on the individual played a major role in these attempted or successful suicides? (CHECK ONLY ONE)

- ☐ 1 DEFINITELY YES
☐ 2 PROBABLY YES
☐ 3 NOT SURE
☐ 4 PROBABLY NO
☐ 5 DEFINITELY NO
☐ 0

32. In your career as a police officer, how many officers have you known personally who have had a severe or fatal heart attack?

Number of officers: _____ (IF NONE, SKIP TO Q.34)

33. How many of these officers had heart attacks during their on-duty hours?

Number of officers: _____

000

34. Compared to other officers your age, how would you rate your own health? (CHECK ONLY ONE)

- ☐ 1 VERY HIGH
☐ 2 BETTER THAN AVERAGE
☐ 3 ABOVE AVERAGE
☐ 4 LESS THAN AVERAGE
☐ 5 VERY LOW

35. How concerned are you about your general state of health? (CHECK ONLY ONE)

- ☐ 1 VERY CONCERNED
☐ 2 MODERATELY CONCERNED
☐ 3 NEITHER CONCERNED NOR UNCONCERNED
☐ 4 MODERATELY UNCONCERNED
☐ 5 NOT CONCERNED AT ALL

36. To what extent do you think you can control the general state of your health through your own actions? (CHECK ONLY ONE)

/74

- ☐ 1 A GREAT DEAL
- ☐ 2 A MODERATE AMOUNT
- ☐ 3 SOMEWHAT
- ☐ 4 LITTLE
- ☐ 5 NOT AT ALL

37. How likely do you think it is that a person your age will have a heart attack? (CHECK ONLY ONE)

/75

- ☐ 1 VERY LIKELY
- ☐ 2 SOMEWHAT LIKELY
- ☐ 3 NOT VERY LIKELY AT ALL

38. How likely do you think it is that you will have a heart attack in the next ten years? (CHECK ONLY ONE)

/76

- ☐ 1 VERY LIKELY
- ☐ 2 SOMEWHAT LIKELY
- ☐ 3 NOT VERY LIKELY AT ALL

39. Which of the following things do you think are the three most important factors in determining the possibility of heart attack? (CHECK YES FOR THE THREE MOST IMPORTANT AND NO FOR THE OTHERS)

YES NO

/77

- | | | |
|----------------------------|----------------------------|--------------------------------|
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HEREDITY |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | JOB STRESS |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | AMOUNT OF FOOD YOU EAT |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | KIND OF FOOD YOU EAT |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | AMOUNT OF LIQUOR YOU CONSUME |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | NUMBER OF CIGARETTES YOU SMOKE |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | EXERCISE |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | AMOUNT OF SLEEP |

40. Do you think you get enough exercise (either on the job or at home) to maintain good physical condition? (CHECK ONLY ONE)

- ☐ 1 DEFINITELY YES
☐ 2 PROBABLY YES
☐ 3 NOT SURE
☐ 4 PROBABLY NO
☐ 5 DEFINITELY NO

41. How would you rate the present medical standards required for original entrance into your police agency? (CHECK ONLY ONE)

- ☐ 1 VERY EASY
☐ 2 EASY
☐ 3 DIFFICULT
☐ 4 VERY DIFFICULT
☐ 5 DON'T KNOW WHAT THE STANDARDS ARE (SKIP TO Q.44)

42. Do you think you could now pass the present medical standards required for original entrance into your police agency? (CHECK ONLY ONE)

- ☐ 1 DEFINITELY YES
☐ 2 PROBABLY YES
☐ 3 PROBABLY NO
☐ 4 DEFINITELY NO
☐ 0

43. How important do you think it is for the performance of your job that you are up to these required medical standards? (CHECK ONLY ONE)

- ☐ 1 DEFINITELY IMPORTANT
☐ 2 PROBABLY IMPORTANT
☐ 3 NOT SURE
☐ 4 PROBABLY UNIMPORTANT
☐ 5 DEFINITELY UNIMPORTANT
☐ 0

III. PHYSICAL PERFORMANCE AND JOB REQUIREMENTS

44. In your present assignment, how often do you perform each of the following activities? (CHECK ONE COLUMN FOR EACH ACTIVITY)

		<u>Very Often</u>	<u>Often</u>	<u>Rarely</u>	<u>Never</u>
/15	Chasing a fleeing suspect on foot	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/16	Climbing a fence in pursuit of a suspect	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/17	Running up flights of stairs	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/18	Pushing a stalled car by hand	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/19	Lifting a sick or injured person	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/20	Struggling with a resistant suspect	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/21	Separating two or more fighters	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/22	Climbing a ladder	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
/23	Lifting a heavy object	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

45. In chasing a suspect on foot or running up a flight of stairs, how would you rate your speed compared to other officers your age? (CHECK ONLY ONE)

- /24
- ☐ 1 VERY FAST
 - ☐ 2 FASTER THAN AVERAGE
 - ☐ 3 ABOUT AVERAGE
 - ☐ 4 SLOWER THAN AVERAGE
 - ☐ 5 VERY SLOW

46. In chasing a suspect or running up a flight of stairs, how would you rate your endurance compared to other officers your age? (CHECK ONLY ONE)

- /25
- ☐ 1 VERY GOOD
 - ☐ 2 BETTER THAN AVERAGE
 - ☐ 3 ABOUT AVERAGE
 - ☐ 4 LESS THAN AVERAGE
 - ☐ 5 LIMITED

47. In climbing a fence or ladder, how would you rate your agility compared to other officers your age? (CHECK ONLY ONE)

- ☐ 1 VERY HIGH
- ☐ 2 BETTER THAN AVERAGE
- ☐ 3 ABOUT AVERAGE
- ☐ 4 LESS THAN AVERAGE
- ☐ 5 VERY LOW

48. In pushing a stalled car and lifting people or objects, how would you rate your physical strength compared to other officers your age? (CHECK ONLY ONE)

- ☐ 1 VERY HIGH
- ☐ 2 BETTER THAN AVERAGE
- ☐ 3 ABOUT AVERAGE
- ☐ 4 LESS THAN AVERAGE
- ☐ 5 VERY LOW

49. In struggling with a resistant suspect or separating two fighters, how would you rate your physical combat skills compared to other officers your age? (CHECK ONLY ONE)

- ☐ 1 VERY HIGH
- ☐ 2 BETTER THAN AVERAGE
- ☐ 3 ABOUT AVERAGE
- ☐ 4 LESS THAN AVERAGE
- ☐ 5 VERY LOW

50. How would you rate the present physical fitness standards (i.e., agility, strength, endurance, etc.) required for successful completion of recruit training for new officers in your police agency? (CHECK ONLY ONE)

- ☐ 1 VERY EASY
- ☐ 2 EASY
- ☐ 3 DIFFICULT
- ☐ 4 VERY DIFFICULT
- ☐ 5 DON'T KNOW WHAT THE STANDARDS ARE

51. Do you think you could now pass the present physical fitness standards (i.e., agility, strength, endurance, etc.) required for successful completion of recruit training for new officers in your police agency? (CHECK ONLY ONE)

/30

- ☐ 1 DEFINITELY YES
- ☐ 2 PROBABLY YES
- ☐ 3 PROBABLY NO
- ☐ 4 DEFINITELY NO
- ☐ 0

52. How would you rate your own general physical condition? (CHECK ONLY ONE)

/31

- ☐ 1 VERY HIGH
- ☐ 2 BETTER THAN AVERAGE
- ☐ 3 ABOUT AVERAGE
- ☐ 4 LESS THAN AVERAGE
- ☐ 5 VERY LOW

53. How would you rate the general physical condition of those officers with whom you work most closely? (CHECK ONLY ONE)

/32

- ☐ 1 VERY HIGH
- ☐ 2 HIGH
- ☐ 3 MODERATE
- ☐ 4 LOW
- ☐ 5 VERY LOW

54. How would you rate the general physical condition of all sworn personnel in your police agency? (CHECK ONLY ONE)

/33

- ☐ 1 VERY HIGH
- ☐ 2 HIGH
- ☐ 3 MODERATE
- ☐ 4 LOW
- ☐ 5 VERY LOW

55. Compared to other public service occupations, how physically dangerous do you think police work is? (CHECK ONLY ONE)

- ☐ 1 MUCH LESS DANGEROUS
☐ 2 LESS DANGEROUS
☐ 3 SLIGHTLY LESS DANGEROUS
☐ 4 SLIGHTLY MORE DANGEROUS
☐ 5 MORE DANGEROUS
☐ 6 MUCH MORE DANGEROUS

56. Compared to other public service occupations, how emotionally dangerous do you think police work is? (CHECK ONLY ONE)

- ☐ 1 MUCH LESS DANGEROUS
☐ 2 LESS DANGEROUS
☐ 3 SLIGHTLY LESS DANGEROUS
☐ 4 SLIGHTLY MORE DANGEROUS
☐ 5 MORE DANGEROUS
☐ 6 MUCH MORE DANGEROUS

IV. PHYSICAL FITNESS/SPORTS PROGRAMS

57. Does your police agency have a physical fitness training program for police officers?

- ☐ 1 YES
☐ 2 NO (SKIP TO Q.69)

58. Please describe the nature of this physical fitness training program.

59. Do you participate in this physical fitness training program?

- ☐ 1 YES (SKIP TO Q.61)
☐ 2 NO (ANSWER Q.60)

60. For what reason (or reasons) do you not participate in this physical fitness training program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES AND THEN SKIP TO Q. 69)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|--|
| /38 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HAVE A MEDICAL DISABILITY RELEASE |
| /39 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HAVE A PHYSICAL DISABILITY RELEASE |
| /40 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HAVE NO INTEREST IN THIS PARTICULAR PROGRAM |
| /41 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HAVE NO INTEREST IN PHYSICAL FITNESS GENERALLY |
| /42 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | FEEL I AM PHYSICALLY FIT NOW |
| /43 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ENGAGE IN MY OWN PRIVATE PHYSICAL FITNESS PROGRAM |
| /44 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DEPARTMENT PROVIDES NO INCENTIVES FOR PARTICIPATION |
| /45 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PARTICIPATION WOULD INTERFERE WITH ON-DUTY RESPONSIBILITIES |
| /46 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PARTICIPATION WOULD INTERFERE WITH OFF-DUTY RESPONSIBILITIES |
| /47 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | POSSIBILITY OF BEING INJURED DISCOURAGES ME |
| /48 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LIVE TOO FAR FROM THE FACILITIES USED |
| /49 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

61. Why do you participate in this physical fitness training program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|---|
| /50 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PROGRAM IS MANDATORY |
| /51 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DESIRE TO IMPROVE PERSONAL PHYSICAL CONDITION |
| /52 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DESIRE TO IMPROVE PERSONAL MEDICAL CONDITION |
| /53 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DESIRE TO MAINTAIN PRESENT PHYSICAL CONDITION |
| /54 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PARTICIPANTS RECEIVE COMPENSATORY TIME OFF |
| /55 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PARTICIPANTS RECEIVE COMPENSATORY PAY |
| /56 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | MY SUPERVISOR SUGGESTED IT |
| /57 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PARTICIPATION IS FUN |
| /58 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

62. How frequently do you participate in this physical fitness program?
(CHECK ONLY ONE)

/59

- ☐ 1 ONCE A MONTH
☐ 2 MORE THAN ONCE A MONTH, BUT LESS THAN WEEKLY
☐ 3 ONCE A WEEK
☐ 4 MORE THAN ONCE A WEEK, BUT LESS THAN DAILY
☐ 5 DAILY
☐ 6 OTHER (PLEASE SPECIFY): _____

63. How long have you participated in this physical fitness training program? (CHECK ONLY ONE)

/60

- ☐ 1 LESS THAN 1 MONTH
☐ 2 BETWEEN 1 MONTH AND 6 MONTHS
☐ 3 BETWEEN 6 MONTHS AND A YEAR
☐ 4 BETWEEN 1 YEAR AND 3 YEARS
☐ 5 MORE THAN 3 YEARS (PLEASE SPECIFY): _____

64. What personal benefits, if any, have you gained from participation in this physical fitness training program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

/61

☐ 1 ☐ 2 I ENJOY THE OPPORTUNITY TO SOCIALIZE WITH FRIENDS

/62

☐ 1 ☐ 2 IT PROVIDES A WAY TO GET TO KNOW OTHER PEOPLE

/63

☐ 1 ☐ 2 IT PROVIDES A RELEASE FROM THE PRESSURES OF THE JOB

/64

☐ 1 ☐ 2 IT HELPS TO BUILD UP MY STRENGTH

/65

☐ 1 ☐ 2 IT HELPS TO INCREASE MY ENDURANCE

/66

☐ 1 ☐ 2 IT'S GOOD FOR MY HEALTH

/67

☐ 1 ☐ 2 I'VE ALWAYS ENJOYED PARTICIPATING IN SPORTS

/68

☐ 1 ☐ 2 OTHER (PLEASE SPECIFY): _____

/69

☐ 1 ☐ 2 NO PARTICULAR BENEFIT

65. How far do you live from the facilities used for the physical fitness training program? (CHECK ONLY ONE)

- ☐ 1 WITHIN A COUPLE OF BLOCKS
☐ 2 LESS THAN 1 MILE
☐ 3 BETWEEN 1 MILE AND 3 MILES
☐ 4 BETWEEN 3 MILES AND 5 MILES
☐ 5 BETWEEN 5 MILES AND 10 MILES
☐ 6 MORE THAN 10 MILES (PLEASE SPECIFY): _____

66. Has participation in this physical fitness training program created any problems for you in your work as a police officer?

- ☐ 1 YES (ANSWER Q. 67)
☐ 2 NO (SKIP TO Q.68)

67. Please describe the nature of these job-related problems or difficulties caused by participation in this program.

68. Has participation in this physical fitness training program created any problems for you in your personal life?

- ☐ 1 YES
☐ 2 NO

69. Do you believe your police agency should provide a physical fitness training program for sworn police personnel?

- ☐ 1 YES (SKIP TO Q. 71)
☐ 2 NO (ANSWER Q. 70)

70. Why do you believe that your police agency should not provide a physical fitness training program for sworn personnel?

IN ANSWERING QUESTIONS 71 THROUGH 87, SUPPOSE YOUR POLICE DEPARTMENT OR AGENCY IS CONSIDERING THE ESTABLISHMENT OF A PHYSICAL FITNESS TRAINING PROGRAM FOR POLICE OFFICERS, PLEASE ANSWER ALL OF THE QUESTIONS.

71. If your police agency did have a physical fitness training program for police officers, would you participate in it?

/11

- ☐ 1 YES
☐ 2 NO

72. Do you think that a physical fitness training program should be mandatory for sworn police personnel?

/12

- ☐ 1 YES
☐ 2 NO

73. Under what conditions do you think you should be excluded or excused from participation in a departmental physical fitness training program? (e.g., When I reach age 50; if I have a medical disability; etc.)

74. Which of the following do you think would be most likely to stimulate interest in a physical fitness training program among police officers? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

/13

- ☐ 1 ☐ 2 PROGRAM OF ORIENTATION AND INFORMATION FOR POLICE OFFICERS

/14

- ☐ 1 ☐ 2 PROGRAM OF ORIENTATION AND INFORMATION FOR POLICE OFFICERS' SPOUSES

/15

- ☐ 1 ☐ 2 NEWSLETTER

/16

- ☐ 1 ☐ 2 PUBLICATION OF STATISTICS ON THE MEDICAL/PHYSICAL CONDITION OF POLICE OFFICERS

/17

- ☐ 1 ☐ 2 PARTICIPATION IN THE PROGRAM BY THE CHIEF OR SHERIFF

/18

- ☐ 1 ☐ 2 PARTICIPATION IN THE PROGRAM BY THE FIRST LINE SUPERVISORS

/19

- ☐ 1 ☐ 2 PARTICIPATION IN THE DEVELOPMENT OF THE PROGRAM BY ALL INTERESTED POLICE OFFICERS

/20

- ☐ 1 ☐ 2 OTHER (PLEASE SPECIFY): _____

75. Which of the following incentives do you think would be most likely to encourage you to participate in a physical fitness training program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- /21 ☐1 ☐2 COMPENSATORY TIME OFF
- /22 ☐1 ☐2 COMPENSATORY OVERTIME PAY
- /23 ☐1 ☐2 SALARY INCREASES
- /24 ☐1 ☐2 EXTRA POINTS IN THE PROMOTIONAL PROCESS
- /25 ☐1 ☐2 FORMAL RECOGNITION OR COMMENDATION
- /26 ☐1 ☐2 PREFERENCE IN SPECIAL ASSIGNMENTS
- /27 ☐1 ☐2 OTHER (PLEASE SPECIFY): _____

76. What types of administrative actions do you think should be taken with officers who refuse to participate in the physical fitness training program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- /28 ☐1 ☐2 LOSS OF ANNUAL LEAVE DAYS
- /29 ☐1 ☐2 MONETARY FINE
- /30 ☐1 ☐2 SUSPENSION
- /31 ☐1 ☐2 DISMISSAL
- /32 ☐1 ☐2 REASSIGNMENT
- /33 ☐1 ☐2 TRANSFER
- /34 ☐1 ☐2 INELIGIBILITY FOR PROMOTION
- /35 ☐1 ☐2 VERBAL REPRIMAND
- /36 ☐1 ☐2 LETTER IN PERSONNEL FILE
- /37 ☐1 ☐2 INDIVIDUAL COUNSELING TO DEVELOP A REMEDIAL PROGRAM
- /38 ☐1 ☐2 NO ADMINISTRATIVE ACTION SHOULD BE TAKEN
- /39 ☐1 ☐2 OTHER (PLEASE SPECIFY): _____

77. How frequently do you think police officers should participate in this physical fitness training program? (CHECK ONLY ONE)

- ☐ 1 ONCE A MONTH
☐ 2 MORE THAN ONCE A MONTH, BUT LESS THAN WEEKLY
☐ 3 ONCE A WEEK
☐ 4 MORE THAN ONCE A WEEK, BUT LESS THAN DAILY
☐ 5 DAILY
☐ 8 OTHER (PLEASE SPECIFY): _____

78. How long do you think each physical fitness training session should be? (CHECK ONLY ONE)

- ☐ 1 ABOUT 10 MINUTES OR LESS
☐ 2 ABOUT 15 OR 20 MINUTES
☐ 3 ABOUT 30 MINUTES
☐ 4 ABOUT 45 MINUTES
☐ 5 ABOUT 60 MINUTES
☐ 6 ABOUT 90 MINUTES
☐ 7 MORE THAN 90 MINUTES

79. What types of facilities do you think should be used for this physical fitness training program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- | | | |
|----------------------------|----------------------------|--|
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DEPARTMENT HEADQUARTERS |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | DEPARTMENT SUBSTATIONS OR DISTRICT STATIONS |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ACADEMY OR TRAINING FACILITIES |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | LOCAL YMCA OR SIMILAR FACILITIES |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | PUBLIC FACILITIES SUCH AS PARKS, SCHOOLS, ETC. |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OFFICER SHOULD USE HIS/HER OWN FACILITIES |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

C O N T R O L L E D

O R E V E N T

F O R E

80. Which of the following types of activities would you prefer to use in a physical fitness training program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|--|
| /49 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | BICYCLING |
| /50 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | CALISTHENICS/SLIMNASTICS |
| /51 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | GOLF |
| /52 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HANDBALL OR RACKET SPORTS |
| /53 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HIKING/BACKPACKING |
| /54 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | INDIVIDUAL SPORTS SUCH AS SWIMMING, BOWLING, SKATING, ETC. |
| /55 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | JOGGING/RUNNING |
| /56 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | SELF-DEFENSE OR PHYSICAL COMBAT SKILLS |
| /57 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | TEAM SPORTS SUCH AS BASKETBALL, BASEBALL, SOCCER, ETC. |
| /58 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | UNIVERSAL GYM/WEIGHT LIFTING EQUIPMENT |
| /59 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

81. Which of the following activities do you think are best for creating and maintaining physical fitness? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|--|
| /60 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | BICYCLING |
| /61 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | CALISTHENICS/SLIMNASTICS |
| /62 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | GOLF |
| /63 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HANDBALL OR RACKET SPORTS |
| /64 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | HIKING/BACKPACKING |
| /65 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | INDIVIDUAL SPORTS SUCH AS SWIMMING, BOWLING, SKATING, ETC. |
| /66 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | JOGGING/RUNNING |
| /67 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | SELF-DEFENSE OR PHYSICAL COMBAT SKILLS |
| /68 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | TEAM SPORTS SUCH AS BASKETBALL, BASEBALL, SOCCER, ETC. |
| /69 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | UNIVERSAL GYM/WEIGHT LIFTING EQUIPMENT |
| /70 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

33-4

82. Which of the following benefits do you think can be gained from establishing and maintaining a physical fitness training program in your police agency? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- | | | | |
|-----|-------------------------------------|--------------------------|---|
| /11 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | GREATER OVERALL PHYSICAL FITNESS IN ME |
| /12 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | GREATER OVERALL PHYSICAL FITNESS AMONG ALL OFFICERS OR PARTICIPANTS |
| /13 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | DECREASE IN INJURY RATE |
| /14 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | DECREASE IN AMOUNT OF SICK LEAVE |
| /15 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | GREATER CONFIDENCE IN PARTNERS OR OTHER OFFICERS |
| /16 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | INCREASED FEELINGS OF WELL-BEING |
| /17 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | INCREASED SOCIAL CONTACTS AND FRIENDSHIPS |
| /18 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | DECREASED NUMBER OF HEART ATTACKS |
| /19 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | FEWER EARLY RETIREMENTS |
| /20 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | BETTER LABOR-MANAGEMENT RELATIONS |
| /21 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | GREATER MANAGEMENT AWARENESS OF PHYSICAL NATURE AND DEMANDS OF YOUR JOB |
| /22 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | INCREASED ABILITY TO RELAX |
| /23 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | DECREASED FEELINGS OF TENSION AND STRESS |
| /24 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | GREATER RESPONSIVENESS TO THE NEEDS OF THE COMMUNITY |
| /25 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | BETTER PUBLIC RELATIONS |
| /26 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | OTHER (PLEASE SPECIFY): _____ |

83. Which of the following problems do you think might have to be resolved before a physical fitness training program could be established in your police agency? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|--|
| /27 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | SCHEDULING OF PERSONNEL |
| /28 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | MOTIVATING OFFICERS TO PARTICIPATE |
| /29 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING THE INTEREST AND COOPERATION OF UPPER LEVELS OF MANAGEMENT |
| /30 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING THE INTEREST AND COOPERATION OF OFFICERS |
| /31 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | POSSIBILITY OF INJURIES TO PARTICIPANTS |
| /32 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING FINANCIAL SUPPORT |
| /33 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING ANY DESIRED EQUIPMENT |
| /34 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | FINDING FACILITIES |
| /35 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING INSTRUCTORS |
| /36 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ESTABLISHING STANDARDS FOR PARTICIPATION |
| /37 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ESTABLISHING REWARDS FOR PARTICIPATION |
| /38 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | ESTABLISHING PENALTIES FOR NONPARTICIPATION |
| /39 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING CONSENT FROM LABOR UNION OR COLLECTIVE BARGAINING AGENCY |
| /40 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING CONSENT FROM INSURANCE COMPANY |
| /41 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING ANY LEGAL CONSENT |
| /42 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING SUPPORT FROM LOCAL GOVERNMENT |
| /43 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING SUPPORT FROM CIVIL SERVICE OR CENTRAL PERSONNEL OFFICE |
| /44 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OBTAINING COMMUNITY SUPPORT |
| /45 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |

84. Would you be in favor of periodic requalification on a physical fitness test for police officers?

- | | | |
|-----|----------------------------|-------------------|
| /46 | <input type="checkbox"/> 1 | YES (ANSWER Q.85) |
| | <input type="checkbox"/> 2 | NO (SKIP TO Q.86) |

85. How often do you think police officers should requalify on a physical fitness test? (CHECK ONLY ONE)

/47

- ☐ 1 MORE OFTEN THAN EVERY 6 MONTHS
- ☐ 2 EVERY 6 MONTHS
- ☐ 3 EVERY YEAR
- ☐ 4 EVERY 18 MONTHS
- ☐ 5 EVERY 2 YEARS
- ☐ 6 ONLY WHEN A PARTICULAR PROBLEM ARISES
- ☐ 7 ONLY AT THE TIME OF PROMOTION
- ☐ 8 OTHER (PLEASE SPECIFY): _____
- ☐ 0

86. Would you be in favor of periodic requalification on proportional weight to height standards?

/48

- ☐ 1 YES (ANSWER Q.87)
- ☐ 2 NO (SKIP TO Q.88)

87. How often do you think officers should "weigh in" to meet these standards? (CHECK ONLY ONE)

/49

- ☐ 1 MORE OFTEN THAN EVERY 6 MONTHS
- ☐ 2 EVERY 6 MONTHS
- ☐ 3 EVERY YEAR
- ☐ 4 EVERY 18 MONTHS
- ☐ 5 EVERY 2 YEARS
- ☐ 6 ONLY WHEN A PARTICULAR PROBLEM ARISES
- ☐ 7 ONLY AT THE TIME OF PROMOTION
- ☐ 8 OTHER (PLEASE SPECIFY): _____
- ☐ 0

88. Does your police agency provide sports programs for police officers?

/50

- ☐ 1 YES (ANSWER Q.89)
- ☐ 2 NO (SKIP TO Q.93)
- ☐ 0

89. Do you participate in this sports program?

/51

- ☐ 1 YES (ANSWER Qs. 90-92)
- ☐ 2 NO (SKIP TO Q. 93)

90. What sport (or sports) provided by your agency do you participate in?

91. How frequently do you participate in these sports? _____

92. What personal benefits, if any, do you gain from participation in this sports program? (CHECK WHETHER OR NOT EACH STATEMENT APPLIES, THEN SKIP TO Q.95)

YES NO

- | | | | |
|-----|----------------------------|----------------------------|---|
| /52 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | I ENJOY THE OPPORTUNITY TO SOCIALIZE WITH FRIENDS |
| /53 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | IT PROVIDES A WAY TO GET TO KNOW OTHER PEOPLE |
| /54 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | IT PROVIDES A RELEASE FROM THE PRESSURES OF THE JOB |
| /55 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | IT HELPS TO BUILD UP MY STRENGTH |
| /56 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | IT HELPS TO INCREASE MY ENDURANCE |
| /57 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | IT'S GOOD FOR MY HEALTH |
| /58 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | I HAVE ALWAYS ENJOYED PARTICIPATING IN SPORTS |
| /59 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | OTHER (PLEASE SPECIFY): _____ |
| /60 | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | NO PARTICULAR BENEFITS |

93. Would you like your police agency to provide sports programs for police officers?

- | | | |
|-----|----------------------------|-----|
| /61 | <input type="checkbox"/> 1 | YES |
| | <input type="checkbox"/> 2 | NO |
| | <input type="checkbox"/> 0 | |

94. What types of sports activities would you like the police agency to provide?

V. PARTICIPATION IN SPORTS/EXERCISE PROGRAMS

95. While you were in school (high school and/or college), did you participate in any team or individual sports?

☐ YES (ANSWER Qs. 96-98)

☐ NO (SKIP TO Q.99)

5

96. Which of the following sports did you participate in? (CHECK WHETHER OR NOT YOU PARTICIPATED IN EACH SPORT IN HIGH SCHOOL AND COLLEGE)

		<u>High School</u>		<u>College</u>	
		<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
/11	Baseball	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/12	Basketball	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/13	Bowling	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/14	Football	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/15	Golf	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/16	Gymnastics	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/17	Handball	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/18	Hockey - Field	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/19	Hockey - Ice	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/20	Lacrosse	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/21	Skiing - Snow	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/22	Skiing - Water	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/23	Soccer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/24	Softball	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/25	Swimming	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/26	Tennis	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/27	Track and Field	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/28	Volleyball	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/29	Wrestling	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2
/30	Other (Please Specify):	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 2

97. Which of the sports you participated in were varsity competition programs (i.e., involved regularly scheduled games or meets with other schools)? (CHECK WHETHER OR NOT EACH SPORT YOU PARTICIPATED IN HIGH SCHOOL AND COLLEGE WAS A VARSITY PROGRAM)

		<u>High School</u>		<u>College</u>	
		<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
/31	Baseball	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/32	Basketball	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/33	Bowling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/34	Football	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/35	Golf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/36	Gymnastics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/37	Handball	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/38	Hockey - Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/39	Hockey - Ice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/40	Lacrosse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/41	Skiing - Snow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/42	Skiing - Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/43	Soccer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/44	Softball	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/45	Swimming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/46	Tennis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/47	Track and Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/48	Volleyball	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/49	Wrestling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
/50	Other (Please Specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

98. Have you continued to participate in any or all of these sports since leaving school? (For example, in a community or police department program; on your own, etc.)

/51

- ☐ 1 YES
☐ 2 NO

99. Have you become involved in any new sports or exercise activities since the completion of your formal education? (If you are in college now, answer this question based on events since you finished high school.)

/52

- ☐ 1 YES (ANSWER Qs. 100 and 101)
☐ 2 NO (SKIP TO Q. 102)

100. What new sports or exercise activities have you become involved with since finishing school?

101. What prompted your interest in these new sports or exercise programs?

102. Have you ever participated in single combat or hand-to-hand combat programs other than in the police academy?

/53

- ☐ 1 YES (ANSWER Qs. 103 and 104)
☐ 2 NO (SKIP TO Q.105)

103. Please indicate the extent of your participation in these programs.

104. What benefits do you think you have gained from this participation?

105. Do you currently belong to any sports or health clubs (e.g., YMCA, Health club, community club or team, etc.)?

/54

☐ 1 YES (ANSWER Qs. 106 and 107)

☐ 2 NO (SKIP TO Q. 108)

106. What sports or similar clubs do you have membership in?

107. How frequently do you utilize the facilities or participate in programs provided by these clubs or organizations? (CHECK ONLY ONE)

/55

☐ 1 ONCE A MONTH

☐ 2 MORE THAN ONCE A MONTH, BUT LESS THAN WEEKLY

☐ 3 ONCE A WEEK

☐ 4 MORE THAN ONCE A WEEK, BUT LESS THAN DAILY

☐ 5 DAILY

☐ 6 OTHER (PLEASE SPECIFY): _____

108. Approximately how many hours per week do you spend watching sports activities on television?

/56-57

Number of hours per week: _____

109. Approximately how many games or sports events do you attend per month? (Include Little League, high school, college and professional events)

/58-59

Number of events per month: _____

110. Do you engage in any regular exercise programs at home?

- ☐ 1 YES (ANSWER Qs. 111 and 112)
☐ 2 NO (SKIP TO Q. 113)

111. How frequently do you exercise at home? (CHECK ONLY ONE)

- ☐ 1 ONCE A MONTH
☐ 2 MORE THAN ONCE A MONTH, BUT LESS THAN WEEKLY
☐ 3 ONCE A WEEK
☐ 4 MORE THAN ONCE A WEEK, BUT LESS THAN DAILY
☐ 5 DAILY
☐ 8 OTHER (PLEASE SPECIFY): _____
☐ 0

112. Who developed this exercise program? (CHECK ONLY ONE)

- ☐ 1 DEVELOPED IT MYSELF
☐ 2 SAW IT ON A LOCAL TV SHOW
☐ 3 LEARNED IT IN THE MILITARY
☐ 4 LEARNED IT IN SCHOOL
☐ 5 DEVELOPED AT YMCA OR SIMILAR CLUB
☐ 6 READ IT IN A BOOK OR MAGAZINE
☐ 8 OTHER (PLEASE SPECIFY): _____
☐ 0

ANSWER QUESTIONS 113 THROUGH 117 IF YOU ARE MARRIED

113. Does your wife/husband engage in any regular exercise program at home?

- ☐ 1 YES (ANSWER Q. 114)
☐ 2 NO (SKIP TO Q. 115)
☐ 0

114. Who developed this exercise program for your wife/husband? (CHECK ONLY ONE)

/64

- ☐ 1 DEVELOPED IT HERSELF/HIMSELF
- ☐ 2 SAW IT ON A LOCAL TV SHOW
- ☐ 3 LEARNED IT IN THE MILITARY
- ☐ 4 LEARNED IT IN SCHOOL
- ☐ 5 DEVELOPED AT YMCA OR SIMILAR CLUB
- ☐ 6 READ IT IN A BOOK OR MAGAZINE
- ☐ 8 OTHER (PLEASE SPECIFY): _____
- ☐ 0

115. Does your wife/husband belong to any sports or health clubs (e.g., YMCA, health club, community club or team, etc.)?

/65

- ☐ 1 YES (ANSWER Qs. 116 and 117)
- ☐ 2 NO (SKIP TO Q. 118)
- ☐ 0

116. What sports or similar clubs does your wife/husband have membership in?

117. How frequently does your wife/husband utilize the facilities or participate in programs provided by these clubs or organizations? (CHECK ONLY ONE)

/66

- ☐ 1 ONCE A MONTH
- ☐ 2 MORE THAN ONCE A MONTH, BUT LESS THAN WEEKLY
- ☐ 3 ONCE A WEEK
- ☐ 4 MORE THAN ONCE A WEEK, BUT LESS THAN DAILY
- ☐ 5 DAILY
- ☐ 8 OTHER (PLEASE SPECIFY): _____
- ☐ 0

ANSWER QUESTIONS 118 THROUGH 124 IF YOU HAVE CHILDREN.
IF YOU HAVE NO CHILDREN, SKIP TO QUESTION 125.

118. How many children do you have?

Number of children: _____

119. What are the ages of your children? (PLEASE INDICATE THE NUMBER OF CHILDREN WHO FALL INTO EACH OF THESE AGE CATEGORIES)

Number of children who are:

5 YEARS AND YOUNGER _____

6-10 YEARS _____

11-15 YEARS _____

16-20 YEARS _____

21 YEARS AND OLDER _____

120. Do your children regularly engage in any formal physical fitness or sports programs?

☐ YES (ANSWER Q. 121)

☐ NO (SKIP TO Q. 122)

☐

121. Please describe the nature of your children's participation in these physical fitness or sports programs.

122. Do your children exercise regularly at home?

☐ YES (ANSWER Q. 123)

☐ NO (SKIP TO Q. 124)

☐

123. Please describe the nature of this exercise.

124. Do you think your children get a sufficient amount of exercise or physical activity?

☐ 1 YES

☐ 2 NO

☐ 0

125. How often do you read books, magazine articles, etc. about the following topics? (CHECK ONE COLUMN FOR EACH TOPIC)

		<u>Very Frequently</u>	<u>Frequently</u>	<u>Occasionally</u>	<u>Rarely</u>	<u>Never</u>
/78	Sports	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
/79	Physical Fitness	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
/80	Medicine	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

126. What books, magazines, etc. on these topics have you read recently?

Sports: _____

Physical Fitness: _____

Medicine: _____

PLEASE INDICATE THE TOTAL NUMBER OF MINUTES NECESSARY TO COMPLETE THIS QUESTIONNAIRE: _____

THANK YOU FOR COMPLETING THIS SURVEY QUESTIONNAIRE!