

EFFECT OF WORK RELATED STRESS ON FIREFIGHTER/PARAMEDIC

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ABSTRACT

This research attempted to identify the aspects of psychological on the job stress, its causation, its effect on job performance, and any effects stress might have on wellness and general well being. Also this research will explore stress reduction techniques and their effectiveness. Unmanaged firefighter stress is the problem, or more specifically recognizing the signs and symptoms and taking appropriate action. “ Wellness in the fire service will, in great measure, involve the control, defusing, and management of firefighter stress reactions. Stress management technology is based upon an understanding of the stress response.” (Lawrence N. Blum, PhD., Stress and survival in the fire service, pg3)

The purpose of this research was to investigate how stress affects psychological fitness and physical well-being of firefighters/ paramedics and to make recommendations for a positive stress reduction program. Psychological stress a complex phenomenon. Therefore to identify all the potential sources was problematic. Information regarding firefighter/paramedic on the job stress was found to be very scarce. Similar trade journals were utilized where it was germane to the fire service.

The research method used for this project relied exclusively on trade journals, professional papers, articles from magazines and newspapers, books and other applied research projects. Research questions asked were; (1) Does on the job stressors affect firefighter performance and off duty activities and behavior? (2) Are there effective techniques to reduce or eliminate on the job stressors and detrimental effects of stress?

The procedures involved taking the most current data available from books, magazine and newspaper articles, professional trade journals, and related applied projects. This research included literature that was germane to the fire service. Studies and data pertaining to firefighter/paramedic on the job stress were scarce. Information on job related stress in related fields was also used.

Some research results were surprising. Firefighter are stressed by their own station living environment, their protective gear, their officers and leaders, current management styles, coworkers, and the stress of leaving their families and loved ones during natural and man made disasters. Research also provided results that were not surprising. Certain personality types did not cope well with psychological stress. However they did cope better with proper indoctrination, education and training. From this we concluded that education and support must come early because fire personnel will be called upon to meet many challenges. The better understood the symptoms created by traumatic scenes they will be exposed to, they better they will be able to perform at work with a greater degree of proficiency and enjoy a higher level of well being.

Recommendations; This research indicated when firefighters/paramedics were educated to recognize the effects of stress, how traumatic events can effect personnel, and management of traumatic stress through stress reduction techniques, individuals were more likely to enjoy a higher level of physical and psychology wellness. Which also translates into less absenteeism and higher morale.

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INTRODUCTION

Does work related stress affect the job performance and wellness of the firefighter/paramedic? The purpose of this research was to help identify work related stress symptoms both to the individual and the supervisor.

“ They see the good, the bad, and the very ugly. They watch children die and families grieve. They’re called to the aftermath of gun battles, car accidents and domestic rage. They’re cursed at, vomited and bled on, yet patients seldom ask their names. To say the least the professional life of a paramedic can be harsh and demanding. Their workday can last 24 to 48 hours. Some survive the stress, some don’t. The national average for a paramedic to stay on the job is just eight years.” (Deborah Belgium, Los Angeles Business Journal, issue Nov. 8, 1999, Stress, horror of job mean a high level of burn outs.)

“According to a survey conducted by the National Labor Organization, stress and its accompanying depression in the workplace is now the second most disabling illness hitting workers after heart disease. Recognizing that you’re reacting to this stress, and learning how to cope with it, will help you feel better, make your body healthier, and enable you to work more effectively.” (Peter Athol, Electronic Design, Dec 18, 2000).

“ A survey conducted by T.R. Cutler Inc. and reported in purchasing last year found that 23% of purchasing people indicated that they would like to leave the profession. The overwhelming reason, given by 62% of those people, was job stress. Tied for second were poor benefits and being underpaid.” (William Atkinson, Purchasing, Issue Oct 18, 2001)

“Besides making a person feel bad, stress can actually kill, albeit slowly. A recent study conducted by Ohio State University found that even mild stress can increase the risk of developing cardiovascular disease by leading to above normal levels of homocysteine, an amino acid that damages arterial walls.” In the book, *Your Miracle Brain* (Harper Collins, 2000) author Jean Collins reports on studies showing that long term chronic stress can alter the structure and functioning of brain cells, leading to gradual brain damage and atrophy via creation of free radicals. In another study chronic stress was found to cause death to nerve cells that are responsible for memory, with the loss looking like the death of neurons after strokes or seizures. (William Atkinson, *Purchasing*, Issue 18, 2001)

The research method used was a comprehensive literature search. Relevant information came from Abstracts, newspaper and magazine articles, medical journals, trade journals, and personal conversations.

BACKGROUND AND SIGNIFICANCE

Olin L.Green, U.S. Fire Administrator, expressed this in his forward to *Stress Management, Model Program for maintaining firefighter well-being*, (United States Fire Administration { USFA } 1991). “Stress is one of the most serious occupational hazards facing the modern fire service. It is important to recognize exactly how stress can adversely affect our health, job performance, career decision making, morale, and family life.” It has been long known that stress can cause a variety of conditions and symptoms, most of which are detrimental to health and well-being. “ Job stress, whether in the corporate world or on an assembly line, can damage employee performance,” warns John Herman, Associate Professor of Psychiatry, University of Texas Southwestern Medical

Center at Dallas. “ Moderate stress in many cases increases productivity and can be pleasant for some people. But higher levels of stress can interfere with your ability to do your job, is rarely pleasurable, and lead to emotional and physical problems. Some of these may be decreased job satisfaction, abrasiveness, making constant excuses, unpredictable behavior, moodiness, decreases communication, tardiness, or an increase in sick time.”(John Herman, USA Today Magazine, Issue August 2000).

“ Stress related absenteeism is a serious and growing problem.

According to the 1999 CCH Unscheduled Absence Survey of 800,000 workers in more than 300 companies, the number of employee’s who called in sick due to stress had tripled over the previous four years. More than half of the 550 million working days lost each year in the United States due to absenteeism are stress related. Stress currently accounts for one out of five of all last minute no shows. And that’s just the tip of the iceberg. Job stress is estimated to cost American industry in excess of 300 billion a year.” (Donald T. DeCarlo, Risk and Insurance, More on Workplace Stress, Issue oct.1, 2001)

“ Time Magazine referred to stress as ‘ America’s number 1 health problem,’ and there is little doubt that things have gone steadily downhill. Numerous surveys show that job stress is far and away the leading source of stress in American adults. They also confirm that workplace pressures have progressively increased over the past few decades.” (Donald T. DeCarlo, Risk Management, More on Workplace Stress, Issue Oct. 1, 2001)

“ Over the years, one of our firefighters, killed his wife and then himself. Another firefighter transferred from a larger department, worked several years, resigned and committed suicide. Others have been involved in a variety of altercations, domestic problems, and stress related episodes and illnesses. One employee who appears to have become a recluse, retired and left the country. His problems followed him overseas.”
(Clifford F. Carlisle, MPA, Mountain Brook Fire Department, ARP submitted for Executive Fire Officer Program, Sept. 1999)

LITERATURE REVIEW

A review of fire service and psychological literature, relating to firefighter/paramedic and similar emergency responders, reveals the critical importance of psychological wellness for combating the occupational stress inherent in this career. No time in the history of the American fire service has this been more apparent. Incidents such as the Nimitz Freeway Collapse, the World Trade Center Bombing, Oklahoma City Bombing, Kansas City Skywalk Collapse, the Olympic Park Bombing in Atlanta Georgia, and recently the New York Trade Towers, are requiring our people to endure more than ever before. Fire Personnel are being asked to withstand horrendous physical and psychological assaults as they perform their duty.

“Stress was first studied in 1896 by Walter B Cannon (1871-1945). Cannon used an x-ray instrument called a fluoroscope to study the digestive system of dogs. He noticed that the digestive process stopped when the dogs were under stress. Stress triggers adrenal hormones in the body and the hormones become unbalanced. Based on these findings Cannon continued his experimentation and came up with the term

homeostatic, a state of equilibrium in the body.” (Paula Ford Martin, Stress, Gale encyclopedia of Alternative Medicine)

The earliest research on stress disorders that increased the psychological burden of those involved comes not from the civilian arena, but rather from the military. While the role of stressful events was identified much earlier than World War 1, it was during that war that they were first studied in reasonably scientific and comprehensive fashion. “During World War 1 traumatic reactions to combat conditions were called “shell shock,” a term coined by a British pathologist, Colonel Frederick Mott, who regarded such reactions as organic conditions produced by minute hemorrhages of the brain.” (Coleman and Broen, 1972) Only later, during WW11, did this error in understanding of combat stress psychology begin to be more clearly and accurately understood. When physical fatigue and psychological factors, (such as long periods without rest, danger, noise, and deprivation) began to be examined, only then did the theories of organic brain damage and the accusations of weak or flawed character dissipate. World War 11, the Korean War, and the Vietnam War were important to this research because they were the first situations where significant data related to psychological stress was compiled and examined. This information has been of great importance in studying the occupational stress found in firefighting, law enforcement, and EMS. This is not totally surprising, since these organizations are paramilitary in nature.

Contemporary scientific studies of stress were initiated by Hans Selye, who, as a young medical student in 1926, noted that individuals suffering from a wide range of physical ailments all seemed to a common constellation of symptoms. These involve the loss of appetite, decreases in muscular strength, elevated blood pressure, and a loss of

ambition. Selye referred to stress as a response to stimuli in which an organism developed wear and tear. He more recently defined the concept of stress as the nonspecific response of the body to any demand. (Hans Selye, 1974 pg. 14)

“ The effects of occupational stress, critical incident stress, and post traumatic stress disorder can be clearly illustrated in the case of firefighter Robert O’Donnell. After he rescued baby Jessica McClure in Midland Texas, his life was never the same again. Over a seven and a half year period, Robert O’Donnell went from a high profile hero, to an emotionally troubled firefighter, to a prescription drug user, without a job or family, and finally to a suicide victim. Robert was a psychological trauma victim. He paid the ultimate price after the Murrah Building Bombing in Oklahoma City.” (Munk, 1998).

This was lamented by Ray Sprague, EMT-P, “We go out and bust our butts on a daily basis to save lives. [Then] to see people who have so much to live for [commit suicide], it confuses you...It’s a sad thing to see happen. There had to be a better way. Robert and another firefighter who took his own life last year left families, lots of friends and lots of people wondering why.” (Becknell and Ostrow, 1995)

Steve Delsohn, in his book *Dealing with Darkness*, examined the psychological stress of firefighting. The author examines the behavior of fire fighters during and after fires, stabbings, shootings, acts of domestic violence, terrorist acts, automobile accidents, airplane crashes, hurricanes, tornadoes and earthquakes. He examines the public’s expectation of toughness, the firefighter’s toughness, and also the feigned toughness. As

Delsohn points out, “ Firefighters can feel.” This may not always be evident. The stress can be contained and hidden, but it is still there.

“everybody’s a tough guy when they’re at work.” (Delsohn, 1996)

This hiding and containing of stress are part of the firefighter’s problem.

“Dissociation at the time of trauma may protect the victim from a full conscience appreciation of terror, helplessness, and grief, but at the cost of long term difficulties in integration and mastery of the event. The concept of trauma related dissociation was first developed by Pierre Janet in the 1880’s. (Marmar et al., 1996)

A relevant question to this research was ‘How much stress is out there?’

According to author Les Krantz, in Jobs Related Almanac, he rates the job, firefighter, as the second most stressful job in the United States with a score of 249. Only the President of the United States of America, at 250, received a higher score. Under physically demanding, Krantz rated firefighting as 249 on a scale of 250. NFL football players were rated slightly higher at 250.

“The impact of fire service work upon the human organism must be understood both as an organizational and as a biopsychosocial phenomenon—and not solely viewed as a physical phenomenon. Concern is expressed that local government entities may view physical fitness programs as a “quick fix” for problems associated with firefighter-paramedic work; when, in fact, comprehensive wellness technologies are required to enhance the viability of firefighter personnel at all ranks and levels of experience. Petrie and Rotherham (1982) found that stress in firefighters did not vary with length of time on the job, age, rank, or

factors in the personal lives of subjects, such as marital status, marital satisfaction, income, or number of children. Wellness technologies must be developed to include those components of the firefighting organization that are known to create, maintain, or reduce problematic work performance circumstances and/or stress reactions in firefighters.” (Blum, Stress and Survival in the Fire Service)

PROCEDURES

Research for this project primarily involved a review of literature from current periodicals, newspapers, related applied research projects, and conversations relating to job stressors. Sources were obtained from Eastern Michigan University Hale library, Dearborn Henry Ford Centennial Library, and the World Wide Web. Search engines included Google, Infotract, Proquest, and First Search.

The primary objective was to identify firefighter/paramedic job stressors and search out any effective techniques that might be helpful in reducing detrimental effects of this unavoidable stress. Another objective of this research was to outline important aspects of a comprehensive wellness plan. Since 15-20% of our personal are at risk, according to the data I could find, (I think it is much higher) an investment of time and/or money would pay off in less sick time and higher morale.

NFPA Standard 1582, Medical Requirements for Firefighters, was used as a guideline to formulate this rough outline for a complete wellness plan. This research was not extensive enough to recommend a complete wellness plan that was both feasible and implementable. The following are a few ideas that this research uncovered;

FIRST, All new recruits need to be examined by a licensed physician to determine their physical fitness as a firefighter.

SECOND, New recruits be given a comprehensive drug screen to determine the possibility of substance abuse problems prior to their employment.

THIRD, The new recruits be required to complete the Minnesota Multi-phasic Personality Inventory and the Hilson Safety and Security Risk Inventory to assess their psychiatric suitability for the position of firefighter.

FOURTH, Implementation of an ongoing wellness plan that was extensive in education and awareness of this professions unavoidable stress and symptoms of stress reactions.

A limitation was the scarcity of scientific data on the daily stress exerted by firefighters and emergency responders by their environment. Raymond J. Navarre, Human Resources Officer of the Toledo Fire Department describes these below. (Navarre 1987).

1. Need for private space- the need to be away from the public and other firefighters
2. Need for privacy- the need to have an area that is personal.
3. Need for a balance between the institutional quality of the firehouse verses the family atmosphere and the firefighters' relationships as members of the firehouse
4. Need to control the noise and media pollution- the need for quiet relaxation, study, and sleep.

5. Need for relaxing and comfort producing accoutements- need for furnishings and surroundings that are physically, mentally, and psychologically stress reducing, or at least not stress promoting. (Navarre 1987)

Another limitation was that most of the studies examined stress as it related to mass casualty incidents. Finding data on daily stressors of Firefighter/Paramedic was quite hard. However, Boudreaux, Mandry, and Brantley (1995) successfully examine the cumulative stressors using the Social Readjustment Rating Scale (SRRS).

Table 1.

The 15 Most Common Major Life Events Experienced by EMT's using the SRRS as a measure.

HIGH END STRESS

Change in financial status

Vacation

Change in living conditions

Personal injury or illness

Change in sleeping habits

Change in work responsibilities

Mortgage greater than 10,000

Begin or end school

Change in residence

Change in work hours/conditions

Outstanding personal achievement

Change in eating habits

Change in social activities

Change in number of arguments with spouse

Mortgage less than 10,000

LOW END STRESS

Table 2**The 15 Most Common Daily Stressors Experienced by EMT's.**

<u>Daily Hassles Non-Work Days</u>	<u>Daily Hassles Work Days</u>
Thought about unfinished work	had sleep disturbed
Thought about the future	thought about the future
Unable to complete all plans for today	thought about unfinished work
Hurried to meet a deadline	interrupted during task/activity
Money problems	interrupted while thinking/relaxing
Did something you did not want to do	concerned about personal appearance
Had sleep disturbed	hurried to meet a deadline
Concerned about personal appearance	did something you did not want to do
Interrupted during task/activity	had difficulty in traffic
Interrupted while thinking/relaxing	money problems
Worried about another's problems	unable to complete a task
Unable to complete a task	interrupted while talking
Waited longer than wanted to	worried about another's problems
Experienced illness/physical discomfort	unable to complete all plans for today
Interrupted while talking	experienced illness/physical discomfort

RESULTS

The first question this research tried to answer was; Does on the job stress affect the job performance and off duty activities of the firefighter/paramedic? Some of the results of this research were surprising. Learning that firefighters were stressed by their own living conditions was quite surprising. This research also provided some insight into just how detrimental stress can be.

Dr L.N. Blum has done some of the most insightful research on firefighter work related stress. This passage from his paper, “Stress and Survival in the Fire Service; How They Live and Die”, seems to address my research question quite well.

“ Those who serve in firefighting and emergency medical services have been asked to pay a great price for assignment to this most prestigious duty. In the past 15 years of service to firefighters, paramedics, and police officers, this writer has consistently encountered excellent firefighters who possess strikingly high levels of divorces and damage to relationships, physical symptoms of distress and continuing pain, episodes of emotional instability and distress, work performance difficulties in the aftermath of certain types of fires and medical assistance runs, and, under certain circumstances, lapses in firefighter safety during high risk activity.

This is not to say that these fine individuals could not do their jobs. The reality is that firefighters will perform their duties even while parts of their bodies or life might be harmed right in front of them.

The responsibilities, tasks, work demands, and activities performed in firefighting are referred to in the term psychosocial stressors. They

achieve a physical and psychological impact upon the individual performing those tasks. The response that the individual makes to psychosocial stressors encountered in firefighting are referred to in the term, stress response. In the stress response, the brain undergoes activities and changes in its adaptation (for the purpose of survival and equilibrium) to encountered events or circumstance. The neuroendocrine response, or the “fight of flight” response, is “fueled” by excretion of the hormones, adrenaline and noradrenaline. Of critical importance in the human emergency response is the hormone adrenocorticotropic hormone, or ACTH.

The effects of ACTH in the brain involve a shifting of neurological “fuel” or brain activity away from the cerebral cortex (where information obtained by the senses is categorized and processed) to the limbic region of the brain where the emergency response processes occur. As such, ACTH results in the cerebral cortex losing approximately two-thirds of its functioning, to permit the limbic system (the part of the brain which the emergency response) to activate the “fight of flight” response.

The impact of ACTH’s effect upon the cerebral cortex for a firefighter can be observed in their experience of slow motion, “tunnel vision,” muffled sounds, gaps in memory of the incident, detail errors, and episodes where the firefighter’s report of the incident is not corroborated by the physical evidence.” (Lawrence N. Blum, *Stress and Survival in the Fire Service: How They Live and Die*)

Pitman (1986) has demonstrated that the brain becomes conditioned by either repeated encounter with stressful circumstances—or by a single traumatic event—so that it will, with repeated encounter with psychosocial stressors, begin to react under emergency conditions, even when no actual emergency occurs. “Therefore, repeated encounter with psychosocial stressors which initiate stress responses in individuals, will develop a condition in which the body is chronically and continuously in a state of psychophysiological arousal. Examples of the effect of such a condition would be seen in chronic elevation of blood pressure with no evidence of congenital circulatory defect (see, for example, Guidotti,1992; Kristensen 1996; Schawrtz et al, 1996) chronic gastrointestinal distress, multiple awakenings, abrupt change in mood patterns, work habits, withdrawal from normal activities, emotional reactions inappropriate to circumstance, inability to defuse after call is cleared, high risk behavior, psychophysiological distress.”

“Research data has documented that a strikingly high proportion of public safety personnel frequently—and on a continuing basis—take some form of antacid medication—i.e.zantac, tagament, maalox, digel, prilosec, or generic brands with similar purpose. The range of gastrointestinal (GI) symptoms experienced by firefighters—e.g., burning of sour feeling in the stomach; watery, runny bowel movements; spastic bowel; gastroesophageal reflux—can be simply observed in one of the effects adrenergic innervation—a slowing or suppression of the digestive process, resulting in acids not being sufficiently removed from the GI system.

Firefighters have also acknowledged the continuing experience of musculoskeletal pain, stiffness, or discomfort in the absence of physical injury or trauma. One of the effects of adrenaline upon the body is to increase skeletal muscle tension—a critical necessity for readiness for combat or flight. In addition, the increased muscular activity observed in response to adrenaline results in lactic acid and ammonia—the wastes of muscular activity—further increasing the experience of soreness and physical fatigue observed with substantial or prolonged stress.

Still other firefighters have reported the experience of repeated colds, influenza and a lowering of previous levels of resistance to illness. Again, a not surprising result of the effect of adrenaline upon immunosuppression during periods of heightened psychophysiological arousal.”(Blum1994)

“While it can be credibly stated that firefighting duties contain high levels of job demands, the existence of high job demand will not, in and of themselves, result in adverse health consequences to the individual performing them. It is only when high job demands are not prepared for, managed, or acknowledged, that adverse health problems will be observed.” (Karasek 1979)

The second research question; Are there effective techniques to reduce or eliminate the detrimental effects of stress?

You have experienced a traumatic event or critical incident (any event that causes unusually strong emotional reactions that have the potential to interfere with the ability to function normally). Even though the event may be over, you may now be experiencing or

may experience later, some strong emotional or physical reactions. It is very common, in fact quite normal, for people to experience emotional aftershocks when they have passed through a horrible event.

Sometimes the emotional aftershocks (or stress reactions) appear immediately after the traumatic event. Sometimes they may appear a few hours or a few days later. And, in some cases, weeks or months may pass before the stress reactions appear.

The signs and symptoms of a stress reaction may last a few days, a few weeks, a few months, or longer, depending on the severity of the traumatic event. The understanding and the support of loved ones usually cause the stress reactions to pass more quickly. Occasionally, the traumatic is so painful that professional assistance may be necessary. This does not imply craziness or weakness. It simply indicates that the particular event was just too powerful for the person to manage by himself. It's imperative that the signs and symptoms of a stress reaction be able to be recognized by the individuals involved and by their supervisors.

The following table identifies some signs and symptoms of a stress reaction.

Table 3. Signs and Symptoms of Stress Reactions

Physical	Cognitive	Emotional	Behavioral
Chills	Confusion	Fear	Withdrawal
thirst	nightmares	guilt	antisocial acts
fatigue	uncertainty	grief	inability to rest
nausea	hypervigilance	panic	intensified pacing
fainting	suspiciousness	denial	erratic movements

twitches	intrusive images	anxiety	change in social activity
vomiting	blaming someone	agitation	change in speech patterns
dizziness	poor problem solving	irritability	loss or increase in appetite
weakness	poor abstract thinking	depression	hyperalert to environment
chest pain	poor attention/decisions	intense anger	increased alcohol consumption
headaches	poor concentration/memory	apprehension	change in usual communications
elevated BP	disorientation of time, place, or person	emotional shock	
rapid heart rate	difficulty identifying objects or people	feeling overwhelmed	
muscle tremors	heightened or lowered alertness		
shock symptoms	increased or decreased awareness of surroundings		
grinding of teeth			
visual difficulties			
profuse sweating			

difficulty breathing			
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The International Critical Incident Stress Foundation Inc. (ICISF) has compiled a list of things that may be helpful to the individual in mitigating the effects of critical incident stress.

Table 4. ICISF Recommendations

- Within the first 24-48 hours, periods of appropriate physical exercise, alternated with relaxation will alleviate some of the physical reactions
- Structure your time; keep busy
- You're normal and having normal reactions; don't label yourself crazy
- Talk to people; talk is the most healing medicine
- Be aware of numbing the pain with overuse of drugs or alcohol, you don't need to complicate this with a substance abuse problem
- Reach out; people do care
- Maintain as normal a schedule as possible
- Spend time with others
- Help your coworkers as much as possible by sharing feelings and checking out how they are doing
- Give yourself permission to feel rotten and share your feeling with others
- Keep a journal; write your way through those sleepless hours
- Do things that feel good to you

- Realize that those around you are under stress
- Don't make any big life changes
- Do make as many daily decisions as possible that will give you a feeling of control over your life, i.e., if someone asks you what you want to eat, answer him even if your not sure.
- Get plenty of rest
- Don't try to fight reoccurring thoughts, dreams or flashbacks-they are normal and will decrease over time and become less painful
- Eat well balanced and regular meals (even if you don't feel like it)

The International Critical Incident Stress Foundation also has some things that family members and friends can do to help the stress reaction.

Table 5. Tips for Family Members

- Listen carefully
- Spend time with the traumatized person
- Offer your assistance and a listening ear if they have not asked for help
- Reassure him that he is safe
- Help him with everyday tasks like cleaning, cooking, caring for the family, minding children
- Give him some private time
- Don't take his anger of other feelings personally

- Don't tell him that he is "lucky it wasn't worse," a traumatized person is not consoled by those statements. Instead, tell him you are sorry such an event has occurred and you want to understand and assist him.

For many people in today's world, stress is a fact of life. Although it is impossible to eliminate all stress from daily life, it is possible to control the effect stress has on the body and the mind. The first step in managing stress is to become aware of events in your life that cause you stress. The causes of stress vary from person to person, so that what causes you stress may not cause stress for another person. once you are aware of what causes you stress, the goal is to find ways to avoid or control these things.

Relaxation techniques, when used consistently, can prove effective in controlling stress by helping you reach a state of mental calm, even when in the middle of a stressful situation.

There are several relaxation techniques provided by Access Health Inc. which can be done almost anywhere at any time to help control stress. These techniques include:

Table 6. Stress Reduction Techniques

- deep breathing
- active relaxation
- viaualization
- passive relaxation
- yoga, and
- biofeedback
- deep breathing is a simple technique that can relax tense muscles,

- focus energy and help one be more productive. To use the technique,
- simply breath in deeply through the nose, letting your stomach
- expand as much as possible. It may be helpful to place your hands firmly and comfortably on your stomach during the exercise. Once you've breathed in as much as possible, hold your breath for a
- few seconds and then exhale slowly through your mouth. Repeat this for three or four breaths several times a day
- active relaxation is a process that can help you actually feel the difference between tension and relaxation. It is accomplished by first tensing and then relaxing each muscle in the body. Start with the muscles in the head and move down to the muscles in the feet. This is also called progressive or systemic relaxation.
- stretching exercises are a simple, easy way to loosen up tight
- muscles and combat stress. Muscle tension is an automatic physical response to stress, and the benefit of simple stretching exercises
- is often overlooked as a relaxation technique.
- another relaxation technique that can help reduce stress is clearing the mind or visualization. Visualization a type of directed meditation which involves using the minds eye to clear away mental clutter or to actually visualize how a stressful situation can be handled successfully. This is done by picturing the stressful situation in your mind such as a business presentation or an athletic performance and then visually rehearsing the outcome. Visualization techniques also may be

- used to imagine a peaceful scene such as ocean waves lapping up on the beach to create relaxation.
- meditation and self-hypnosis are passive relaxation techniques that can be used to create relaxation. Four elements are used in meditation: a quiet environment,
 - a point of focus like a neutral word that can help with concentration,
 - a passive accepting attitude, and
 - a comfortable position
 - meditation once or twice a day for ten to twenty minutes each time can bring rapid relief from chronic stress and also increase a person's ability to tolerate stress.
 - Yoga is the use of deep meditation and concentration to free oneself and unite with a supreme spirit. It uses certain postures and carefully controlled breathing to turn off behaviors that cause stress. For specific information on how to practice yoga, you may consult various books available on the subject, take a
 - class at your local college, adult program or health club.
 - and finally, if a person has difficulty zeroing in on a stress
 - reaction or the ability to relax, the practice of biofeedback
 - can be helpful. Biofeedback is a technique in which a person can learn to modify the body's physical reactions to forms of stress. Biofeedback involves sending direct messages to various parts of the body to get a desired response. For example, people
 - have actually been able to prevent frostbite from developing in conditions of extreme cold by sending a message to their hands to stay warm. Biofeedback has

also been used for control of chronic pain problems, such as back pain or migraine headaches.

To begin with, it may be helpful to work with a certified biofeedback practitioner and specialized equipment to learn the technique. However, once learned, biofeedback can be used in any environment to help control blood pressure, heart rate, pain or physical or emotional stress. It is not important which relaxation techniques are used. What is important is the attitude with which relaxation is pursued and what is comfortable for the person.

DISCUSSION

The importance of psychological wellness and stress reduction for firefighters was clearly underlined by The United States Fire Administration's Stress Management Model Program for Firefighter Well-Being, FA 100, as early as February 1991. Other leading agencies such as The International Association of Firefighters in cooperation with The International Association of Fire Chiefs have picked up on this lead. The Fire Service Joint Labor Management Wellness/Fitness Initiative has incorporated psychological wellness into their overall plan. "Firefighters must continue to respond to emergency incidents that require extreme physical output and often result in physiological and psychological outcomes. Such situations, over time, can and do affect the overall wellness of the firefighting and emergency response system" (Fire Service Joint Labor Management Wellness/Fitness Initiative, 1999) One of the key points identified by the

task force to investigate is: “ Develop a holistic wellness approach that includes; medical, fitness, injury/fitness/medical rehabilitation and behavioral health.” This is being investigated directly to protect the wellness of the firefighter. “ The project seeks to prove the value of investing wellness resources over time to maintain a fit, healthy, and capable firefighter throughout his/her 25-30+ year career and beyond.”

“A study by the Medstat group in Washington D.C., found that people with high stress levels at work sustain healthcare costs that are 46% higher than those incurred by people with less stress. The American Institute of Stress reports that between 75% and 90% of physician visits have stress as a major contributing factor to the patients reason for the visit.” (William Atkinson, *Purchasing*, Supply Chain Stress: Coping with professional Pressures, Issue 18, 2001)

“The literature indicates that several large private corporations have realized cost benefits through initiating or expanding wellness programs. AT&T, Union Pacific Railroad, Du Pont Chemical Corporation, and the Travelers Corporation of \$1.50 to \$3.40 for every dollar invested in wellness programs.” (Ken Riddle, Deputy Fire Chief, Las Vegas Fire Department, ARP submitted to the National Fire Academy, April 1999)

Chief Riddle initiated his departments health and wellness program in late 1993, with very impressive results. There were a significant decrease in number of injuries, sick time usage, and improved morale. The following table illustrates the results he achieved in the first four years of implementing his health and wellness plan.

Table 7. Results from Las Vegas Fire Department's Health and Wellness Plan

YEAR	Days Missed	Light Duty Days	Injuries with work days lost	Injuries With No Work Days Lost
1994	628	154	30	35
1995	278	427	32	24
1996	227	321	16	22
1997	20	70	5	6

The dramatic results Chief Riddle achieved is proof that comprehensive health and wellness plans are needed in the fire service to help maintain viable and productive personnel.

RECOMMENDATIONS

“Concern is expressed that local government entities may view physical fitness programs as a ‘quick fix’ for problems associated with firefighter-paramedic work; when, in fact, comprehensive wellness technologies are required to enhance the viability of firefighter personnel at all ranks and levels of experience. Petrie and Rotherham (1982) found that stress in firefighters did not vary with length of time on the job, age, rank, or factors in the personal lives of subjects, such as marital status, marital satisfaction, income, or number of children. Wellness technologies must be developed to include those components of the firefighting organization that are known to create, maintain or reduce problematic work performance circumstances and/or stress reactions in firefighters.”(L.N. Blum)

If it is true that our people are our number one resource, then the cost of a comprehensive wellness program is negligible compared to the long term benefits and cost savings it will provide.

Initiating a health and wellness program will most likely depend on available resources of the organization. Education and an awareness of potential health problems is essential if most individuals are to enjoy a 25-30 year career.

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