

BILL BLACKWOOD
LAW ENFORCEMENT MANAGEMENT INSTITUTE
OF TEXAS

DEVELOPING A PHYSICAL FITNESS PROGRAM FOR THE
TEXAS DEPARTMENT OF PUBLIC SAFETY

A RESEARCH PROJECT PAPER
SUBMITTED IN PARTIAL FULFILLMENT
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INTRODUCTION

Police work, by nature, is mostly sedentary with most of the time spent either behind a desk or at the wheel of a patrol car. However, that work may also at a moments notice place an officer in a highly stressful physical confrontation demanding strength, agility, and endurance. The Texas Department of Public Safety long ago realized this and made strenuous physical training a large part of the recruit training process. However, once a recruit graduates from the training academy and begins duties in the field, the trooper is no longer required to participate in any physical training to insure continued good health.

Physical fitness for officers of the Texas Department of Public Safety is addressed as follows by the DPS General Manual:

05.62.00 PHYSICAL HEALTH

All members of the Department shall keep themselves in good physical and mental condition. Members shall maintain their physical and mental condition to the degree necessary to perform any duty or assignment that

may be normally expected or required. To insure that members meet the physical and mental requirements for job performance, the Director has the authority to require that members submit to physical and mental examinations.

06.10.00 GENERAL ORDER #3

To keep myself clean and presentable, and in good physical and moral health.¹

These provisions to remain in good physical condition are vague at best, and seldom is any personnel action taken against troopers who are in obvious poor physical condition. The Texas Department of Public Safety needs to set specific standards of physical fitness within department policy. It should also explore ways to implement mandatory fitness requirements for its commissioned officers.

Applicants for employment with the Texas Department of Public Safety are required to pass rigid physical testing requirements as a condition of employment. When they graduate from Recruit School, probationary troopers are in excellent physical condition, however, after graduation a

trooper's level of fitness usually begins to deteriorate proportionally to the length of his employment. Health and fitness studies show that physically conditioned officers perform their duties on a higher level than lesser conditioned officers.² For the Department to offer effective law enforcement it must initially select and hire physically fit employees, but it must also develop fitness standards and a program that requires employees to continue to meet those standards throughout their career.

The routine duties of a trooper are not generally conducive to good health. The sedentary nature of the work, odd shifts, and poor eating habits contribute to the poor physical condition of many troopers. Stress associated with police work compounds the problem and studies have indicated a direct relationship between perceived stress and physical maladies.³

Troopers in poor physical condition may become a liability for the Department. The condition of a trooper may create an inability to function effectively in the law enforcement environment. The officer may be unable to handle a physical confrontation, a foot pursuit, or an emergency

rescue. Economic impact on the agency is another issue. Troopers in poor physical condition will use more sick leave and suffer more on-the-job injuries. As a result of poor employee health, higher insurance rates and death benefits are also a cost factor for the Department.

Poor health and fitness also affects agencies due to the loss of manpower and increased costs. Potential liability may result from the negligent retention of unfit troopers or negligent assignment of them. Ultimately the burden of troopers in poor physical condition falls on the citizens directly through reduced quality of police service and indirectly through higher taxes to cover the costs of sick leave, health insurance, and death benefits of troopers.

NEED FOR PHYSICAL FITNESS

Over the last twenty years private business and industry has shown an increasing concern for the health and fitness of employees. Approximately 50,000 business firms in the U.S. have programs promoting exercise to keep their employees physically fit.⁴ These fitness programs are justified by establishing a relationship between the "wellness" of the employee and individual productivity.

The same health problems that affect employees in private business and industry also affect employees in the public sector, including those in law enforcement. Traditionally the law enforcement officer, especially in the south, has been stereotyped as a large, over weight, cigar smoking individual whose stomach protrudes over his belt. At least 56% of the nation's police officers are over weight, and 20% of those are more than twenty pounds over weight.⁵ A number of health problems commonly associated with police officers are either caused or aggravated by obesity. Among these are high blood pressure, arteriosclerosis, heart attacks, diabetes, and lower back problems. Physical fitness and wellness programs in business and industry have

helped decrease employee health problems such as those listed above and could do the same for troopers. Troopers can expect to experience an enhanced quality of life as a result of improving their health and physical condition. As a result of this enrichment of life, many troopers will find that they feel better, look better, work better, and generally live better than ever before.

Benefits for organizations involved in encouraging their employees to take part in active physical fitness programs appear to have substantial merit. Some benefits attributed to better employee physical fitness have been decreased health care claims, fewer job related injuries, less absenteeism, increased productivity, and higher job satisfaction.

In a study conducted on all commissioned officers of the California Highway Patrol, a significant reduction in sick leave days 3.5% to 0.06% was recorded. It also showed that prior to the implementation of a fitness program, job related injuries were increasing at the rate of 5.9% annually. These job related injuries showed a significant decrease after the fitness program was implemented.⁶ In another study conducted by the Institute for Aerobics Research

it was found that one company experienced an almost 50% drop in average absenteeism among program participants, while another company reported a net reduction of 4.7 hours of sick leave per employee per year.⁷ Advocates for the health and fitness movement strongly contend that improved fitness leads to improved job performance. Of major importance to law enforcement officers is the growing clinical research supporting the motion that physical fitness can lead to significant reductions in job related stress.⁸

Narrowing the scope of the question, "Why do we need physical fitness?", to the confines of the Texas Department of Public Safety, it appears that troopers need the benefits that have been achieved by business and industry.

During in-service training, conducted by the academy training staff of the DPS in 1984, 2,140 commissioned employees were given fitness assessment tests which measured four health standards. These were:

1. Body Composition. This refers to the classification of total body weight into two main components; fat weight and lean weight. This was measured by utilizing skinfold calipers to measure skinfold fat.

2. Resting Heart Rate. The purpose of this test was to indicate cardiovascular condition, which represents the capacity of the heart and blood vessels to respond to a task and recover quickly. In other words, resting heart rate is telling you how hard your heart is working while at rest.
3. Blood Pressure. High blood pressure is considered an important indicator of heart disease.
4. Flexibility. The sit and reach test was used to measure this. Flexibility is included because of the widespread lower back problems associated with police work.

Controls used for this research were comparisons to the normal sedentary population of similar ages, which were developed by the Institute of Aerobic Research in Dallas, Texas. With the exception of flexibility, significant problems were found to exist in the physical fitness of a high percentage of Department officers. The measure results were:

1. Body composition	-	49% Below average
2. Resting Heart Rate	-	42% Below average
3. Resting Blood Pressure	-	38% Below average
4. Flexibility	-	18% Below average

(Texas Department of Public Safety, 1984)⁹

PHYSICAL FITNESS DEFINED

Department policy states commissioned officers must maintain their physical condition to a degree that allows them to perform any duty or assignment normally expected or required. However, this is a difficult policy to enforce without a formal definition of good physical health. For our purposes this definition should be discussed in two parts:

- A. The components of health.
- B. The components of physical fitness.

Health relates to the physiological condition of the body. A person who is seldom ill is generally thought to have good health. In reality, the state of health of an individual can only be determined by regular comprehensive physical examinations performed by a physician. Common measurements of health include respiratory rate, heart rate, blood pressure, and blood cholesterol levels. With the exception of determining blood cholesterol levels, the other tests could be administered regularly at prescribed intervals by trained Department personnel. Training and equipment to administer these tests would be minimal.

Testing for respiration rate, the number of times air is inhaled into the lungs in one minute, is the most simple of the tests. For this test, individuals should be seated and allowed to rest for ten minutes prior to the test. Simply count the number of times air is inhaled into the lungs in one minute. The average among normal healthy adults is fifteen or twenty per minute.¹⁰

Directly related to respiration rate is the resting heart rate, also called the pulse. To determine pulse one must locate pulse in an artery and count the number of pulsations in one minute. A normal heart rate for men may range from sixty to ninety-five beats per minute with an average of 78. Women experience a slightly reduced resting heart rate when they share the approximate same age and physical characteristics as men.¹¹

Blood pressure consists of the pressure exerted on the blood vessel walls as the blood is pumped through the circulatory system by the heart. Blood pressure is measured by two readings which are called the systolic pressure and diastolic pressure. Systolic pressure is developed by the contraction of the heart. Diastolic pressure is measured at

the time of relaxation of the heart. The average blood pressure is 120 over 80, with acceptable ranges of 90 to 145 systolic over 55 to 90 diastolic.¹² It is common for systolic readings to increase with age. Testing for blood pressure is normally done using a sphygmomanometer and a stethoscope. Minimal training would be required to learn how to check blood pressure rates.

Hypertension, or high blood pressure, is common in many adults. It may be caused by heredity, diet, lifestyle, and stress. Poor diet, sedentary lifestyle, and stress are all factors which may be experienced by troopers. Failure to diagnose or treat hypertension could result in congestive heart failure and increase the chance of stroke. Modern methods of treatment for hypertension are very effective. The problem lies in the fact that relatively few people are aware that they have hypertension before it reaches an advanced state. When detected early by examination, high blood pressure can be effectively treated by diet, exercise, and medication. Testing for high blood pressure could be implemented without undue difficulty, and commissioned employees who are determined to have borderline or unacceptably high blood pressure could seek further diagnosis and treatment from a physician.

Testing for blood cholesterol levels should be done during regular physical examinations by a physician. High blood cholesterol levels have been proven to contribute to heart disease and arteriosclerosis. Cholesterol levels are influenced directly by diet and physical activity. High cholesterol levels often remain undetected until an individual suffers major cardiac problems. If diagnosed early, high cholesterol levels may be treated simply by diet and exercise. Increased physical activity and decreased body fat can significantly decrease cholesterol which can reduce the risk of coronary artery disease.¹³

Although the components that comprise good health are many, those listed in the preceding paragraphs are good indicators of an individual's well being. Some of the tests are simple and can be performed routinely. Other tests are more complex and should be performed on a regular basis by a physician. The need for a comprehensive physical examination, performed by a physician, is paramount before testing for physical fitness.

Physical fitness differs from health in that physical fitness is a set of attributes people have or achieve which

relate to the ability to perform physical activity.¹⁴ There are five components of physical fitness. They are cardiorespiratory endurance, muscular endurance, muscular strength, body composition, and flexibility.

Cardiorespiratory endurance relates to the ability of the circulatory and respiratory systems to supply fuel during sustained physical activity and to eliminate fatigue products after supplying fuel. The efficiency of the body to process oxygen and expel carbon dioxide promotes cardiorespiratory endurance. Endurance is increased by aerobic activities such as brisk walking, jogging, bicycling, running, and swimming.

Muscular endurance relates to the ability of muscle groups to exert external force for many repetitions or successive exertions. Muscular strength relates to the amount of external force a muscle is able to exert.

Body composition relates to the relative amounts of muscle, fat, and bone that comprise the body. The amount of fat, measured as percent of total body weight, is related to heart disease, diabetes, hernias, and other health problems.

It is therefore recommended that body fat be maintained at reasonable levels. Recommended percent of body fat levels as compiled by the Institute of Aerobics Research are listed in the table below:

TABLE I
RECOMMENDED BODY FAT PERCENTAGES

Recommended % of body fat			Maximum allowable % of body fat	
Age	Male	Female	Male	Female
20-29	15.9	22.1	18	24
30-39	19.0	23.1	21	25
40-49	21.0	26.4	23	28
50-55	22.7	28.0	25	30

(Ohio State Highway Patrol, 1991)¹⁵

Using the above chart in lieu of, or in conjunction with, the Department's current height/weight proportion formula would result in acceptable standards of body composition. This is easily measured using skinfold calipers which are relatively inexpensive.

Flexibility relates to the range of motion available at body joints. Flexibility should be included in the physical fitness assessment because of widespread problems with lower back pain and joint soreness. No general flexibility test measures the flexibility of all joints, however, 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 are tested in the sit and reach position. Accepted norms compiled by the Institute for Aerobics Research are as follows:

TABLE II
FLEXIBILITY NORMS

Recommended levels (in inches)			Minimum acceptable levels (in inches)	
Age	Male	Female	Male	Female
20-29	17.5	20.0	15.5	18.3
30-39	16.5	19.0	14.5	17.3
40-49	15.3	18.0	13.3	16.5
50-55	14.5	17.9	12.0	15.5

(Ohio State Highway Patrol, 1991)¹⁶

The assessment of the five components of physical fitness together with physical examinations performed by physicians could, when performed at regular intervals, ensure lasting benefits both to employees and to the Department.

LEGAL ISSUES

The adoption of mandatory physical fitness requirements for law enforcement officers has been controversial to some extent due to the legal ramifications involved. A balance between the right of the Department to require its commissioned employees to be medically and physically fit and the right of the officer's personal privacy relating to his medical and physical condition is an issue which will probably be finally decided through courtroom litigation.

Research into cases decided by the Federal courts has revealed few direct challenges to police department mandatory physical fitness programs. Several departments around the country have implemented these mandatory physical fitness programs with disciplinary procedures for those who fail to meet prescribed standards.

In the past, court decisions relating to physical fitness standards for police officers usually dealt with initial entry requirements.¹⁷ Courts have held that under

Title VII of the Civil Rights Act of 1964, employment practices which are facially neutral may nevertheless be unlawful if they operate to exclude or discriminate against members of certain identifiable groups as stated in the majority opinion of the Supreme Court case Griggs v. Duke Power, 91 S. CT. 849 (1971).

Good intent or absence of discriminatory intent does not redeem employment procedures or testing mechanisms that operate as "built-in headwinds" for minority groups and are unrelated to measuring job capability.¹⁸

The disparate effect articulated by the Supreme Court in Griggs has been widely used by other courts in determining the validity of height, weight, and physical agility requirements for selection of police officers. Challenges to mandatory physical fitness requirements will probably be based on this holding by the courts.

Challenges to mandatory physical fitness requirements are defensible. The courts have suggested that the validity

of a physical characteristic or ability requirement is likely to be upheld where a rational basis analysis is used and rejected where a strict scrutiny test is applied.¹⁹ The key to defending challenges against mandatory levels of physical fitness is to validate the program as a business necessity or a bona fide occupational qualification. In Robinson v. Lorillard Corp., 444 F. 2d, 791 (1971), the court stated:

The test is whether there exists an overriding legitimate business purpose such that the practice is necessary to the safe and efficient operation of the business. The business purpose must be sufficiently compelling to override any racial or other prohibited impact.²⁰

Employers who have been unable to present convincing, correct, and professionally acceptable data to support assertions that physical characteristic and ability standards are justified by necessity have been unsuccessful.

The use of the bona fide occupational qualification (BFOQ) to validate hiring practices has been narrowly interpreted by the courts. The BFOQ defense, unlike that of a

business necessity, is appropriate where an employment practice is facially discriminatory yet nevertheless thought to be justified. An example of the courts upholding a BFOQ was E.E.O.C. v. New Jersey, 631, F. Supp., (1986), 1506. In this case the court held that mandatory retirement at age 55 was acceptable due to research that heart disease was present in 95% of officers over 55.²¹

The primary theme to any defense of either initial employment or in-service requirements of mandatory fitness levels must center around the tests being job-related. In a Texas case decided in 1988, the court held that physical agility and physical assessment testing conducted by the Wichita Falls Police Department was valid. Of importance was the fact that women were compared to women and men to men in the testing process. In addition, the court stated that existing tests were shown to be an operational necessity by the Department and therefore valid. The court concluded that even though no formal validation study had been written for the physical agility or physical assessment tests that such was not necessary when, as in this case, the evidence is abundant that successful completion of these tests is necessary to be an effective police officer.²²

Several cases have upheld disciplinary action against public safety employees for being overweight and not losing the extra fat in a reasonable period. The Alabama Court of Appeals upheld the termination of a 225 pound fireman for being consistently overweight in Smith v. Fulmar, 523 So. 2d 1085 (Ala. Civ. app, 1988),²³ and in another, a Federal Judge in Los Angeles upheld Los Angeles Fire Department weight standards challenged by paramedics.²⁴

A 1988 case may cause departments to reevaluate their thinking regarding the development of mandatory physical fitness requirements. In Parker v. District of Columbia, 850 F. 2d, 708 (1988), the U. S. Court of Appeals upheld a \$400,000 judgement. Although other problems existed in this case, an interesting issue was raised regarding the lack of physical fitness required by the department. The officer was attempting to arrest the plaintiff (Parker). During the struggle, the officer was unable to subdue the subject and subsequently shot and permanently disabled him. The plaintiff alleged in his suit that had the department required a higher level of physical fitness of the officer, he would have been able to affect the arrest without using deadly force.

Given Officer Hayes' physical condition, it is not hard to fathom that his most effective method for subduing the objects of his pursuits would be the use of a firearm as opposed to the application of physical force. Officer Hayes was not in adequate physical shape. This condition posed a foreseeable risk of harm to others.²⁵

Implications from this decision may affect how police departments train and cause the development of mandatory physical fitness requirements.

A question that remains to be answered will be what affect the Americans with Disabilities Act will have on the law enforcement community. The act is quite broad in eliminating artificial barriers to the employment of handicapped people. Because of it's broad sweep, pre-employment physical agility testing may violate the provisions of the act.²⁶ But an agency that develops a job-related physical abilities test based on appropriate research which shows that certain assessment tests accurately reflect the types of job duties an officer must accomplish should have no problems with litigation.²⁷

IMPLEMENTING A FITNESS PROGRAM WITHIN THE DEPARTMENT

Implementation of mandatory physical fitness requirements for commissioned employees of the Department will require program development, implementation schedules and administrative procedures to insure program compliance. Program development should follow those guidelines enumerated earlier. Foremost for all troopers is a comprehensive medical examination by a physician. Those employees not certified by a physician to participate in the physical assessment tests should be given counselling to insure they seek and follow medical advice.

The issue for implementation is the "wellness" or health of the troopers of the Department. The emphasis should be on whether or not the employee meets the minimum standards of cardiorespiratory endurance, body composition, flexibility, and muscular strength and endurance. The Department should not be concerned with how the employee is able to meet these standards (i.e. jogging, swimming, walking, tennis), just that they are able to meet them. These standards, as discussed earlier, are satisfactory indicators of physical fitness. The correlation, then, is that

troopers who meet the minimum standards in these categories are at least minimally fit physically. This would be the easiest approach to fitness and most equitable.

Employees certified for physical assessment testing shall be tested and the results evaluated. Those employees who fail to meet recommended guidelines should be informed of their deficiencies and a personal program developed for the individual in order to bring him into compliance with standards. Repeated noncompliance by the employee should be documented with any improvements noted.

For the Department to fully validate the program, an implementation period of approximately 4 years is suggested. This time frame would allow for significant collection of data to validate fitness standards for commissioned employees of the Department without penalty to those officers who are in poor physical condition. Troopers who are shown to be in poor physical condition would have this period of time to come up to the appropriate minimum standards. Once the program is adopted formally, those employees who fail to meet standards should be allowed time to comply before any personnel action is initiated.²⁸

An important factor to be considered in its implementation is for the leadership of the Department to maintain an active role and commitment to the program. "Simply promulgating mandatory standards, or developing policy and procedures, or even providing manuals and materials does not accomplish that goal".²⁹ Supervisors would be required to become fitness leaders so they could assess the troopers and provide education for them in the area of physical fitness.

It is recommended that mandatory physical examinations by a physician be administered to all troopers every four years up; to the age of forty and every two years thereafter. Physical fitness assessments should be conducted each year in conjunction with area training needs.

CONCLUSION

Arguments for and against mandatory physical fitness requirements will center initially around the cost of implementation. Cost factors such as medical examinations, equipment, loss of road time, and the decision on whether to allow duty time for fitness training will be high. However, recent studies have indicated that direct medical and health care cost savings are being realized in those occupations where exercise programs are in effect.³⁰ In addition, the potential liability arising from incidents involving troopers who are physically unfit to do the job required may be considerable. Ultimately, the cost of doing nothing may be more than the Department can afford.

In order for a department required fitness program to be successful, it must be initiated with a positive attitude and backing from all levels of supervision. Program development must depend on providing sufficient information to the rank and file employees to allow them to understand the purpose for the program's implementation. They must understand that the purpose of the program is their own personal safety, health, and welfare. The benefits to be gained outweigh the problems which would be encountered.

ENDNOTES

1. Texas Department of Public Safety. Department of Public Safety, General Manual. Austin, Texas.
2. Sweeney, Lawrence. "Strength Training: For Your Job, For Yourself." Law and Order 40, No. 3 (1992): 32-37.
3. Norvell, Nancy, Dales Belles, and Holly Hills. "Perceived Stress Levels and Physical Symptoms in Supervisory Law Enforcement Personnel." Journal of Police Science and Administration 16, No. 2 (1988): 75-79.
4. Driver, Russell, and Roland Ratliff. "Employees Perceptions of Benefits Accrued from Physical Fitness." Personnel Administrator 27, No. 8 (1982): 21-26.
5. Violanti, John. "Obesity: A Police Health Problem." Law and Order 33, No. 4 (1985): 58-61.
6. Suparko, Robert, and Edward Bernauer. "Effects of a Mandatory Health Screening and Physical Maintenance Program for Law Enforcement Officers." The Physician and Sports Medicine 16, No. 9 (1988): 99-109.
7. Knadler, Gary and Todd Rogers. "Physical Fitness Programs in the Work Place." Monthly Labor Review, November, 1987: 27-28.
8. Hoffman, John and Charles Hobson. "Physical Fitness and Employee Effectiveness." Personnel Administrator 29, No. 4 (1984): 101-113.
9. Rodriquez, Albert. Memo to Colonel Adams. 4-June-84. Texas Department of Public Safety, Austin, Texas.
10. Cantu, Robert. The Exercising Adult. 2nd Edition. New York: McMillan, 1987.
11. Guild, Warren, Robert Fuiz, and Samuel Bojar. The Science of Health. New Jersey: Prentice Hall, 1969.
12. Ibid.
13. Cantu, 24.

14. Caspersen, Carl, Kenneth Powell, and Gregory Christensen. "Physical Activity, Exercise, and Physical Fitness: Definitions and Distinctions for Health Related Research." Public Health Reports 100, No. 2 (1985): 126-131.
15. Ohio State Highway Patrol. Health and Physical Fitness Program. Columbus, 1991.
16. Ibid.
17. Serra, Roger. "Police Officers Physical Fitness Battery." The Police Chief 51, No. 1 (1984): 45.
18. Griggs v. Duke Power Co., 91 S. Ct. 849 (1971).
19. Dothard v. Rawlinson, 433 U.S. 321 (1977).
20. Robinson v. Lorillard Corp., 444 F. 2d 791 (1971).
21. E.E.O.C. v. New Jersey, 631 F. Supp. 1506 (1986).
22. U.S. v. Wichita Falls, 704 F. Supp. 709 (N.D. Tex. 1988).
23. Smith v. Fulmar, 523 So. 2d 1085 (Ala. Civ. App. 1988).
24. United Paramedics v. City of Los Angeles, No. 89-1182R (C.D. Cal. 1989).
25. Parker v. District of Columbia, 850 F. Ed 708 (D. C. Cir 1988).
26. Litchford, Jody. "The Americans with Disabilities Act." The Police Chief 58, No. 1 (1991): 11.
27. Peak, Ken. "Physical Abilities Testing for Police Officers: A Flexible Job Related Approach." The Police Chief 59, No. 1 (1992): 51-56.
28. Collingwood, Thomas. "Implementing Programs and Standards for Law Enforcement Physical Fitness." The Police Chief 55, No. 4 (1988): 20-24.
29. Collingwood, Thomas. "Physical Fitness Leadership in Law Enforcement." The Police Chief 55, No. 4 (1988): 28-37.
30. Knadler, Gary and Todd Rogers, 28.

BIBLIOGRAPHY

Books and Periodicals

Campbell, William, Stephen Ballou, and Carole Slade. Form and Style. 8th ed. Boston: Houghton, 1990.

Cantu, Robert. The Exercising Adult. 2nd ed. New York: Mcmillan, 1987.

Collingwood, Thomas. "Implementing Programs and Standards for Law Enforcement Physical Fitness." The Police Chief 55, no. 4 (1988: 20-24.

Collingwood, Thomas. "Physical Fitness Leadership in Law Enforcement." The Police Chief 55, no. 4 (1988): 28-37.

Driver, Russell, and Roland Ratliff. "Employees Perceptions of Benefits Accrued from Physical Fitness." Personnel Administrator 27, no. 8 (1982): 21-26.

Grimes, James and Richard R. Shaw. "Fitness and Health Evaluations for Law Enforcement Officers." The Journal, Volume 20, No. 4, Fall 1991, 41-45.

Guild, Warren, Robert Fuiz, and Samuel Bojar. The Science of Health. New Jersey: Prentice Hall, 1969.

Hoffman, John, and Charles Hobson. "Physical Fitness and Employee Effectiveness." Personnel Administrator 29, no. 4 (1984): 101-113.

- Hoffman, Art, Capt. "Add Muscle to Your Fitness Programs."
Law Enforcement Technology, August 1993, 24-27.
- Knadler, Gary, and Todd Rogers. "Physical Fitness Programs
in the Work Place." Monthly Labor Review, November
1987, 27-28.
- Levine, Mark, and Deirdre Martin. "Fitness Testing Put to
the Test." Law Enforcement Technology, November 1992,
38-47.
- Litchford, Jody. "The Americans with Disabilities Act."
The Police Chief 58, no 1 (1991): 11.
- Manual for Police Administrators, 1972.
- Norvell, Nancy, Dale Belles, and Holly Hills. "Perceived
Stress Levels and Physical Symptoms in Supervisory Law
Enforcement Personnel." Journal of Police Science and
Administration 16, no. 2 (1988): 75-79.
- Peak, Ken. "Physical Abilities Testing for Police Officers:
A Flexible Job Related Approach." The Police Chief 59,
no. 1 (1992): 51-56.
- Schmidt, Wayne. "Medical and physical Fitness Standards."
The Police Chief 58, no. 2 (1991): 11.
- Serra, Roger. "Police Officers Physical Fitness Battery."
The Police Chief 51, no. 1 (1984): 45.

Superko, Robert, and Edward Bernauer. "Effects of a Mandatory Health Screening and Physical Maintenance Program for Law Enforcement Officers." The Physician and Sports Medicine 16, no. 9 (1988): 99-109.

Sweeney, Lawrence. "Strength Training: For Your Job, For Yourself." Law and Order 40, no. 3 (1992): 32-37.

Violanti, John. "Obesity: A Police Health Problem." Law and Order 33, no. 4 (1985): 58-61.

Legal

Dothard v. Rawlinson, 433 U.S. 321 (1977).

E.E.O.C. v. New Jersey, 631 F. Supp. 1506 (1986).

Griggs v. Duke Power Co., 91 S. Ct. 849 (1971).

Parker v. District of Columbia, 850 F. Ed 708 (D.C. Cir 1988).

Robinson v. Lorillard Corp., 444 F. 2d 791 (1971).

Smith v. Fulmar, 523 So. 2d 1085 (Ala. Civ. App. 1988).

State FOP v. State of Ohio (446 N.G. 2nd 157 Ohio 1983).

Tydyman v. United Airlines (608 F. Supp. 759 D.C. Calif., 1984).

United Paramedics v. City of Los Angeles, No. 89-1182R (C. D. Cal. 1989).

U.S. v. Wichita Falls, 704 F. Supp. 709 (N.D. Tex. 1988).

Other

Caspersen, Carl, Kenneth Powell, and Gregory Christensen.

"Physical Activity, Exercise, and Physical Fitness: Definitions and Distinctions for Health Related Research." Public Health Reports 100, no 2 (1985): 126-131.

Ohio State Highway Patrol. Health and Physical Fitness Program. Columbus, 1991.

Rodriguez, Albert. Memorandum to Colonel Adams. 6 Apr 1984. Texas Department of Public Safety, Austin, TX.

Texas Department of Public Safety. Department of Public Safety General Manual. Austin, 1991.