A STUDY OF FIREFIGHTER WELLNESS PROGRAMS

EXECUTIVE DEVELOPMENT

BY: Cindy Metcalf
   Lieutenant
   Boca Raton Fire Rescue Services Department
   Boca Raton, Florida

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ABSTRACT

Over the last four years Boca Raton (Florida) Fire Rescue Services has seen a decrease in the fitness levels of its firefighters. The wellness program currently being used “tests” participants’ cardiovascular fitness and strength, however it does not provide an educational component to assist personnel on how to become fit. The purpose of this research paper was to identify and evaluate current wellness programs and to formulate recommendations. Descriptive and evaluative research methodology was used to answer these questions:

1. Why should the Boca Raton Fire-Rescue Services Department be concerned with the wellness of its firefighters?
2. What firefighter wellness programs are currently being utilized by fire departments in the United States?
3. What are the essential components of a firefighter wellness program?
4. What wellness program can the Boca Raton Fire-Rescue Services Department implement that will include a behavioral health component?

Published literature, reports, and documents were reviewed. A survey of sixty fire departments in the United States and Canada was conducted. The literature review looked at why the fire service should be concerned with the wellness of their firefighters. It also looked at what the effective components of a wellness program should include.

The survey found that 16 of the 50 fire departments surveyed, or 32 %, did not offer any type of wellness program for their employees. The survey also revealed that of those that do provide a wellness program, very few are actually promoting wellness.
The primary recommendation was for Boca Raton Fire Rescue Services Department to implement the International Association of Fire Fighters (IAFF) and The International Association of Fire Chiefs (IAFC) Wellness Fitness Initiative. By implementing behavioral health components and providing additional testing in its physicals, the department can provide a complete wellness program for its firefighters.
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INTRODUCTION

Although firefighters are thought of as being physically fit, no standard is in place to assist firefighters in keeping the same fitness level twenty years into the job as they had when they were hired. From jurisdiction to jurisdiction there seems to be a difference in opinion of what should be required of a firefighter’s level of fitness. There is also plenty of debate as to the level of responsibility a department has for the fitness level of its employees. Boca Raton (Florida) Fire-Rescue Services adopted a wellness program four years ago. Along with providing a medical exam, the program looks at two aspects of a firefighter’s physical condition: cardio-respiratory fitness, and muscular strength/endurance. Since its implementation, the average cardio-respiratory fitness level of Boca Raton’s firefighters has decreased. This program only provides a “test”, but does not educate personnel on ways to become fit. The purpose of this research project is to determine how to implement a behavioral health component into the wellness program at the City of Boca Raton Fire-Rescue Services Department.

This study uses descriptive and evaluative research methodology and seeks to answer these four questions:

1. Why should the Boca Raton Fire-Rescue Services Department be concerned with the wellness of their firefighters?
2. What firefighter wellness programs are currently being utilized by fire departments in the United States?
3. What are the essential components of a firefighter wellness program?
4. What wellness program can the Boca Raton Fire-Rescue Services Department implement that will include a behavioral health component?
BACKGROUND AND SIGNIFICANCE

Historically, the fire service took pride in being a dangerous occupation. According to 1986 data from the National Fire Protection Association (NFPA), more than one-half of the 113 fire fighter deaths were stress-related, and caused by heart attacks. In May of 2000 the NFPA reported that 112 on-duty firefighter fatalities occurred in 1999, marking the highest annual U.S. firefighter death toll since 1989. The report shows that half of those fatalities resulted from heart attacks. The report also indicates that stress and overexertion, usually resulting in heart attacks, continues to be the leading cause of fatal injury for on-duty U.S. firefighters. Gary Tolke, a former fire chief and NFPA’s Assistant Vice President for public fire protection states, “The increased number of U.S. firefighter fatalities in 1999, and the diverse circumstances of those deaths are sobering reminders that firefighting remains one of today’s most physically and mentally-demanding jobs” (Tolke, 2000, p. 1).

The International Association of Firefighters (IAFF), International Association of Fire Chiefs (IAFC), and the National Fire Protection Association (NFPA) Fire Service Occupational Medical and Health Committee, all agree that the physical fitness of firefighters is of high priority. The disagreements lie in how much responsibility a department should bear for the fitness of its members.

Over the past thirteen years, the commitment to firefighter fitness in Boca Raton has ebbed and flowed. In 1989, The League of Cities attacked the validity of the Florida Heart-Lung Bill. (Provides legislation to cover any firefighter that is stricken with hypertension, heart disease, lung disease, and cancer. Medical bills are covered as well as a full medical pension would be awarded based on the presumption that the firefighter received these diseases due to
job related exposures). They felt that firefighters were not taking care of themselves, i.e. smoking, being overweight, drinking etc., and were abusing the Heart-Lung Bill. “We were concerned that the benefits of the Heart Lung Bill would be taken away from us because we were too lazy to take care of ourselves. We felt it was necessary to be proactive when it came to firefighter fitness” (R. Owens, personal communication, August 28, 2001).

During this same period, the University of Miami and Metro-Dade Fire-Rescue Department were working on the Miami Health Project. This program was established in 1984 through studies at the University of Miami, School of Medicine, and was developed with the cooperation of Metro Dade County Firefighters. The program focused on physical activity and nutrition aimed at preventing heart disease and cancer. Classes focused on cholesterol, weight management, smoking, fiber as it relates to diet, reducing alcohol consumption, increasing of physical activity, vitamins, body fat, cardiovascular endurance, blood pressure, nutrition, flexibility, decrease in Type A behavior, involvement of family members, friend, and co-workers. The program looked at the positive aspects of what you can be and not the negative aspects of what you are not. When initially implemented, there was a change in meals around the stations, more people participated in-group exercise, and there was a general increase in the fitness levels of a large number of firefighters. Owens (2001) states, “The program’s greatest downfall was the lack of a support group. You got tested every year, but that was it.” After several years of state funding, the program was pulled and interest faded. Without the commitment of management to continue, the program disappeared and a lot of old habits returned. According to Pearson (1994), “While performance assessment is important, it’s only one component of an effective wellness program” (p. 45).
This research is important to the fire service for several reasons. The research:

- Identifies why the Boca Raton Fire-Rescue Services Department should be concerned with the wellness of their firefighters.
- Determines what firefighter wellness programs are currently being utilized by fire departments in the United States.
- Determines the essential components of a firefighter wellness program.
- Identifies programs the Boca Raton Fire-Rescue Services Department can implement that will include a behavioral health component.

This applied research paper is related to Unit 7: Organizational Culture, as presented in the Executive Development course, because in order to implement a comprehensive wellness program, you have to change the existing culture of the fire service. Currently many feel any type of physical fitness test will be used to penalize out of shape members. This applied research paper is also related to Unit 10: Service Quality/Marketing, because the research will show that fitter firefighters can provide better service.

LITERATURE REVIEW

The literature review is divided into four parts, based on the issues covered by the research questions. The purpose of the literature review is to determine what has been written about the issues.

Why Boca Raton Fire Rescue should be concerned with firefighter wellness

The wellness of firefighters has a major impact on fire departments, both organizationally and economically. Davis (1996) states, “The public has an expectation that we be capable of
performing our jobs” (p. 31). According to Davis and Gerkin (1997), “Fire suppression can result in injuries and loss of life in those individuals who aren’t medically qualified or physically capable of performing at high metabolic work loads over long periods” (p. 26). Dr. Paul Davis (1996) states, “Once on scene, physical fitness plays a critical role, indeed physical fitness is germane to the overall success of the department’s mission, for without this very basic building block, nothing gets done” (p. 32).

At an educational conference in June 2001, called Club Industry East, two Fire Department New York (FDNY) lieutenants made a presentation on a study conducted with polar heart rate monitors. Prior to releasing the results of the study, Lieutenants Cacciola and Malley announced that the average life expectancy of a firefighter is fifty-seven years. The study found that firefighters at times operate at near maximum heart rate, 200 beats per minute (BPM), for periods in excess of eighteen minutes. According to Lori Ann Hodgkinson (2001) of the Long Island (New York) Fire Rescue Network, “Hearts forced to function at maximum capacity need to be trained on a regular basis” (p. 1). Captain Joe Bledsoe, who runs the wellness center for Phoenix Fire Department, comments on the cardiovascular demands of firefighting, “Imagine the demand on a heart when it goes from sound sleep at a resting rate of 60 to full physical exertion at 180 to 200 beats per minute” (Simon-Ostrow, 1997, p. 85). Bledsoe goes on to state, “an unfit firefighter must perform at a much higher percentage of his or her maximum capacity than a fit firefighter doing the same activity” (p. 87).

When talking about fitness levels and how it relates to work load Dr. Davis (1996) reports, “Ascending levels of fitness correspond with increased fire suppression capacity. In fact, studies examining the relationship between task accomplishment and fitness have
demonstrated that a physically fit person can accomplish the same task in as little as one-third the time it takes an out of shape person” (p. 32). Dr. Davis (1996) goes on to state,

Time is an effective and appropriate method of determining job related fitness. The fit firefighter will be capable of performing more work with greater energy reserve that the less fit one. The fit firefighter will be a safer firefighter because of the greater reserve capacity in the event of any unforeseen circumstances. (p. 32)

Davis (1996) continues:

The physiological basis for work performance is linked to the body’s ability to metabolize fuels and release energy. The body has a stored amount of energy that is available for immediate release, but sustained performance requires oxygen to support internal combustion. The short-term requirements are called anaerobic energy (without oxygen), while sustained activity is classified as aerobic (with oxygen). Both of these energy systems are important, and without question the higher levels of both, the more work can be performed on a short term as well as long term basis. Better fitness equals less time on scene. (p. 33)

Bledsoe (Simon-Ostrow, 1997) remarks:

The general public receives a medical exam to look for possible diseases. Normal results do not give a fire fighter a precise indication of their physical condition, only their level of health compared to the general population. For example, a 12-lead EKG looks at the pacing and conduction system of the heart but does not show the functional capacity of oxygen consumption when the heart is placed in a demanding state. (p. 87)
Basically, fitter firefighters can perform their jobs with more efficiency and less risk for injury than those firefighters that must task their hearts and bodies performing the same tasks.

Research was conducted by Dr. Loren Myhre of Biomedical Computer Systems on indicators of one’s present physical readiness to perform strenuous work. Dr. Myhre (1995) states:

A measure of cardio-respiratory capacity defines both general health and overall physical fitness. Since our cardio-respiratory capacity, expressed as VO2 max, decreases normally as we age, and this change is not seen during regular physical exam, measuring cardio-respiratory capacity can be important to fire fighters in that it accurately predicts the rate at which both health and fitness are deteriorating with age” (p. 1).

Dr. Myhre goes on to state:

A disciplined commitment to cardiovascular conditioning will prepare fire fighters to engage in the strenuous and hazardous task of fire fighting and rescue operations more effectively and with considerably less risk of overtaxing a heart which may, without warning, already be progressing towards a diseased state” (p. 1).

With the number one cause of firefighter deaths being heart attack, having a healthy heart should be of priority for everyone involved in the fire service.

According to Thomas Healy of the Phoenix Fire Department, “Long term productivity is achieved by being healthy and physically fit” (Healy, 1993, p. 21). Healy (1993) also states that “a moderate to high level of fitness can increase a person’s resistance to disease and illness” (p.21). We always just accepted the fact that firefighting was a dangerous occupation. But during the early 1980’s attitude began to change. Fire department administrators recognized people as a resource that must be protected and conserved. According to Carter (1989),
“Programs were developed that sought to improve firefighter physical fitness and raise the level of fire department safety. It is essential for fire department management to recognize the importance of safety in the management of their physical resources” (p. 316).

Firefighter wellness programs currently utilized by fire departments

Recognizing that more firefighters are dying from heart-related problems than from any other occupational hazard, many departments are implementing health and fitness programs for the benefit of their employees. Phoenix Fire Department has operated a health center since 1988 and in 1996 converted one of its fire stations into a wellness center. Captain Joe Bledsoe, Wellness Coordinator states:

In addition to health testing, the department offers a trainer program in which enlisted firefighters can be certified by the American Council on Exercise, National Strength Council of America, or the American College of Sports Medicine, or a like organization.

A Health and Fitness library is located at both the main operational center and the Wellness Center (Shelly, 2001, p. 45).

Bledsoe proudly states, “The firefighters even have their own nutritionist, health cable channel, and newsletter” (p. 45). Boca Raton currently has a newsletter, and information on health and fitness could easily be included in this form of communication that is read by current employees as well as retirees.

One program that has been around for years that helps motivate fire fighters to maintain a high level of fitness is the fire fighter combat challenge. Program coordinator Paul O. Davis, Ph.D., feels that any fitness assessment must be utilized to include information to prescribe exercise for the individual. Dr. Davis (1996) states, “A doctor wouldn’t tell someone to go down
to the drug store and get *some* medication. The same thing applies to exercise. If exercise is to be effective and therapeutic, it must be prescribed in doses according to the needs of the individual” (p. 33).

The Mesa Arizona Fire Department implemented their health and wellness program twelve years ago. Program coordinator Steve Giardini states, “Although Mesa’s program was initially started to keep with the general trend of fitness in fire departments, it has evolved well beyond physical activity. Today, the program is an all-inclusive education regiment that includes health, fitness and wellness assistance” (Shelly, 2001, p. 46). Giardini also boasts that the program offers both a cooking class and a fitness conditioning course as part of its health program, accredited through the local community college. Giardini explains, “It truly was an educational process, and learning to connect the health portion of the program with the fitness portion. They had to be blended in a way that one actually did impact the other” (p. 46). To help with this process, the department recruited twenty instructors from its personnel. Giardini goes on to state:

> Their expertise could be relied upon for personal fitness programs, equipment training, and the like. But more importantly than teaching its firefighters how to use a treadmill, Mesa also needed them to approach their health and wellness as a team (p. 46).

The Miami Project introduced Boca Raton Fire Rescue to these components and initially showed an improvement in healthy eating and exercise around the fire stations.

The Pike Township (Indiana) Fire Department has had an employee health program in place for twenty years. Deputy Chief Dawn Smith states, “Originally an idea devised by the firefighters themselves and spearheaded by the department’s then chief, the program initially focused on just physical fitness. There was a recognition that we needed to be fit and healthy”
After several years of budgeting, according to Smith, the program now consist of:

- Routine mandatory employee fitness tests and physicals, a minimum of 20 to 30 minutes of exercise per shift (a mini-gym is located in each of the department’s five stations), and an antismoking and substance abuse prevention program. In addition, station personnel can take advantage of nutrition training, immunizations and other wellness programs.
- Fitness specialists are also recruited in-house and go through a training program (p. 47).

Smith concludes by stating, “They understand that fitness is an integral part of their job performance” (Shelly, 2001, p. 47).

Miami-Dade (Florida) Fire Rescue is one of the ten jurisdictions that have been working in cooperation with the IAFF and IAFC on the Wellness Fitness Initiative. The department assessed 100 firefighters on the criticality of 31 tasks and the physical effort necessary to perform them. According to Orlando Pena, Benefits Administrator, “We have one of the prototypes set up to move forward with the program. We are currently working towards implementation within the next year” (personal communication, November 17, 2001). One of the biggest obstacles to overcome, according to Pena, is the cost of the medical component. Pena states:

- We were used to paying $250.00 per firefighter for their physicals. When we went to the hospital to get a bid on the cost of implementing the added tests, the cost rose to $800.00 per person. We were forced to look for a sole source that could provide all of the testing at a more reasonable cost. Fortunately for us, we were able to find someone to provide all of the testing for $350.00 (personal communication, November 17, 2001).
According to the IAFF/IAFC Wellness Fitness Initiative (1997):

The project seeks to demonstrate the value of investing wellness resources over time to maintain fit, healthy, and capable firefighters and EMS responders throughout their career. An effective program should realize significant cost savings in lost work time, workers compensation, and disability (p. iii).

Palm Beach County (Florida) Fire-Rescue implemented a wellness program in 1997. According to Scott Bielecky (2001), Wellness Coordinator, “This program changed how the department looked at health and fitness of fire fighters from a reactionary mode to a proactive, prevention, and rehabilitation mode” (p. 1). He goes on to state, “By providing a well rounded program the hope is to increase career longevity, improve quality of life, improve morale, decrease sick time usage, lower work related injuries and disabilities, resulting in increased staffing and reduced costs” (p. 1). Palm Beach County Fire Rescue’s Wellness program covers:

a. Medical Component
b. Psychological Component
c. Physical Fitness Component
d. Nutrition
e. Infectious Disease Control
f. Critical Incident Stress Management
g. Rehabilitation
h. Injury Prevention

Bielecky (2001) remarks:

Specifically, the Wellness Program has taken a contrasting approach to the inherent organizational culture of the fire service, which historically has been of a regressive
nature in this interest due to numerous legal implications. Concentration has been focused on the major areas of health including the medical, physical, and psychological well being of firefighters. By addressing these areas in a progressive manner, from a member’s perspective, an increase in career longevity; the quality of life both during and after their career; and improved morale is anticipated. (p. 2)

One of the unique aspects of the program occurs after firefighters complete their medical physical. According to Bielecky (2001), “All firefighters are mandated to go to the Fire-Rescue Fitness Center and complete a physical fitness assessment conducted by the exercise physiologist. The physiologist has received extensive fire fighter related training including actual combat firefighting” (p. 4). According to Bielecky the assessment measures body fat, flexibility, muscular strength and endurance, and aerobic capacity.

From 1995 to 1997, Palm Beach County Fire-Rescue’s wellness program showed an increase in flexibility, an increase in aerobic capacity, a decrease in body fat, and a decrease in sick time usage. Palm Beach County was able to document statistically that their wellness program produced positive results. (Bielecky 2001)

The literature review clearly shows the fire service the importance of protecting its human resources. Not only can lives be saved, but dollars as well in the reduction of injuries and sick time usage.

**Essential components of a firefighter wellness program**

Davis (1996) states, “A fire department fitness program should have the following goals: enhance employee health, improve employee performance and productivity, and increase employee morale” (p. 32). John Pearson (1994), President of Summit Fitness Services states,
“The true reason for a wellness program should be to improve the overall health and well-being of the department’s members” (p. 45). Additional literature review revealed several approaches to identifying the essential components of a wellness program.

The National Fire Protection Association (1997) set for the first time, minimum safety standards for the fire service. *NFPA 1500, Standard on Fire Department Occupational Safety and Health Program*, The standard addresses key wellness program components including, but not limited to:

a. A written general policy addressing firefighter wellness.

b. Physical Examinations.

c. Physical performance requirements.

d. A rehabilitation program for those who cannot meet the physical requirements.

e. Mandatory participation in a physical fitness program.

f. Confidential and permanent health files on each department member.

g. An infectious disease identification and prevention policy.

h. An employee assistance program to assist members with problems such as substance abuse and personal problems that have an adverse effect on the fire fighter’s work performance.

i. A program designed to identify the risks of tobacco along with a smoking cessation element.
j. An avenue to relieve the stress generated by an incident that could adversely affect the psychological and physical well being of the fire department members.

k. Education and counseling for the purpose of preventing health problems and enhancing overall well being.

The International Association of Fire Chiefs (IAFC) along with The International Association of Fire Fighters (IAFF) joined together to develop an overall wellness/fitness system with a holistic, positive, rehabilitating, and educational focus. All of the committee members committed themselves to moving beyond the negative timed, task-based performance testing to progressive wellness improvement.

The program addresses the following key points:

a. Confidentiality of behavioral, medical, and fitness evaluations.

b. Physical fitness and wellness programs that are educational and rehabilitative, not punitive.

c. Performance testing that promotes progressive wellness improvement.

d. Commitment by labor and management to a positive individualized fitness/wellness program.

e. Develop a holistic wellness approach that includes.
   
   – Medical Evaluation
   
   – Fitness
   
   – Rehabilitation
   
   – Behavioral health
f. The program should be long term, and, where possible, be made available to retirees.

The ultimate goal of the comprehensive Fire Service Joint Labor Management Wellness-Fitness Initiative is to, “improve the quality of life of all uniformed personnel. The project seeks to demonstrate the value of investing wellness resources over time to maintain fit, healthy, and capable fire fighters and EMS responders throughout their career” (IAFF, 1997, p. xi).

There is no debate about the fact that high levels of physical fitness, i.e. aerobic capacity, strength, and endurance are critical to perform well in the fire service. But the one component that seems to be lacking in all existing wellness programs is the behavioral health component. The IAFF/IAFC Wellness/Fitness Initiative (1997) states:

A wellness program is not complete without addressing the behavioral well being of those involved. The behavioral health of our uniformed personnel is every bit as important as their physical health. Yet, historically it has been largely ignored or taken for granted. Little attention has been paid to the behavioral health of members of the fire service until the last decade with the advent of employee assistance programs and more recently, Critical Incident Stress Debriefing Teams. In general, few departments have comprehensive behavioral health programs. A mentally and emotionally fit firefighter and EMS provider is an important building block in the fire service’s foundation (IAFF, 1997, p.77).

Duffy (IAFF/IAFC, 1997) states, “Aside from the limits imposed by heredity and the physical performance improvements associated with training, no factor plays a bigger role in exercise performance than nutrition” (p. 2).

According to Jon Pearson (1994), President of Summit Fitness Services in Blue Ridge Pennsylvania, “It’s not enough to be strong and have good endurance if you live on a diet of
french fries and candy bars” (p. 47). According to the U.S. Surgeon General, David Satcher M.D., approximately 300,000 deaths a year in this country are currently associated with overweight and obesity. There are three times as many overweight adults today as there were in 1980. Dr. Satcher (2001) states, “Without intervention, overweight and obesity may soon cause as many preventable deaths as cigarette smoking” (p.1). Hennessey (1991) states, “Since 30 percent of Americans are obese, it is safe to assume that this is also true for fire fighters” (p. 34 ). He goes on to state:

It can be difficult to eat healthy at the fire station because of the routine and the fashion in which people are fed at the fire station. Either someone cooks or take-out food is ordered. Some fire stations are blessed with a talented chef but most are just average burger flippers (p. 35).

In a report written for a fire science class at Mercer County Community College, Dennis Symons (1996) remarks:

One of the most overlooked aspects of a physical fitness program is nutrition. A good fitness program will include individual counseling from a nutrition expert or sports trainer. Each person is different and needs individual counseling for his fitness needs. The best diets included well-rounded sensible eating combined with exercise for weight and fat loss (p. 3).

Symons (1996) further comments, “Steps should be taken to avoid unhealthy meals at the fire station. It is too common, the fire station communal meal, is one that is unhealthy. Perhaps eating healthy at work can carry over at home also” (p. 2).

Over and over you read the same thing from departments that have implemented a successful wellness program, not matter which program it is, support from top management is
essential. “First and foremost, you will need total management support for your program. The department head must believe in and sanction the program, as well as provide support” (Lepere, 1997, p. 33). There are many issues to address when implementing a wellness program. Overcoming the negative attitudes and finding the money to cover all of the expenses makes the commitment from management that much more important. Phoenix Fire Chief Alan Brunacini states, “My most valuable resource is the firefighter” (Shelley, 2001, p. 45). Joe Bledsoe, Wellness Coordinator states, “He makes it his commitment to spend money on that resource” (Shelley, 2001, p. 45).

Two consultants for the International Association of Fire Chief’s On Target physical fitness program outline a proven 10-step process for implementing and maintaining a fire department workout routine. Lepere (1997) states:

You cannot throw a program out to the troops without planning and forethought. Develop a mission statement, and have a planning committee. Educating and informing your personnel is the key to a well organized department. If you don’t provide them with the information they will make it up. Educate your firefighters that 50 percent of all firefighter fatalities are stress related. Let them know that most of these deaths could be prevented with the maintenance of proper fitness levels (p.34).

According to Hennessey (1991), “The fire service has spent millions of dollars providing better equipment for firefighters. Unfortunately, all of this work has barely put a dent in the leading cause of all firefighter fatalities—heart attack” (p. 34). Since most states consider heart disease to be a job-related injury, which can prove costly for municipal governments, they should be concerned with keeping firefighters healthy as a matter of good business. According to Lepere (1997), “On the job injuries, illness, and death are commonplace in emergency services.”
One of the benefits of a physical fitness program is reduction in disability costs, worker’s compensation, and sick time usage. Improved physical fitness also improves morale, self-esteem, and increases flexibility (p. 35). We all agree that being physically fit is an essential component of being a fire fighter. The problem with fitness programs, according to Paul Davis Ph.D., (1996) is that the fire service needs to, “quit playing lip service to a concept that should be embodied in our very existence” (p.33).

It is essential for fire department management to recognize the importance of safety in the management of their physical resources.

Bledsoe (1996) feels that the purpose of fitness assessments for firefighters is to:

Provide meaningful information to the firefighter that will enhance the quality of life experiences. A secondary and equally important consideration is making a correlation between their current fitness levels and how it relates to the physical demands of emergency scene operations. (p. 282) Bledsoe continues, “For example, when you get to a fire scene the heavy reliance on technology goes out the window and physical activity takes over” (p. 282). When talking about fitness levels and how it relates to work load Dr. Davis (1996) reports:

Ascending levels of fitness correspond with increased fire suppression capacity.

In fact, studies examining the relationship between task accomplishment and fitness have demonstrated that a physically fit person can accomplish the same task is as little as one-third the time it takes an out of shape person. (p. 32)

Once again the literature review shows the importance of fitness for those individuals that have strenuous jobs.
The U. S. Surgeon General’s *Call to Action to Prevent and Decrease Overweight and Obesity* recommends the Nation must take action to assist Americans, in balancing healthful eating with regular physical activity. Individuals and groups across all settings must work in concert to:

- Reduce time spent watching television and in other sedentary behaviors
- Ensure that adults get at least 30 minutes of moderate physical activity on most days of the week
- Create more opportunities for physical activity at worksites. Encourage all employers to make facilities and opportunities available for physical activity for all employees
- Promote healthier food choices in schools, at home, at worksites, and in communities (Satcher, 2001, p. 3). Many companies have implemented successful wellness programs in private industry. The fire service can learn from those companies how to integrate wellness on the job site.

In the U.S. Surgeon General’s report on obesity, it states that many people feel that dealing with weight and health issues should be a personal responsibility. But many in the health care field feel it is also a public responsibility. According to the Surgeon General, “Public health in the past has successfully reduced death from infectious diseases through improved sanitation, cleaner air and water, and national vaccination programs. As threats to the public has evolved, so too has the efforts of health officials” (Satcher, 2001, p. 4). The same can be said for the fire service. Bledsoe (1996) remarks, “During the past decade, safety has assumed a prominence not previously known. Concern for protection of the individual evolved to the point where an NFPA standard was developed to address the personnel safety issue. Fire department managers can benefit from the provisions of NFPA 1500 with regard to such issues as protective equipment
and clothing, vehicles, and other equipment. The standard provides a measure by which the safe management of the department’s physical resources can be judged” (p. 282). Clearly the literature review shows that wellness is of the utmost importance for the fire service. Heart attack continues to be the number one killer of firefighters. The research shows that the health and fitness level of one’s heart can contribute to the reduction of risk factors for firefighters. The research shows that wellness programs can be successfully implemented at fire departments and show a reduction in injuries, disabilities, and the costs of these incidents. The research also shows that wellness must be all inclusive. Education is a key component in maintaining the health of firefighters.

**PROCEDURES**

The initial research for this Executive Fire Officer Applied Research Project began at the Learning Resource Center in Emmitsburg, MD, to look for articles regarding physical fitness programs in the fire service. Journals, periodicals, and books were used to obtain opinions on what a physical fitness program should include and how best to implement one.

An interview was obtained from Robert Owens, the Vice President of the Boca Raton Fire Rescue Services Department’s local union. He was the impetus for initially starting a fitness program in 1990. A second interview was conducted with Lange Jacobs, the union Secretary who brought the current fitness testing program to Boca Raton Fire Rescue Services in 1998.

A convenience sample of 65 departments was used to find out what fire departments across the United States and Canada are currently doing to address the physical fitness of their firefighters. The fire chief of each department was asked to not only comment on what is
currently being done, but was asked if they considered implementing the IAFF/IAFC Wellness Fitness Initiative.

Question #1 asked if they currently had a fitness program.

The answer to this question would address research question 2: What firefighter wellness programs are currently being utilized by fire departments in the United States.

Question #2 asked if they did have a fitness program, did it contain a testing component.

The answer to this question would address research question 2: What firefighter wellness programs are currently being utilized by fire departments in the United States.

Question #3 asked what components the test included.

The answer to this question would address research question 2: What firefighter wellness programs are currently being utilized by fire departments in the United States.

Question #4 asked if there was a behavioral health component.

The answer to this question would address research question 2: What firefighter wellness programs are currently being utilized by fire departments in the United States.

Question #5 asked if there was mandatory participation.

The answer to this question would address research question 2: What firefighter wellness programs are currently being utilized by fire departments in the United States.

Question #6 asked if the program currently being used was the IAFF/IAFC Wellness Fitness Initiative.

The answer to this question would address research question 2: What firefighter wellness programs are currently being utilized by fire departments in the United States.
Question #7 asked if they have plans to implement the IAFF/IAFC Wellness Fitness Initiative.

The answer to this question would address research question 2: What firefighter wellness programs are currently being utilized by fire departments in the United States.

Question #8 asked if they put units out of service to exercise.

The answer to this question would address research question 3: What are the essential components of a firefighter wellness program.

Question #9 asked how they motivate employees to participate in physical fitness.

The answer to this question would address research question 3: What are the essential components of a firefighter wellness program.

Question #10 asked if they have seen an increase or decrease in the fitness of their firefighters in the last few years.

The answer to this question would address research question 3: What are the essential components of a firefighter wellness program.

Question #11 asked if they provide an annual medical exam.

The answer to this question would address research question 3: What are the essential components of a firefighter wellness program.

Respondents were given the opportunity to respond by postal mail, fax, or e-mail. They were also given one month to complete the survey. Of the sixty-five surveys mailed, fifty were returned. All 29 surveys mailed within the state of Florida were returned. The survey sample was pilot tested by members of the Boca Raton Fire-Rescue Services Department.
The survey questions were reviewed by members of the Boca Raton Fire Rescue Services Department. Some modifications to the format of the questionnaire were made. A sample of the survey cover letter can be found in Appendix A and a sample of the survey questionnaire is displayed in Appendix B.

Assumptions and Limitations

It is assumed that only knowledgeable individuals responded to the surveys and that they did so honestly. Although all surveys were addressed to the department’s fire chief, it was obvious that many were completed by subordinate personnel.

The survey provides representation from 12 states within the United States and 2 in Canada. No statistical analysis was made to determine the margin of error in the survey results. Given there are 34,000 fire departments in the United States, the results may be used by the reader with great care due to the small sample size.

RESULTS

The results were compiled from the examination of the data received from returned surveys, periodicals, interviews, books and journal articles.

Research Question #1

What firefighter wellness programs are currently being utilized by Fire Departments in the United States?
Question 1 asked fire departments if they have a physical fitness program at their department. Of the 50 respondents, only 16 or 32% reported that they had a physical fitness program currently in place. See table 1 for a listing of individual states that responded.

Table 1
Departments with a physical fitness program.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
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<tr>
<td>Washington</td>
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</table>

It appears from the survey sample that a large percentage of departments do not offer a physical fitness program.
Tables 2 through 6 relate to those departments that answered yes to having a physical fitness program.

Question 2 Departments that have a fitness test. Of the 16 respondents only 9 or 56% tested their firefighters’ physical fitness capabilities.

Table 2

<table>
<thead>
<tr>
<th>Fitness Test included.</th>
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</tr>
</thead>
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<tr>
<td>New York</td>
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</tr>
</tbody>
</table>

Of the few departments that offer a fitness program, it appears they do not test the fitness capabilities of their firefighters therefore, they cannot evaluate whether the program is effective.

Question 3: Elements included in the fitness test.

Qualified answers to question 3 included:

- 1 mile run or 1.5 mile walk, sit ups, bench press, leg press, flexibility stretch, body fat calibration, resting pulse, blood pressure
- 1 mile walk, body fat, sit & reach, sit ups, push ups, hand grip, max. bench press
- Aerobic step test or stair climbing machine, leg press, sit ups, bench press, flexibility testing, body fat testing
- Timed job performance drills
- On target combat test
- Body composition, flexibility test, strength test, cardiovascular test
- Measures strength, flexibility, pulmonary output/capacity, push ups, sit ups, step test, flexibility test, body fat, pulmonary
- Step test, sit ups, push ups, body fat measurement, blood pressure, weight, body max index
- Aerobic capacity, agility & strength

Question 4: Inclusion of a behavioral health component.

Qualified answers to question 4 included:
- Nutrition
- Substance abuse
- Stress management
- Exercise and wellness counseling
- Smoking Cessation
- All wellness concept

It appears on the survey sample that many departments are working on the behavioral health aspect of their firefighters.
Question 5: Mandatory participation.

Table 3

<table>
<thead>
<tr>
<th></th>
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<tbody>
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It appears on the survey sample that the majority of departments do not require their firefighters to participate in physical fitness activities.

Table 4

Chief Officer participation.

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<tr>
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</tbody>
</table>

It appears on the sample survey that chief officers are not required to participate in physical fitness activities.
Table 5

Program is the IAFF/IAFC Wellness Fitness Initiative.

<table>
<thead>
<tr>
<th></th>
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<tr>
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</tbody>
</table>

Although the Wellness/Fitness Initiative was published in 1997, it appears from the sample survey they no departments have implemented the program.

Table 6

Plan on implementing the IAFF/IAFC Wellness Fitness Initiative.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
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<tbody>
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<tr>
<td>New York</td>
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</tbody>
</table>

It appears from the sample survey that no departments have plans to implement the IAFF/IAFC Wellness Fitness Initiative.
Question 8 of the survey asked if departments put units out of service so that they may exercise. Of the 16 departments that have programs only 1 or 6.25% allows units to go out of service to exercise. It appears on the survey sample that departments do not see physical fitness as a priority.

Question 9 asked how the department motivated employees to participate in physical fitness.

Qualitative answers to question 9:

- Use senior personnel that are fitness conscious to act as role models
- Encourage officers to provide time for workouts
- It is mandatory
- Provide equipment, facilities, fitness committee
- Peer pressure
- They are motivated by meeting job performance drills
- Give time
- Union contract
- Clothing incentives

It appears from the survey sample that many departments utilize various methods to motivate firefighters to participate in physical fitness activities.
Table 7
Increase or decrease in the fitness level of employees.

<table>
<thead>
<tr>
<th></th>
<th>INCREASE</th>
<th>DECREASE</th>
<th>SAME</th>
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</tbody>
</table>

It appears in the survey sample that firefighter fitness has either improved or stayed the same.

No departments reported a decrease in the fitness level of their firefighters.

Question 11 asked if the department provides an annual medical exam.

Table 8
Provide an annual medical exam.

<table>
<thead>
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</table>

It appears that only half of the departments surveyed offer an annual medical exam.
DISCUSSION

The literature review has shown that firefighting continues to be one of the most physically demanding jobs today. The research also shows that firefighters continue to die from stress and heart related illnesses.

There was a consistent theme in the literature review showing the importance of fit firefighters. The physical activities of firefighting can require a tremendous work load on the heart. The research supported that at times firefighters reach their maximum heart rate when performing firefighting activities. For several years standards have been in place for the safety and protection of firefighters. Why then are so few departments adopting these standards?

The study results show that only 32% of those surveyed offered a fitness program for their firefighters and of those that offer a program, 56% include an assessment portion, 30% offer a behavioral component, and 30% offer both components.

The programs developed by the National Fire Protection Association and the International Association of Fire Fighters recommend both a behavioral and assessment component to their wellness program. Of those departments surveyed, only 38% plan on implementing the IAFF/IAFC Wellness Fitness Initiative. It was interesting to note that of the departments that provide a wellness program, only a small percentage require that chief level officers must participate.

The implications for Boca Raton Fire Rescue are two-fold. Management needs to make the commitment to go all the way with a wellness program. Require chief level officers to participate and upgrade the existing program to a true wellness program. In order to do this, they need to provide not only and assessment of current fitness levels of firefighters, but also by assisting with achieving a higher level of wellness through training and behavioral counseling.
Of the departments that have successful programs, they all include a behavioral component as well as fitness educators.

RECOMMENDATIONS

In order for the wellness program to have a greater chance for success, it is recommended that the program apply to all ranks and levels within the fire department. No one should be exempt from the program that is currently considered fit for firefighting activities.

It is recommended that Boca Raton Fire-Rescue Services implement the IAFF/IAFC Wellness Fitness Initiative.

It is recommended that the Department continue with the wellness committee to oversee and evaluate the effectiveness of the new implementations. The components should be pilot tested by a percentage of firefighters at least one year prior to implementing the Wellness Fitness Initiative. This would allow the committee to evaluate how to best implement the new changes.

It is recommended that the implementation of a behavioral health component be initiated with classes from a local nutritionist. When the Fire Fighter Health Project was implemented in 1988, which included nutritional classes, there was a change in meals around the fire station. This would be a good place to start.

It is also recommended that the assistance of personal trainers be offered, as advised by the IAFF/IAFC Wellness Fitness Initiative. Several components of the IAFF/IAFC Wellness Fitness Initiative are currently in place and should be continued as follows:

- It is recommended that the Department hire personal trainers to provide a behavioral health component with instruction on exercise regimens.
• It is recommended that the Department support an on-duty exercise program. This demonstrates commitment by the Department.

• It is recommended that the Department continue to administer an assessment test on a regular basis. This allows for compilation of individual performance and gives firefighters feedback on their progress.

• It is recommended that the Department continue the annual medical screening. This gives medical documentation that members are medically and physically fit to perform the rigors of the job and also medically capable of starting an exercise regimen.

• Due to the increased costs of the medical physicals as well as the hiring of a nutritionist and personal trainer, it is recommended that the Department phase all components in over a five year period.

It is recommended that additional research be done on this subject since no department as of yet has implemented the IAFF/IAFC Wellness Fitness Initiative.

Wellness as it relates to the fire service should be a mutual goal of both the Department and of its members as well. If the Department is willing to commit time, personnel, and dollars for the benefit of its members, then each firefighter should be accountable for putting forth the effort to improve and maintain their own level of well being.
REFERENCES


Owens, R. (Personal communication, September 14, 2001)


Pena, O., (Personal communication, November 17, 2001)


Appendix A
September 23, 2001

Dear Fire Chief,

Boca Raton Fire-Rescue Services is currently working on implementation of the IAFF/IAFC Wellness Fitness Initiative. The purpose of the enclosed survey is twofold: (1) to obtain data on fitness testing programs currently being used by the fire service; and (2) to obtain data to be included in an applied research project for the National Fire Academy’s Executive Fire Officer Program.

I would ask that you, or a designee, complete this survey, and return it to me at your earliest convenience. If you have any questions please contact me at (561) 367-6717, or by e-mail: cmetcalf@ci.boca-raton.fl.us. Your timely assistance with this survey is greatly appreciated.

Sincerely,

Cindy R. Metcalf, RN, EMT-P
Fire Lieutenant
Assistant Training Officer/Public Education Specialist
Appendix B
A Study of Firefighter Fitness Testing

Survey questionnaire

1. Do you have a physical fitness program at your department?
   YES
   NO (skip questions 2 – 6)

2. Does it contain a fitness test (strength, aerobic capacity)?
   YES
   NO

3. If yes, what components does it include? (bike test, sit ups, bench press etc.)
   ________________________________________________________________
   ________________________________________________________________

4. Does it contain a behavioral health component (nutrition counseling, smoking cessation)?
   YES
   What component does it include?____________________________________
   NO

5. Is it mandatory that all personnel participate?
   YES                 Do Chief officers also participate? YES___ NO___
   NO

6. Is your fitness program the IAFF/IAFC Wellness Fitness Initiative?
   YES
   NO                What type of program is it?______________________________

7. Do you have any plans on implementing the IAFF/IAFC Wellness Fitness Initiative?
   YES
   NO

8. Do you put units out of service so that they may exercise on duty?
   YES
   NO

9. How do you motivate employees to participate in physical fitness?
   ________________________________

10. Have you seen an increase or decrease in the fitness level of your firefighters over the last few years?
    ________________________________

11. Do you provide an annual medical exam?
    YES
    NO

PLEASE MAIL OR FAX THIS SURVEY QUESTIONNAIRE BY NOVEMBER 1, 2001 TO:
Lt. Cindy Metcalf, Boca Raton Fire-Rescue Services, 2333 W. Glades Rd., Boca Raton FL 33431-7311
FAX  561-367-6750