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The Effects of Health Promotion on Heart Disease in a Law Enforcement Agency

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An Abstract Presented to the Faculty of the Graduate School of Lindenwood College in Partial Fulfillment of the Requirements for the Degree of Master of Science

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Abstract

This paper demonstrates the validity of health promotion programs in the work place in the areas of health risk factors and health status. It concentrated on the effect that health promotion programs have on heart disease.

The Surgeon General suggests that institutions (e.g., schools, medical settings, and workplaces should provide the time, physical facilities, and behavioral programs that lead to increased participation at low levels of physical activity and to more vigorous exercise activity.

Some indicators that would be useful in convincing corporate managements to commit resources to health promotional projects would be reduction in absenteeism, improvements in staff members moral, and increased productivity, as well as improvements in risk factors and health status.

A health screening test was given at a Police Department to determine which officers had risk factors that lead to heart disease. A series of physical and written examinations were given. The results indicated that most were in no danger, but some were prime candidates for heart disease.

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Chapter I

INTRODUCTION

The focus of this study is to show the benefits of health promotion programs on cardiovascular risk factors. Several major epidmiologic studies have found correlations between sedentary lifestyles and elevated risk of coronary heart disease. Also physical activity is positively associated with successful control of obesity, and disability. Only 20% of American adults are active enough to be cardivascularly fit and another 40% are moderately or episodically active, perhaps receiving some health benefit (Walsh & Egdahl, 1989).

The Idea of Health Promotion

The Surgeon General recommends that Institutions (e.g., schools, medical settings, and workplaces) should provide the time, physical facilities, and behavioral programs that lead to increased participation in physical activity and to more vigorous exercise (J.A.M.A. 1989).

The 90's are upon us and so comes the attitude of being health conscious. The whole idea of health promotion is not just a passing trend. It is a fact that everyone must face every time a person looks in the mirror in the morning to get ready to face a

new day. Regular physical activity and exercise are critical elements in adult health promotion. Increased levels of physical activity are associated with a reduction of coronary heart disease, hypertension, noninsulin dependant diabetes mellitus, colon cancer, depression and anxiety. In addition, increased physical activity increases bone mineral content, reduces the risk for osteoporatic fractures, helps maintain appropiate body weight, and increase longevity (J.A.M.A. 1989).

An important aspect of health promotion is education. Health promoters must educate people in what a health promotion program consists of, what it demands of them, and how they can benefit from it. In order to reach people, health promoters have taken their programs to the workplace. They have devised programs that are tailored for any type of business. The objective is to educate on the basis of those objectives.

The identification and control of hazards in the workplace remains an important aspect of occupational health practice. Success in the endeavour has been such that in affluent countries occupational disease is no longer the scourge which challenged the pioneers of industrial medicine.

Now, as the burden of occupational disease has receded, the scope of health promotion at work has been broadened to include non-occupational causes of disease, e.g., many companies have instituted programs to combat alcohol and drug abuse, and to modify cardiovascular risk factors such as hypertension, smoking, and diet. This development reflects a growing interest in healthy living in society at large, and especially in the better educated classes from which managers are drawn.

What Health Promotion Has to Offer

As a point of contract for health promotion, the workplace has much to offer. The target population is readily accessible and follow-up is easy. Moreover, there are unique opportunities to encourage and reinforce desired changes in personal behavior. The menu in the staff canteen can be planned to accommodate dietary recommendations; part or all of the premises may be designated a non-smoking area and facilities for exercise can be provided. Health promotion at the worksite doesn't just want to target on what physical activity takes place at the worksite. It attempts to show the people it's importance so they will incoporate it in their everyday lives, not just at work (Lancet, 1988).

If integrating health promotion into a larger corporate health policy mosaic is the first imperative, another integration (at a lower level of generality) follows not far behind. Recognizing how difficult it is for people to change long standing behaviors, if worksite health promotion is going to fulfill its promise, it will have to evolve multifaceted, long term strategies that can address underlying attitudes, values, and beliefs, social supports, and economic pressures, not just risk factors themselves. Many managers are actually aware of the secular changes reflected in the advertising of many kinds of products, in growing social movements like Mothers Against Drunk Driving, in the wider acceptance of policies (such as screening for drug metabolites and tough drunk driving laws) that would have seemed intolerably invasive and coercive a decade ago (Walsh, 1989).

We have seen what health promotion programs have to offer to the workers. How can a business benefit from starting a health promotion program? Some indicators that would be useful to convince corporate managment to commit resources to health promotional projects would be reductions in absenteeism, improvements in staff members' morale, and increased productivity, as well as improvements

in risk factors and health status (Rissle, 1989).

Risk Factors and Law Enforcement

Several of the most common health risk factors for health disease are, cigarette smoking, hypertension, and high blood cholesterol.

High blood cholesterol, like hypertension, is a major risk factor for heart disease and therefore represents a very sizeable target of opportunity. The indictment of cholesterol, however, is relatively newer than that of high blood pressure and a national educational drive has only recently been mounted against cholesterol. It is estimated that roughly a quarter of American adults should lower their blood cholesterol and that 85% of the nearly one million cardiovascular deaths annually in the United States result fron atherosclerosis, in which cholesterol is strongly implicated (Walsh, 1989).

Among law enforcement personnel, heart disease, high blood pressure, gastronintestinal disorder, kidney disease, lower back pain, and a variety of nervous disorders are seen more often than in the general population (LeProtti, 1989).

Since the early 1970's, crime, citizen safety, recruitment, funding, retention of personnel, and other police related matters have been closely

scrutinized by law enforcement agencies, the media, and government committees. Somewhat belatedly, it was recognized that among the numerous facits of law enforcement that none was more important than the health of the law enforcement officer. Besides the primary value of officer health, it was recognized that the dollar cost of disability, early retirement and medical care placed acute financial strains on local taxing districts (LeProtti, 1989).

Police work involves occupational extremes: (1) sedentary activities much of the time; and (2) unpredictable violent encounters on occasion. Coupled with this vacillating quiet versus violent stress pattern are frequent "rotating shifts," requiring irregular eating and sleeping patterns, often inadequate physical exercise, sometimes domestic upheaval, and other job related conditions that contribute to medical and social problems (LeProtti, 1989). For these reasons officers tend to develop questions or be prone to question the risk factors that lead to heart disease. This paper will not only show the effects of health promotion programs on heart disease, it will center around tests of subjects that are involved in a very stressful occupation. The occupation is law

enforcement and the subjects are the officers who enforce the law.

Chapter II

LITERATURE REVIEW

What is Health Promotion?

The idea of health promotion grows out of the contemporary view of health that is closely connected with major health problems of our time. Because most of the major health hazards we face can result from any number of factors and because so many of these factors can be controlled or compensated for, health promotion focuses on the actions necessary to reduce risk through changes in risk factor behavior or predisposing environmental conditions. Health promotion in it's broadest sense, can be defined as any effort to prevent illness, disease or premature death through behavioral and organizational change and to increase both the individual and the general level of health. When we speak of "health promotion," we are talking about the idea of helping people to move from their current state of health to a greater state of health, which can be accomplished by helping people to compensate for the presence of uncontrollable risk factors and to eliminate controllable ones. The focus of health promotion, unlike that of traditional medicine, is on the prevention of premature and avoidable disease (Sloan, Gruman & Allegrante, 1987).

At the most basic level, health promotion can make readily available, to people, information about links between their behavior and increased risk of disease. It is assumed that people will persist in behaving in ways that are threating to their health out of ignorance of the consequences of those behaviors. Certainly, public awareness is one of the first steps toward changing the overall cultural norm, which then can provide support for changes in individual and collective behavior. Examples of this kind of strategy in health promotion include public service announcements, mandatory cigarette packet warnings, alcohol and pregnancy warnings in bars, and publicity campaigns by nonprofit health organizations such as the American Cancer Society, the American Heart Association and the American Diabetes Foundation (Sloan, Gruman & Allegrante, 1987).

The second level of strategy in health promotion involves the presentation of information plus the provision of the opportunities that support, enable, and reinforce people to make the recommended changes. This kind of health promotion assumes that, although knowledge of health risks is the primary motivation of behavior change and a necessary factor, people frequently do not know how

to change old habits or locate new resources. Therefore, information and resources are made available in a time-limited way. At this level of intervention are events such as National High Blood Pressure Month, during which the American Heart Association sponsors a media blitz and offers numerous free blood pressure screening clinics. Another such event is the annual Great American Smokeout, sponsored by the American Cancer Society each November, which greatly heightens awareness of the dangers of smoking and provides individuals with an "event" through which they can stop smoking. These efforts not only provide information but also heighten motivation for behavior change and provide brief structured opportunities to make this change (Sloan, Gruman & Allegrante, 1987).

The third kind of strategy in health promotion is distinquished from the first two by its emphasis on encouraging and supporting sustained behavior change. At this level of health promotion, information is provided about health risks and their relation to behavior. Convenient opportunities are provided for helping people to make necessary changes. Incentives, financial and otherwise are often given to encourage long-term

behavior change. Interventions of this sort assume that although the threat of ill health and opportunities to change are important factors, they alone are not sufficient to elicit large-scale behavioral changes in a given population. Therefore, in addition to providing information and opportunities, the barriers to healthy behavior must be reduced by rewarding and supporting health producing behavior changes. Examples of this type of health promotion include insurance premium rate reduction for ex-or-nonsmokers and free smoking cessation clinics that evolve into continuing support groups (Sloan, Gruman & Allegrante, 1987).

At the final level of strategy in health promotion, the behavioral component of the risk reduction becomes mandated through policy, regulation, or law. In such situations, it is considered that certain behaviors are absolutely and directly linked to health risk and that the decision about whether to act in a risk reducing way is not the individual's prerogative. Rather, it is of public consequence and concern. Such interventions include seat-belt use, the prohibition of driving while intoxicated, laws against the possession and use of certain drugs, and the prohibition of smoking in workplaces,

restaurants, and government buildings (Sloan, Gruman & Allegrante, 1987).

Each of these different strategies for promoting health serves, a particular function in the overall health of our communities and our nation: when used in combination, they provide a comprehensive intervention that can encourage individuals and communities of individuals to engage in behavior conducive to the promotion of health and prevention of premature disease and disability (Sloan, Gruman & Allegrante, 1987).

Workplace Health Promotion

What is workplace health promotion, and where does it fit into this broader concept and definition of health promotion? Workplace health promotion is quite simply, the application of concepts, principles, and general strategies of health promotion to the workplace including its employees and often their families, as well as organizational, managerial, and environmental aspects of work (Sloan, Gruman & Allegrante, 1987).

Just as health promotion can be approached from two directions, so can workplace health promotion. There exist in most workplaces in the United States certain standards of safety issued by various governmental agencies and overseen by the

Occupational Safety and Health Administration. These standards are enforced to ensure that the workplace and the work itself do not cause disease, death, or disability. Thus, it should be the case that most workplaces provide adequate protection of workers against toxic substances, have established emergency procedures, ensure that machinery is safe to operate, and maintain a certain level of hygiene. The task of eliminating the sources of disease and accidents from the environment has long been the domain of occupational medicine and safety departments within an organization (Sloan, Gruman & Allegrante, 1987).

Why Health Promotion in the Workplace?

Why should health promotion efforts be offered in the workplace as opposed to delivering them through the traditional medical care system? A variety of reasons exist. First, the current system of medical care has not devoted itself enthusiastically to the prevention of disease other than through the development of prophylactic medicine. Instead, it has devoted itself to the treatment of already existing disease. Of the more than $350 billion spent each year in this country on health care, less than one percent is devoted to prevention. In addition, the structure of medicine

is such that little incentive and support exist for physicians to embrace prevention. Our insurance reimburses us and pays our physicians primarily for the treatment rather than for the prevention of illness. The incentive structure of the medical industry traps physicians firmly in the task of diagnosis and treatment. Physician training, as well, is directed largely to the detection and cure of pathology, not to determining how to help someone to break a lifelong habit such as leading a sedentary lifestyle, frequent consumption of red meat, or cigarette smoking. For most physicians, asking a person to become involved in prevention places them in conflict with the goals of their profession and their own personal interests, and it removes them from their realm of expertise and experience. Many physicians may indeed recognize, agree with, and even promote the obvious benefits of prevention, but there are many who may not, at least not wholeheartedly. Therefore, health promotion administered through traditional medical practice is not likely to have a great impact (Sloan, Gruman & Allegrante, 1987).

The reasons for conducting health promotion programs in the workplace derive from the nature of the workplace itself. More often than not, the

reducing health care costs, this stability is critical. It means that the workplace population is perfect for health promotion intervention, which generally have their greatest impact on cost management over the long term. The stability of the workforce means that an organization's initial investment in health promotion is likely to be repaid with "interest" because the employees still will be with the organization when the benefits of the health promotion programs are reaped (Sloan, Gruman & Allegrante, 1987).

Benefits of Health Promotion

It should be recognized that long term stability of the workforce is more characteristic of some industries with a relatively transient workforce may question whether an investment in the health of their employees will be repaid to them or to some other future employer.

However, workplace health promotion programs can produce other benefits as well, and their time course is widely varied. Some benefits-for example, improved morale and lower absenteeism rates occur almost immediately. Another associated short-term benefit may be improvement in employees' general sense of well-being, which may quickly translate into reduced usage of the costly health

care system. This has been demonstrated emphatically in a study of approximately 85,000 federal employees and residents of Hawaii eligible for Medicaid. Access for this population to reduce transient anxieties produced a 37 percent decrease in total medical bills, a savings of nearly 16 million. Other benefits such as reductions in risk behavior begin to appear as more people adopt healthier behavior patterns for longer periods of time. Long-term health benefits such as a reduction in the number of heart attacks in top executives may take from months to years to materialize (Sloan, Gruman & Allegrante, 1987).

One recommendation of the World Health Organization report is that more research should be done to evaluate methods of intervention. Health promotion is widely percieved as reducing the long-term costs to employers, but direct evidence of economic benefit is limited. Warner and colleagues reviewed data published up to 1986 on ten areas of health promotion, and concluded that good information on the economics of intervention policies was available in only two areas, smoking cessation and the control of hypertension. In some areas data were totally lacking, eg., there had been no attempts to assess the cost-effectiveness

of the many and varied programs for the prevention of back injury (Lancet 1988).

The paucity of information is due in part to the difficulty of rigorous evaluation. Some benefits, such as enhancement of a company's public image and improvements in the morale of a workforce, are hard to quantify. Others, such as a reduction in sickness absence and decreased turn-over of labor are easier to define. If intervention is aimed at the prevention of chronic disease, effects on these variables may be apparent only after lengthy follow-up. Thus, many studies have restricted attention to short-term measures of outcome that cannot be interpreted directly in economic terms. There is no simple equation by which success in persuading employees to give up smoking can be translated into a financial gain. There may even be hidden costs if for example, greater life expectancy increases demands on the pension fund (Lancet 1988).

The ultimate economic goal for the employer is a growth in overall profits, but many factors contribute to profitability, and it is hard to disentangle their independent effects. If a retailer makes more money, is it because of the health promotion program or because sales

approach to this problem is to conduct a controlled experiment, but there are obstacles to this method. Managers must be persuaded that there is logic in withholding an intervention that is perceived as beneficial from one section of the workforce; unions may be even harder to convince (Lancet, 1988).

Despite these difficulties, progress can and should be made. Some philanthropic employers are motivated by interests other than financial gain, but others are more hard-nosed. If the proponents of health promotion cannot produce convincing evidence of profitability, there is danger that good programs will be thrown out with the bad when healthy scepticism overtakes initial blind enthusiasm (Lancet 1988).

Health Factors in the Workplace That Lead to Heart Disease

In order to combat heart disease one must first look at the major risk factors that cause heart disease. Every factor contributes to heart disease in its own way, so each factor should be considered as important as the disease itself.

Through worksite wellness programs, some managers see the opportunity to leverage these

secular changes toward healthier lifestyles. But they understand, too, that the promise of worksite health promotion will require the use of a broad range of strategies: indeed, its theoretical appeal is the opportunity to mobilize diverse change mechanisms, from policies and rules, to financlial incentives, to social and group norms and values. And they see that risk factors seem to cluster - in individuals and in social groupings - so that tackling one at a time is probably inefficient and possiblty even counterproductive. Again, a coherent and comprehensive approach is the answer some managers see (Walsh & Egdahl 1989).

Having granted the importance of this holistic philosophy toward health promotion, however, managers still face the problem of defining what should go into that intergrated package of programs. And here it remains true that published evaluations have tended to assess interventions addressing one risk factor at a time. So, as soon as attention turns to the task of priority setting, the picture of the whole tends to dissolve into discrete and mostly disconnected parts: individual risk factors isolated one from another (Walsh & Egdahl, 1989).

The five special risk factors interventions,

identified as having highest priority, were (1) hypertension detection and control, (2) smoking policies and programs, (3) promotion of physical fitness, (4) reduction of serum cholesterol, and (5) alcohol and drug abuse prevention (Walsh & Egdahl, 1989).

Hypertension Detection and Control

The case for managing hypertension in the workplace is relatively strong. Uncontrolled hypertension is widespread (affecting more than 60 million Americans and perhaps 15% to 30% of employees) and costly in damage to health and in excess days lost from work. As a health problem, elevated blood pressure is among the easiest and cheapest to identify and effective medication is available, although difficult for patients to continue taking indefinitely. From the patient's perspective, the cure (in which side effects are common) often seems worse than the disease (Walsh & Egdahl 1989).

Innovative detection and control programs at the worksite have made inroads into the general problem of noncompliance, and several excellent studies in the literature provide guidance on how to proceed. Published research, however, demonstrates the effectiveness of treating

hypertension under controlled experimental circumstances. Without the same level of investment and program intensity, it is probably vain to hope that comparable results can be achieved on a large scale. Meanwhile, screening programs without effective follow-up are difficult to justify, but are not rare. Also estimates of the economic returns of hypertension control programs in the workplace are "strongly suggestive" but not yet "definitive" (Walsh & Egdahl, 1989).

Smoking Programs and Policies

Just about everyone, even smokers, agree that the use of tobacco is damaging to one's health. Yet while the percentage of smokers in the U.S. has declined from 40 percent in 1965 to just under 33 percent in 1983, the total number of smokers has remained almost constant. And in some categories, such as women betweeen 20 and 34 years, the percent of smokers was increasing from 1980 to 1983 (Behrens, 1985).

So, there is still a very significant role for employers to play in helping smokers quit. As the Assistant Secretary for Health (U.S. Department of Health and Human Services) stated in the 1984 Surgeon General's Report on Smoking, "Smokers can realize a substantial health benefit from quitting

smoking, no matter how long they have smoked" (p. 2508). Approximately 10 to 15 years after quitting, a smokers' risk of dying is nearly the same as those who have never smoked. According to one major study, death from all causes was almost 30 percent lower among those who quit, compared to those who continued to smoke, after just six years of abstinence (Behrens, 1985).

But for those who continue smoking, the health facts are rather frightening. Each year, 340,000 persons die prematurely from smoking-related illnesses. The Surgeon General has stated that unless smoking habits change, one in every ten people living today could die prematurely of heart disease. In addition to smokings' contributions to heart disease, it is estimated that 30 percent of all cancers are caused by smoking. So, from the point of view of the health of one's employees, smoking is bad business (Behrens, 1985).

In an effort to galvanize a more aggressive corporate response to the health hazard represented by tobacco use, researchers have sometimes made exaggerated claims about the economic cost to employers of the smoking their employees do. The real argument for smoking cessation programs is the needless suffering and untimely death that

cigarette smoking causes on a very large scale. A few progressive companies have developed creative integrated programs. They combined rules and policies with positive economic incentives and educational approaches directed at group norms and values. There is every reason to believe that the technology available to combat smoking will continue to improve. Well-designed studies that compare specific and distinctly different smoking-reduction strategies in the industrial workplace are virtually nonexistent and are badly needed (Walsh & Egdahl, 1989).

Reduction of Serum Cholesterol

High blood cholesterol, like hypertension, is a major risk factor for heart disease and therefore represents a very sizeable target of opportunity. The indictment of cholesterol, however, is relatively newer than that of high blood pressure and a national educational drive has more recently been mounted. It is estimated that roughly a quarter of adult Americans should lower their blood cholesterol and that 85% of the nearly one million cardiovascular deaths annually in the United States result from atherosclerosis, in which cholesterol is strongly implicated. Recent research had established, furthermore, that it pays to reduce

one's cholesterol: the risk of heart attack drops by two percent for each one percent reduction in blood cholesterol. Substantial economic benefits have also been quantified for reductions of cholesterol, but not yet for programs seeking such reductions (Walsh & Egdahl, 1989).

Cholesterol reduction programs at the worksite are in their infancy but the federal government is targeting them as a prime vehicle in the national campaign to promote cholesterol control. The problem of elevated blood cholesterol is so widespread that mass screening is not yet being advocated, because the health care system is inadequately equipped to manage the demand screening would stimulate (Walsh & Egdahl 1989).

Once the only way to determine serum cholesterol levels was to take a relatively large blood specimen, drawn by a nurse or trained phlebotomist, and analyze it in a laboratory. Now a number of finger-stick blood tests are available that require only a few drops of blood and provide immediate feedback on cholesterol and high densitylipoprotein readings. The machines used to analyze the blood currently are fairly expensive, but they are expected to decrease in price and increase in reliability as the technology advances.

Again, hospitals and the American Heart Association may be willing to assist with an on-site screening and may in fact have access to the latest equipment. If not, it may be possible to arrange with a local clinic or hospital to provide such a service (Sloan, Gruman & Allegrante, 1987).

Alcohol and Drug Abuse Prevention

Alcoholism and alcohol abuse rank as the nation's fourth leading cause of mortality, accounting for some 130,000 excess deaths a year and perhaps as much as 15% of all health care costs. Alcohol and drug abuse were estimated to have cost the nation some $176.4 billion in 1983, the last year that a comprehensive study was done of economic costs (Walsh & Egdahl, 1989).

Traditional worksite interventions tended to focus on "tertiary prevention," i.e., the identification and treatment of problems so severe as to be evident in unsatisfactory job performance. Earlier identification or outright prevention of problems is more difficult to accomplish, although expansion to "broad brush" employee assistance programs (EAP'S) is believed to encourage more employees to come forward earlier for help with problems. Many of those with problems may have a background of substance abuse that is

unacknowledged because of the denial characteristic of problems with drinking and drugs. A skillful counselor, it is believed, can find chinks in the denial and help the alcohol or drug abuser face the reality that something has to change. Research on the effectiveness of EAPs has been encouraging (Walsh & Egdahl, 1989).

Within the past few years, preplacement drug screening has suddenly become widespread. In 1986, nearly half of the Fortune 500 companies had some kind of preplacment screening mechanism in place. Issues related to privacy, discrimination, due process, invalidity of test results, and the extent and implications of the precedent being set have been extensively discussed. The constitutionality of govenrnment and customs, testing of railroad workers was argued in November 1988 before the United States Supreme Court and was upheld under certain circumstances. Controversy remains over whether drug testing programs actually result in improved attendance, performance, or productivity; greater safety; or enhanced protection from potential legal liability and/or reduction in health care costs. Controlled research on these critical questions has yet to be reported in the published literature (Walsh & Egdahl, 1989).

Voluntary health risk appraisals could theoretically be used to identify existing or inchoate problems with substance abuse, but employees may be reluctant to reveal such potentially self-incriminating information. Employees' concerns will only intensify as the social climate toward substance abuse become increasingly intolerant and punitive, as it almost certainly will, with growing emphasis on ways in which substance abusers threaten "innocent bystanders." This thinking has fueled the anti-drunk driving movement and the rush to screening, and is turning now to intravenous drug abusers as carriers of AIDS into the heterosexual community (Walsh & Egdahl, 1989).

Even if policies to penalize drug abusers are implemented without serious repercussions or mishap, they are incompatible with other goals many companies see their wellness programs furthering. To the extent that wellness programming is "about" enhancing morale and job satisfaction, and cementing loyalty to the company, the police state climate surrounding a screening program may undermine the effect being sought. Again, the utility of any particular program element is difficult to assess without a clear sense of an

overarching mission and a hierarchy of goals (Walsh & Egdahl, 1989).

Risk Factors Police Departments

The health and fitness levels of law enforcement employees are a legitimate concern of law enforcement administrators and the American public. Law enforcement employees are expected to maintain high levels of physical fitness. However, many fitness related problems and illnesses are brought on by lifestyle factors, such as tobacco usage, improper nutrition, and the lack of exercise. Some administrators have responded to the concern for employee fitness by developing mandatory health and fitness standards, such as non-smoking regulations and obesity control guidelines; others attempt to ensure fitness for duty through the use of agility tests that measure a person's ability to perform a specific task (Schofield, 1989).

A first and essential step in promoting the health and fitness of law enforcement employees is a department "wellness" program that encourages good health and provides carious health-related benefits to employees on a voluntary basis. All law enforcement organizations should have a wellness program that provides employees with

educational information on lifestyle issues, such as drinking, smoking, diet, and proper exercise (Schofield, 1989).

Statement of Hypotheses

Up to this point, we have seen that coronary heart disease is a big problem in the United States, and we have learned what the risk factors are that lead to it.

A good health promotion program has a positive impact on heart disease. The program will educate the participants on what risk factors lead to heart disease, who is at risk, and what steps they should take to eliminate the risk factors.

Chapter III

METHODS

Healthscan was the name of the test given at the police department. It is a personalized system to help determine how health and well-being can be improved while controllable long-term health risks are reduced.

As part of the health promotion programs in the police demartments, a health screening test is given to all officers in the force. This test will determine if an officer obtains the risk factors that lead to heart disease and other harmful elements. The test is made mandatory for all to take. It is given at the police stations in a time span long enough for everyone to find time to participate.

Subjects

There were 35 participants on the examination. The ages ranged from 20 to 69. There were 33 males and two females who took the test. Out of the 35 participants, 33 were Caucasian, one was Black, and one was a Native American.

Instrument

The main instrument used to collect data in the screening is called Healthscan. It is a written examination that covers the following

areas: family history, personal history, diet and exercise, smoking, alcohol, stress, motor vehicle safety, screening tests, a section for women, areas of special interest, and a section to be completed by a health care professional. In the section that is done by a physician or health professional, clinical items are measured such as: height, weight, blood pressure, body fat, total cholesterol, HDL cholesterol, triglycerides, blood glucose, and Maximum Vo2. A complete copy of the Healthscan test can be found in Appendix A.

Procedure

The examination ran from May 1, 1989 through December 1, 1989. The test was held at a police station in its' locker room, and one classroom. The officers were informed that although the examination was mandatory, the results would not effect their status.

After the officers completed the written examination, they proceeded into the locker room two at a time. Tables were set up in the room where the officers went from station to station. Each station served a different purpose. At station one height, weight, and blood pressure were measured. Station two measured body fat by using a three site skin fold test. The three sites for

these measurements were the back of the arm, front of the thigh, and upper back region. The third station obtained a blood sample to be tested at a lab.

Data Analysis

The design of the Healthscan examination is one that combines multiple choice and short answer questions. The answers from the questions, along with the data collected from the physical examination are combined to produce the results of the screening.

Scoring is divided into two sections for the written test. The first section consists of how many of the group scored in the same manner. Scoring for the physical examination is broken up into poor, fair, average, good, and excellent. The number of participants that fall into these categories are recorded.

Methods used to analyze the data are as follows:

Average Health Age— Average health age is an age reflecting the group's level of risk factors. If Health Age is higher than Actual Age, the group's risk of dying within the next 10 years may be higher than it has to be.

Average Achievable Age- Average achievable age is the age at which the group would have no high risk behaviors and this would be good for the health of the organization.

Potential Years Gained- Potential years gained is the difference between Health Age a and Achievable Age. It is the average number of years potentially gained per employee if all high risk scores were brought under control.

Four Leading Causes of Death

The Group Score- The group score is the number of individuals (per 100,000) expected to die over the next 10 years due to the causes listed in the result section. This score reflects the current level of risk for the employees according to how they answer the questionaire.

Achieveable Score-The achieveable score would be the number of individuals (per 100,000) expected to die over the next 10 years if the group had no high risk individuals. The achieveable mortality rate for each category may be calculated using the same method described above.

Potential Years Per Employee Gained-

Potential years per employees gained is calculated by subtracting the lowest Achieveable Age from the current Health Age in each cause of death category. The ranking of this value shows where it may be able to make the biggest differences in the employees' mortality risks.

Projected Mortality Rate-The mortality and achieveable rates are based on actuarial tables published by the Centers for Disease Control and are adjusted for the age/race/sex distribution of the workforce. To calculate the exact number of employees at risk for the next ten years in each category, divide the total number of employees by 100,000 and then multiply that number by the Group Score. (Example: 1050 employees/100,000 = .0105 X 3,540 = 37 employees).

Clinical Measurement-

Body Mass Index (BMI)- BMI=Wt. (Kg) - Ht(M2)

HDL ratio=total cholesterol - HDL cholesterol

Chapter IV

RESULTS

The results were broken up into sections as they appeared in the examination. There is a complete summary report that contains all of the raw data of the examination in Appendix B.

Family History- Out of the 36 participants, 13 reported heart attack or bypass surgery in their family. One person reported a case of diabetes in their family.

Smoking- Eleven of the participants claim that they smoked cigarettes, pipes, or cigars at the time of the examination.

Personal History-In the personal history section, 29 participants reported to have had a complete medical evaluation within the last 3 years. There are 12 currently under the care of a physician.

Diet- Twenty-nine participants claimed to eat red meats at least once a day. There were 7 that ate at least four eggs a week. Twenty-one participants drank whole milk daily and thay all eat fried foods at least twice a week.

Exercise- The number of participants that did

not exercise at least once a week was 21. There were only seven participants that did stretching exercises and only 9 that participatedin weight-lifting.

Stress- Being competitive and easily angered described six of the participants very well and to reported becoming easily angered over small problems. Only 16 had a high sense of satisfaction with life and three reported having difficulty in getting along with other people.

Alcohol- There were 23 participants that currently drink alcoholic beverages and one that uses drugs to affect mood or to relax.

Average Clinical Values- The average clinical values of the 36 officers who participated in the examination are as follows:

Height in.	70
Weight lb.	200
Blood Pressure (Systolic)	128
Blood Pressure (Diastolic)	85
% Body Fat	26.8
Total Cholesterol	225

Health Promotion Interests-

The following information is a summary of how the officers answered the "Areas of Special Interest" section on the questionnaire. Also included is how their interests in the various health promotion programs blend with what would be recommended based on their actual risk levels in each category.

Table 1
Areas of Special Interest

Program Description	Interested and Recommended	Not Interested but Recommended	Interested	Total
Blood Pressure/and or Cholesterol	18	15	1	34
Nutritional Program	2	12	11	25
Weight Management Program	11	12	2	25
Comprehensive Medical Evaluation		15	7	22
Physical Condition Sessions		15	6	21
Cardiovascular Risk Factor Reduct	5	6	6	17
Comphrehensive Fitness Evaluation			11	11
Stop Smoking Program		3	7	10
Cancer Screening		3	6	9
Low Back Care			7	7
Fitness Facilities/Equipment			4	4
Family Doctor or Specialist			4	4
Sports Medicine			2	2
Substance Abuse Counseling		1		1

Chapter V

DISCUSSION

SUMMARY

This is a profile of the employees who were screened by Healthscan from May 1, 1989 through December 1, 1989. Below are the average health ages, achievable ages and the potential years per employee gained if risk factors for health problems are brought under control.

Table 2 Employee Demographics

	Males (%)	Females	Total
Number of Employees	33 (94%)	2 (6%)	35 (100%)
Average Actual Age	38	28	38
Average Health Age	35	23	34
Average Achieveable Age	30	21	30
Potential Years/Employee Gained	5	2	4

Table 3
Leading Causes of Death

Below are listed the ten leading causes of death for the employees population ranked according to the potential years per employee gained if controllable risk factors are reduced.

Ten Leading Causes of Death*	Your Group Score	Your Achievable Score	Potential Years/Emp Gained
Lung Cancer	942	893	.08
Heart Disease	936	399	.93
Prostate Cancer	789	374	.72
Alcoholism	620	62	.97
Vehicle Accident	494	229	.46
Diseases of Arteries	358	358	
Bronchitis/Emphysema	308	235	.13
Diabetes	304	39	.46
Cirrhosis	258	133	.22
Suicide	246	246	
All Other Causes	481	458	.04
Total	5,736	3,426	4

*per 100,000 over the next 10 years based on age, sex, & race.

Table 4
Projected Mortality

Based on the lifestyle-related risk factors among the officers, the projected mortality rate for the group over the next ten years and the achievable rate are listed below.

Projected 10-year Mortality Rate	2.007
Achievable 10-year Mortality Rate	1.199
Number of Postponed Deaths	.808

By implementing health promotion programs to reduce risks associated with the group's leading causes of death, the employees may attain the achievable rate and therefore postpone the number of deaths projected. This is important not only from the value of a human life, but from the standpoint of the cost of replacing and retraining valuable employees.

Through a physical examination and cardiac stress test, the purpose was to determine an individual's current state of health and to screen for signs of cardiovascular disease. It is also an attempt to educate the officers about their risk factors and ways to improve their health.

At the beginning of each list there is a description of the category. The following characteristics are listed as major coronary risk factors.

1. History of high blood pressure (above 145/95)
2. Elevated total cholesterol/high density lipoprotein cholesterol ratio above 5.0
3. Cigarette smoking
4. Family history of coronary or other atherosclerotic disease prior to age 50
5. Diabetes mellitus

In addition, since the 1987 report of the National Cholesterol Education Program a total cholesterol greater than 240 mg/dl is also considered a major risk factor.

The purpose of this whole project was to see if health promotion programs in the field of law enforcement had any positive effect on heart disease. It is stated by Walsh and Egdahl in the literature review that in order to combat heart disease, it is necessary to detect and control the risk factors that lead to heart disease.

In the examination given at the police station, risk factors for heart disease were the focus point. It is important to review what the major risk factors for heart disease are.

1. Hypertension
2. Smoking
3. Physical fitness
4. Cholesterol
5. Alcohol and Drug Abuse

All five factors of heart disease were detected in the group that took the examination.

It is well known that being a police officer is stressful. This particular group did not fall from the norm. Most of the officers realized the hypertension that existed in their lives.

Behrens states in the literature review that just about everyone even smokers, agree that the use of tobacco is damaging to ones health. Each

year 340,000 persons die prematurely from smoking related illnesses. Nearly half of the participants of the examination claimed that they smoked.

Exercise is such a key element to good health. It is frightening to see in the results of the examination that 21 out of the 36 participants did not exercise at least once a week. This lack of exercise constitutes a sedentary lifestyle which can lead to other health problems as well.

The average cholesterol level of the participants that were tested was 225. Even today it is hard to state what a normal cholesterol level should be. It is generally thought that any cholesterol level over the 200 mark would be cause for concern.

Walsh and Egdahl pointed out in the literature review that alcoholism and alcohol abuse ranked as the nations fourth leading cause of death. The results of the examination shows that the participants are not doing much to change the statistics. There were 23 participants that drank alcohol at the time of the examination.

The results of the examination clearly revealed that the participants do obtain the risk factors that lead to heart disease.

Status Rating

A status rating of A, B, or C is given to each officer according to how he/she scored on the Healthscan examination. The status rating is simply a label for the officers. It represents at what degree an officer should follow the Fitness Handout (see Appendix C) due to coronary risk factors.

Status A

The individuals in this category were classified as **apparently health** based on the fact that they reported no symptoms or personal history of heart diseases, and they had no major coronary risk factors. Apparently healthy individuals; under age 40 can usually begin exercise programs without the need for exercise testing as long as the exercise program begins and proceeds gradually and as long as the individual is alert to the development of unusual signs or symptoms.

Status B

The individuals in this category were classified as **individuals at higher risk** based on

the fact that these individuals had symptoms suggestive of possible cardiopulmonary or metabolic disease and/or at least one major coronary risk factor.

Individuals in **Status B** should:

1. Be aware of warning signs and symptoms of coronary artery disease and heart attack.
2. Make a serious attempt to reduce risk factors and seek personal medical attention and guidance.
3. Begin or continue a regular exercise program with professional guidance and in some cases professional supervision.

Status C

Individuals in this category had **known cardiac, pulmonary, or metabolic disease.** These individuals; should be under a physician's care for disease management, risk factor management, and guidance regarding vigorous physical work or exercise.

Intervention Program Recommendations

To improve the health status of the employees population and to realize some of the savings

projected previously, it was recommended to implement the following intervention programs in the order listed. The order takes into account the officers' risk factor scores associated with their leading causes of death.

Step	Intervention Program Implemented
First	Cancer Screening Programs
Second	*Stop Smoking Programs
Third	*Alcohol & Drug Abuse Program
Fourth	Defensive Driving Course
Fifth	*Cardiovascular Disease Risk Reduction Program
Sixth	Diabetes Awareness Program
Seventh	*Stress Management Classes

* Known factors of Heart Disease.

Limitations

The only two major limitations faced during this project was, of course, the time factor. Also, the acessability of the material for the topic that was chosen was not easily achieved.

Suggestions for Future Research

1. Use a larger sample
2. Use an instrument that tests only what is needed for the project.

APPENDIX A

HEALTHSCAN

PERSONAL RISK APPRAISAL

PLEASE PRINT CLEARLY

Name _____

Address _____

City _____ State _____ Zip Code _____

Social Security Number _____

Today's Date _____

Daytime Phone Number ( ) _____

Evening Phone Number ( ) _____

The "age," "sex," "height," "weight," and "race" questions must be answered in order to accurately appraise your current health risk.

Age _____ Sex _____ Height ____ ft ____ in
Weight _____ lbs
Race (circle one): (1) Caucasian (2) Black (3) Hispanic (4) Oriental (5) American Indian (6) Other

Family History

1. Have any of your blood relatives, such as grandparents, aunts, uncles, parents, brothers or sisters, had any of these conditions? (Circle all that apply)
   a. Breast Cancer
   b. Colon or Rectal Cancer
   c. Stomach Cancer
   d. Coronary Heart Disease
2. Within your immediate family, have your parents, brothers, or sisters had a heart attack, or heart bypass surgery:
   a. Yes, at age 59 or BEFORE
   b. Yes, at age 60 or AFTER
   c. None of the above or don't know

Personal History

3. How long has it been since your last complete medical examination?
   a. _____ years
   b. Never or don't know (99)
4. Do you currently have one of these types of physicians: general practice/family medicine; internal medicine; cardiologist?
   a. Yes b. No
5. Have you ever had a urine test which reported sugar in your urine?
   a. Yes b. No c. Not sure
6. Have you ever been told that you have diabetes?
   a. Yes, at age 40 or BEFORE
   b. Yes, at age 41 or AFTER
   c. No
7. Has a physician ever told you that your heart was enlarged?
   a. Yes b. No c. Not sure
8. Have you ever had a heart attack?
   a. Yes b. No
9. Have you ever had heart bypass surgery, angina, angioplasty, stroke, or blood vessel surgery?
   a. Yes b. No
10. What is your blood pressure?
    a. Systolic _____ over _____ Diastolic
    If you don't know your exact blood pressure, circle one:
    b. I know it is high
    c. I know it is borderline high
    d. I know it is about average
    e. I know it is low
    f. I don't know
11. Have you ever been diagnosed as having any of these conditions? (Circle all that apply)
    a. Coronary Heart Disease
    b. Stroke
    c. Lung Cancer
    d. Colon or Rectal Cancer
    e. Breast Cancer
    f. Bladder Cancer
    g. Pancreatic Cancer
    h. Stomach Cancer
    i. Cirrhosis of the Liver
    j. Diabetes
    k. Ulcerative Colitis
    l. Emphysema
    m. Pneumonia
    n. Prostatic Cancer (males only)

    For Women Only:
    o. Benign Breast Disease
    p. Cervical Cancer
    q. Uterine (endometrial) Cancer
    r. Ovarian Cancer
12. Have you had any of the following problems recently which you have NOT discussed with a physician? (Circle all that apply)
    a. Rectal bleeding
    b. Change in bowel or bladder habits
    c. Black tarry stools
    d. Change in size or color of wart or mole
    e. Chronic cough or hoarseness
    f. Unplanned weight loss of 10 or more pounds in the past 2 months
    g. Coughing or spitting up blood

h. Chest pain
i. Shortness of breath
j. Abnormal (irregular or rapid) pulse
k. A lump in the breast
l. Frequent indigestion, difficulty in swallowing

For Women Only:

m. Bleeding or discharge from nipples
n. Unusually heavy or lengthy menstrual period
o. Unexplained vaginal bleeding

Diet and Exercise

3. What is your serum cholesterol level?
   a. _____
   If you don't know your exact level, circle one:
   b. I know it is high
   c. I know it is about average
   d. I know it is low
   e. I don't know
4. Which of the following best describes your eating pattern?
   a. One serving of red meat and/or fried foods daily, more than seven eggs weekly, and daily consumption of butter, whole milk and cheese.
   b. Red meat four to seven times weekly, four to six eggs weekly, some margarine, low fat dairy products, cheese and/or fried foods.
   c. Poultry, fish, little or no red meat, three or less eggs weekly, some margarine, skim milk and skim milk products.
5. What is your overall level of activity? (Moderate exercise is four 60 minute walks per week, or regular swimming, or bicycling, etc.)
   a. Vigorous b. Moderate c. Little

Smoking

6. Do/did you smoke a pipe or cigar regularly?
   a. Yes, I do now
   b. I did, but have stopped
   c. No, I never have
7. Do/did you smoke cigarettes?
   a. Yes, I do now
   b. I did, but have stopped
   c. No, I never have (skip to question 21)
8. How old were you when you started smoking cigarettes?
   a. _____ years
19. What is/was the average number of cigarettes you smoke(d) each day?
   a. _____ cigarettes
20. If you no longer smoke, how many years ago did you quit?
   a. _____ years ago

Alcohol

21. How many alcoholic beverages do you drink in an average week? (Include each cocktail, glass of wine, can of beer, etc.)
   a. _____ drinks per week
   b. None

Stress

22. How well do the following traits describe you: COMPETITIVE, EASILY ANGERED, PRESSED FOR TIME, BOSSY?
   a. Very well b. Fairly well c. Not well

Motor Vehicle Safety

23. About how many thousands of miles per year do you drive or ride in a car?
   a. _____ thousand miles per year
24. In what size car do you usually drive or ride?
   a. Full size
   b. Compact
   c. Subcompact
25. Do you frequently ride a motorcycle?
   a. Yes, without a helmet
   b. Yes, with a helmet
   c. No
26. How often do you wear a seatbelt or shoulder harness when riding in or driving a car?
   a. Rarely or never
   b. Frequently
   c. Always or almost always
27. How many tickets have you received for moving violations in the past 2 years?
   a. _____ tickets
28. Do you ever drive at speeds exceeding 30 miles an hour after having more than 3 drinks or ride with a drinking driver?
   a. Sometimes
   b. Almost never
   c. Absolutely never

Screening Tests

29. How recently have you had each of the following screening tests?

	Within the past year	Within the past 2 years	Within the past 3 years	4 or more years ago	Never
a. Blood Pressure Check	1	2	3	4	5
b. Cholesterol	1	2	3	4	5
c. Blood Glucose	1	2	3	4	5
d. Electrocardiogram	1	2	3	4	5
e. Chest X-Ray	1	2	3	4	5
f. Hemoglobin Test	1	2	3	4	5
g. Digital Rectal Exam	1	2	3	4	5
h. Sigmoidoscopy	1	2	3	4	5
i. Occult Blood Test	1	2	3	4	5
For Women Only)					
j. Breast Physical Exam	1	2	3	4	5
k. Mammogram	1	2	3	4	5
l. Pap Test	1	2	3	4	5
m. Pelvic Exam	1	2	3	4	5

For Women Only

Men proceed to question #37)

30. How old were you when your periods started?
    a. _____ years old
31. If you have had children:
    How many children have you had?
    a. _____ children
    How old were you when your first child was born?
    b. _____ years old
32. Do you take birth control or estrogen pills for any reason?
    a. Yes b. No
33. Do you examine your breasts monthly to check for lumps?
    a. Yes b. No
34. Have your monthly periods stopped permanently?
    a. Yes b. No c. Not Sure
35. Have you had a hysterectomy?
    a. Yes b. No
36. If both of your ovaries have been removed, how old were you at the time?
    a. _____ years old

Areas of Special Interest

Check which of the following health areas are of interest to you or your spouse.

	Self	Spouse
37. Blood Pressure and/or Cholesterol Check	___	___
38. Comprehenserve Medical Check-up	___	___
39. Personal Fitness Assessment/ Custom Exercise Program	___	___
40. Reducing Risk of Heart Attack/Stroke	___	___
41. Better nutrition	___	___
42. Exercise/Aerobic program	___	___
43. Weight Management	___	___
44. Stress Management	___	___
45. Stop Smoking	___	___
46. Fitness Facilities/Equipment	___	___
47. Family Doctor or Specialist	___	___
48. Sports Medicine	___	___
49. Substance Abuse Counseling	___	___
50. Cancer Screening	___	___
51. Low Back Care	___	___

Questions 52 and 53 are OPTIONAL and are used as statistical data only:

52. Total household income:
    a. Less than $15,000
    b. $15,000-$24,999
    c. $25,000-$34,999
    d. $35,000-$44,999
    e. $45,000-$54,999
    f. More than $55,000
53. Highest level of education completed:
    a. High School
    b. Some College
    c. College
    d. Graduate School
    e. None of the above

To Be Completed By a Physician or Health Professional

(OPTIONAL)

54. Height _____ inches
55. Weight _____ pounds
56. Blood Pressure _____/_____mm Hg
57. Body Fat _____%
    Skin Folds, 3-Site _____ mm
    Skin Folds, 7-Site _____ mm
58. Total Cholesterol _____ mg/dl
59. HDL Cholesterol _____ mg/dl
60. Triglycerides _____ mg/dl
61. Blood Glucose _____ mg/dl
62. Max VO2 _____ ml/kg/min.

This [illegible] was developed by [illegible]

APPENDIX B

POLICE DEPARTMENT

HEALTH TEST SUMMARY REPORT

Dates: 01/01/88 through 04/15/88 . Sex:MAY Age: 1 through:99
Org : KPD1
Class: ALL
Ocupt: ALL

a.

Age	Male	%	Female	%	Total	%
01 - 19						
20 - 29	4	11%	1	3%	5	14%
30 - 39	18	50%			18	50%
40 - 49	11	31%			11	31%
50 - 59	1	3%			1	3%
60 - 69	1	3%			1	3%
70 - 99						
Totals	35	97%	1	3%	36	100%

b.

Race	Number	%
(1) Caucasian	35	97%
(2) Black		
(3) Hispanic		
(4) Oriental		
(5) American Indian	1	3%
(6) Other		

	Incidence	%
1. Family history of heart attack or bypass surgery.		
a. Yes, at age 59 or BEFORE	7	19%
b. Yes, at age 60 or AFTER	6	17%
c. None of the above or don't know	23	64%
2. Had any of the following conditions:		
a. Heart Attack		
b. Angina (diagnosed chest pain)		
c. Heart By-pass Surgery		
d. Angioplasty		
e. Stroke		
f. Blood Vessel Surgery		
g. Diabetes - Beginning between ages of: 1-40 41-99	1	3%
3. Years since last complete medical evaluation.		
0 - 1	18	50%
2 - 3	11	31%
4 - 5	1	3%
6 +	6	17%
Never or don't know		

	Incidence	%
4. Under care of physician.		
a. Yes	12	33%
b. No	24	67%
5. Smoke cigarettes.		
a. Yes, I do now	8	22%
b. Yes, but have stopped	13	36%
c. No, I never have	15	42%
6. Number of cigarettes / day.		
01 - 20 (1 pack)	8	22%
21 - 40 (2 packs)	7	19%
41 + (more than 2 packs)	6	17%
7. No longer smoke, years ago quit.		
0 - 2 years		
3 + years	13	36%
8. Smoke pipe or cigar.		
a. Yes	3	8%
b. No	33	92%
9. Smokeless tobacco (snuff or chewing tobacco).		
a. Yes	2	6%
b. No	34	94%
10. Blood pressure (in last year).		
a. Elevated or high	3	8%
b. Borderline		
c. Normal	23	64%
d. I don't know	10	28%
11. Blood pressure (self-reported value).		
a. High	1	3%
b. Borderline	13	36%
c. Normal	22	61%
12. Serum cholesterol level (in last year).		
a. Elevated or high	6	17%
b. About average	4	11%
c. Low	1	3%
d. I don't know	25	69%
13. Serum cholesterol (self-reported value).		
a. High	16	44%
b. About average	4	11%
c. Low	16	44%

	Incidence	%
14. Eat red meats.		
a. Two or more times a day	11	31%
b. Daily	18	50%
c. 3-6 times a week	7	19%
d. Twice a week or less		
15. Number of eggs per week.		
a. 7 or more	2	6%
b. 4-6	5	14%
c. 3 or less	29	81%
16. Frequency of eating WHOLE milk products.		
a. Two or more times a day	13	36%
b. Daily	8	22%
c. 3-6 times a week	15	42%
d. Twice a week or less		
17. Frequency of eating fried foods.		
a. Daily	12	33%
b. 3-6 times a week	11	31%
c. Twice a week or less	13	36%
18. Frequency of adding cream sauces to food.		
a. Two or more times a day	3	8%
b. Daily	14	39%
c. 3-6 times a week	19	53%
d. Twice a week or less		
19. Frequency of vigorous exercise.		
a. 3 or more times a week	7	19%
b. 1 to 2 times a week	8	22%
c. Less than once a week	21	58%
20. Participate in stretching exercises.		
a. Yes	7	19%
b. No	29	81%
21. Participate in strengthening/muscle toning exercises.		
a. Yes	9	25%
b. No	27	75%
22. COMPETITIVE, EASILY ANGERED, PRESSED FOR TIME, BOSSY Traits describe you...		
a. Very well	6	17%
b. Fairly well	13	36%
c. Not at all	17	47%

	Incidence	%
23. Energy level lower than it used to be.		
a. Yes	19	53%
b. No	17	47%
24. Worry about things more than other people.		
a. Yes	12	33%
b. No	24	67%
25. High sense of satisfaction with life.		
a. Yes	16	44%
b. No	20	56%
26. Easily become angry over small problems.		
a. Yes	10	28%
b. No	26	72%
27. Difficulty in getting along with people.		
a. Yes	3	8%
b. No	33	92%
28. Drive a motor vehicle under the influence of alcohol.		
a. Yes	5	14%
b. No	31	86%
29. Wear a seat belt while driving.		
a. Never	4	11%
b. 25% of the time	2	6%
c. 50% of the time	10	28%
d. 75% of the time	8	22%
e. Always	12	33%
30. Smoke alarms in home.		
a. Yes	33	92%
b. No	3	8%
31. Handgun in home or motor vehicle.		
a. Yes	36	100%
b. No		
32. Poisons around home clearly labelled/away from children.		
a. Yes	24	67%
b. No	12	33%
33. Currently drink alcoholic beverages.		
a. Yes	23	64%
Average number of drinks per week	8	
More than 14 drinks per week	4	11%
b. No	13	36%

	Incidence	%
34. Use drugs to affect mood or to relax.		
a. Almost every day	1	3%
b. Sometimes	35	97%
c. Rarely or never		
35. Problems not discussed with a physician.		
a. Change in bowel or bladder habits	2	6%
b. A sore that does not heal	1	3%
c. Unusual bleeding or discharge	4	11%
d. Thickening or lump in breast or elsewhere	1	3%
e. Indigestion or difficulty in swallowing		
f. An obvious change in a wart or mole		
g. A nagging cough or hoarseness		
36. Wear protective clothing or sunscreen when in sun.		
a. Yes	13	36%
b. No	23	64%
37. Frequency of rectal and colon exams.		
a. At least once per year	5	14%
b. Once every 3 years	3	8%
c. More than 3 years apart	5	14%
d. Never	23	64%
FOR MEN ONLY		
38. Frequency of prostate exams.		
a. At least once per year	5	14%
b. Once every 3 years	2	6%
c. More than 3 years apart	5	14%
d. Never	23	66%
FOR WOMEN ONLY		
39. Frequency of breast exams.		
a. Monthly	1	100%
b. Once every few months		
c. Rarely or never		
40. Frequency of Pap Tests.		
a. At least once per year	1	100%
b. Once every 3 years		
c. More than 3 years apart		
d. Never		

AREAS OF INTEREST:

YRS	Description	Self	%	Recommend	%	Spouse
E	Comprehensive Medical Evaluation	15	42%	15	42%	7
E	Comprehensive Fitness Evaluation	21	58%			7
R	Cardiovascular Risk Factor Reduc	23	64%	17	47%	9
L	Weight Management Program	18	50%	33	92%	11
R	Nutritional Program	16	44%	23	64%	11
E	Physical Condition Sessions	13	36%	21	58%	8
R	Stress Reduction Program	9	25%	20	56%	8
S	Stop Smoking Program	7	19%	11	31%	5
C	Blood Pressure and/or Cholestero	20	56%	30	83%	7
L	Fitness Facilities/Equipment	8	22%			4
D	Family Doctor or Specialist	4	11%			2
M	Sports Medicine	6	17%			3
A	Substance Abuse Counselling	1	3%	5	14%	
S	Cancer Screening	10	28%	32	89%	4
B	Low Back Care	13	36%			5

	Incidence	%
56. Total household income.		
a. Less than 15,000		
b. 15,000 - 24,999	2	6%
c. 25,000 - 34,999	4	11%
d. 35,000 - 44,999	2	6%
e. 45,000 - 54,999	9	25%
f. More than 55,000	5	14%
57. Highest level of education completed.		
a. High School		
b. Some College	13	36%
c. College	10	28%
d. Graduate School	10	28%
e. None of the above		

CLINICAL MEASUREMENT SUMMARY:

	Poor	Fair	Average	Good	Excellent	Too Low *
BMI.	9	4	14	7	2	
Body Fat	21	5	4		2	
Tot Chol	16		4	14	2	
HDL Chol						
HDL ratio						
Triglyc.					1	
Max VO2						

	High	Borderline	Normal
Blood Pressure			

	Normal	Borderline	Abnormal **
Blood Glucose			

* Women Only
** Abnormal range can be abnormally high or abnormally low.

Average Clinical Values	Incidence	Average
Height in.	36	70
Weight lb.	36	200
Blood Pressure (Systolic)	36	128
Blood Pressure (Diastolic)	36	85
% Body Fat	32	26.8
Sum 3 Site		.0
Sum 7 Site		.0
Total Cholesterol	36	225
HDL Cholesterol		
Triglycerides		.0
Blood Glucose		
Max VO2	1	64

APPENDIX C

U.S. DEPARTMENT OF JUSTICE

FITNESS HANDOUT

U.S. Department of Justice
Federal Bureau of Investigation

FITNESS HANDOUT

FBI ACADEMY
QUANTICO, VIRGINIA

TABLE OF CONTENTS

Published: December 1985

PERSONAL FITNESS LOG: STARTING DATE: _____

_____ GOALS: _____

_____ _____

_____ _____

MEDICAL DATA:

AGE: _____ BLOOD PRESSURE: _____ ALLERGIES TO MED. OR OTHER

WEIGHT: _____ BODY FAT %: _____ _____

HEIGHT: _____ CHOLESTEROL: _____ _____

_____

	1	2	3	4
CHEST	_____	_____	_____	_____
WAIST	_____	_____	_____	_____
ARMS	_____	_____	_____	_____

REMINDER:

"MEDICAL SCREENING SHOULD BE CONDUCTED TO INSURE YOUR SAFETY IN PURSUING STRENOUS PHYSICAL ACTIVITY."

RULES OF THUMB:

1. Follow a balanced program prescribed for your age and fitness level.
2. Use the proper athletic gear for the activity.
3. Balanced diet.
4. Set reasonable goals.
5. Check with your Fitness Advisor for further assistance.

ASSESSMENT TESTS:

The assessment tests should be approached in a very personal manner, due to the fact that they pertain to your pesonal level of fitness. You should avoid approaching these tests in a purely competitive fashion. However, you should push yourself hard enough to properly assess your systems present level of efficiency. The results should be viewed as one of many elements necessary to evaluate, in order to develop a fitness program which is safe and conductive with your goals and present level of fitness.

BEFORE THE FIRST FOOT STRIKES THE PAVEMENT

MEDICAL SCREENING

LEVEL #1

A. Medical History/Exam
B. Resting heart rate
C. Body composition
D. Blood Analysis

LEVEL #2

A. 3-minute pulse recovery test (step test)

6 to 10 weeks----------
starter program

LEVEL #3 (assessment tests)

A. Flexibility
B. Strength
C. 1.5 mile run

The results of the various levels should be used to personally evaluate your present level of fitness. Once this level is established, then the exercise prescription process can be pursued. Up to this point, it is suggested that light walking and a flexibility exercise routine be maintained.

After the assessment process has been completed, it is important to SLOW DOWN and formulate a safe exercise program before the sweat begins to pour. This can be achieved by contacting the fitness instructor assigned to your section and by becoming familiar with the conditioning process by reviewing the reference material available in our Learning Resource Center. By following this process, it will enhance your program's success potential, increase your level of enjoyment, and reduce your potential for injuries.

AEROBIC EXERCISE

What is aerobic exercise?

Aerobic exercise is an exercise which works your cardiovascular and cardiopulmonary systems beyond its normal working capacity for a prolonged period of time which forces your system to improve its capacity to handle oxygen.

The following are formulas which can assist you in the monitoring of your system and program.

1. TARGET HEARTRATE OR EXERCISE HEARTRATE (THR, EHR)

   This is the minimum rate at which your heart should be beating to get the optimum effect from your Aerobic exercise. (note: your target heartrate is a reference points; everybody's system is different; therefore, some people are able to reach their target heartrate, some find that their optimum level is below that. So don't be alarmed) Additionally, the better conditioned you become the easier it will be to reach your THR. Therefore, your THR will be changed increased from time to time to enhance your aerobic fitness level.

FORMULA

MEN

205 - half your age = MAXIMUM HEARTRATE

Take 60% to 80% of your max heartrate = TARGET
(% depends on FIT level)

WOMEN

220 - half your age = MAXIMUM HEARTRATE

Take 60% to 80% of your max heartrate = TARGET
(% depends on FIT level)

How to determine an aerobic exercise?

This can be achieved by applying the formula LSD which represents LONG SLOW DISTANCE. This represents being able to perform the exercise for a minimum of 20 minutes while maintaining your target heartrate.

A WORD OF CAUTION: IF YOU HAVE NOT BEEN ON A BALANCED FITNESS PROGRAM, DO NOT START AT THE 20 MINUTE LEVEL, WORK GRADUALLY UP TO THAT LEVEL. BY FOLLOWING A GRADUALLY PROGRESSIVE PROGRAM, IT WILL GREATLY ENHANCE THE POTENTIAL OF YOUR PROGRAM'S SUCCESS AND MINIMIZE YOUR CHANCES OF INJURY.

GENERAL EXERCISE PRESCRIPTION

Very poor, poor LOW FIT LEVEL	Fair, good AVERAGE FIT LEVEL	Excellent, superior HIGH FIT LEVEL
FREQUENCY 3 - 4 days per week	3 - 5	5
DURATION 15 - 20 min.	20 - 45 min.	30 - 60 min.
INTENSITY 60 - 70% Target Heart Rate	70 - 80%	80 - 90%
(use these percentages to establish your target heartrate according to your level of fitness)		
TYPES OF walk, jog swim, cycle	walk, jog, run, swim, cycle	jog, run, swim, cycle

A SAMPLE WALKING PROGRAM:

	warm-up	exercise	cool down	Time
Week 1	stretch exer., walk slowly 5 min.	walk briskly 5 min.	walk slowly 5 min, stretch exer.	20 min.
	3 sessions in the first week			
Week 2	stretch exer., walk slowly 5 min.	walk briskly 7 min.	walk slowly 5 min, stretch exer.	22 min.
Week 3	stretch exer., walk slowly 5 min.	walk briskly 9 min.	walk slowly 5 min, stretch exer.	24 min.

	warm-up	exercise	cool down	Time
Week 4	stretch exer., walk slowly 5 min.	walk briskly 11 min.	walk slowly 5 min, stretch exer.	26 min.
Week 5	stretch exer., walk slowly 5 min.	walk briskly 13 min.	walk slowly 5 min, stretch exer.	28 min.
Week 6	stretch exer., walk slowly 5 min.	walk briskly 15 min.	walk slowly 5 min, stretch exer.	30 min.
Week 7	stretch exer., walk slowly 5 min.	walk briskly 18 min.	walk slowly 5 min, stretch exer.	33 min.
Week 8	stretch exer., walk slowly 5 min.	walk briskly 20 min.	walk slowly 5 min, stretch exer.	35 min.
	(INCREASE YOUR WALK TIME BY 2 OR 3 MINUTES ON A WEEKLY BASIS UNTIL YOU REACH YOUR DESIRED WORKOUT TIME)			

A SAMPLE JOGGING PROGRAM

	warm-up	exercise	cool down	time
Week 1	stretch/ loosen up 5 min.	walk 10 min.	walk slowly 3 min. and stretch	20 min.
	(3 sessions during the first week)			
Week 2	Stretch/ loosen up 5 min.	walk 5 min. jog 1 min. walk 5 min. jog 1 min.	walk slowly 3 min. and stretch	26 min.
	(3 to 4 sessions during each week of the program)			

	warm-up	exercise	cool down	time
Week 3	stretch/ loosen up 5 min.	walk 5 min. jog 3 min. walk 5 min. jog 3 min.	walk slowly 3 min. and stretch	26 min.
Week 4	stretch/ loosen up 5 min.	walk 4 min. jog 5 min. walk 4 min. jog 5 min.	walk slowly 3 min. and stretch	28 min.
Week 5	stretch/ loosen up 5 min.	walk 4 min. jog 5 min. walk 4 min. jog 5 min.	walk slowly 3 min. and stretch	28 min.
Week 6	stretch/ loosen up 5 min.	walk 4 min. jog 6 min. walk 4 min. jog 6 min.	walk slowly 3 min. and stretch	30 min.
Week 7	stretch/ loosen up 5 min.	walk 4 min. jog 7 min. walk 4 min. jog 7 min.	walk slowly 3 min. and stretch	32 min.
Week 8	stretch/ loosen up 5 min.	walk 4 min. jog 8 min. walk 4 min. jog 8 min.	walk slowly 3 min. and stretch	34 min.
Week 9	stretch/ loosen up 5 min.	walk 4 min. jog 9 min. walk 4 min. jog 9 min.	walk slowly 3 min. and stretch	36 min.
Week 10	stretch/ loosen up 5 min.	walk 4 min. jog 13 min.	walk slowly 3 min. and stretch	27 min.

INCREASE THE DURATION OF YOUR JOGGING TIME BY 2 MINUTES EACH WEEK UNTIL YOU HAVE REACHED YOUR DESIRED WORKOUT TIME.

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