



***Victims of Violence Program of the Cambridge Health  
Alliance & Cambridge Fire Department***

**Wellness Program Workshop II  
“Stress and the First Responder”**



Cambridge Health Alliance  
A COMMUNITY OF CARING





## **Workshop II: Stress and The First Responder**

Aim of workshop: To provide information about the general stress response, consider stressors unique to first responders, discuss ways to manage stress, and explore the benefits of massage in dealing with the impact of stress on the body. The information provided in this workshop focuses on the stress that first responders experience in their daily work as well as in the aftermath of major disasters such as the events of September 11, 2001.

### **What is Stress?**

#### *Handouts:*

- ✓ "Fast Facts about Stress"
- ✓ "The Mind-Body Connection and Stress" (Cannon and Selye)
- ✓ "The Stress Inducing Process"

### **Stress as a First Responder**

#### *Handouts:*

- ✓ "Stress and the First Responder"
- ✓ "Stress as a Firefighter"
- ✓ "Self Stress Inventory Exercise"
- ✓ "Symptoms of Stress"

### **How Do You Manage Stress?**

#### *Handouts:*

- ✓ "Alcohol and Substances and the First Responder"
- ✓ "Alcoholism – Getting the Facts" (NIAAA)
- ✓ "How to Cut Down on Your Drinking" (NIAAA)
- ✓ "AUDIT" (NIAAA) – Self-assessment tool
- ✓ "What You Can Do to Manage Stress"

### **Massage and Stress**

#### *Handouts:*

- ✓ "Massage for Firefighters"
- ✓ "Welcome to the Therapy Center! The Muscular Therapy Institute"

### **Q&A and Workshop evaluations**

### **Massage Demonstration and Chair Massage**

*Additional Handouts:*

- ✓ "How Do You Cope With Stress" – Self-assessment tool
- ✓ "Emergency Services: The Burnout Factor" Article
- ✓ "Managing Stress at Work and Home" Article
- ✓ "Sleep To Survive: How To Manage Sleep Deprivation" Article
- ✓ "Smoking up among firefighters since 9/11" Article
- ✓ "Nicotine Effects – Fast Facts"
- ✓ "Caffeine Effects – Fast Facts"
- ✓ "Commonly Abused Drugs"
- ✓ "Massage Therapy for Health and Fitness" Article
- ✓ "The Power of Touch - Stress" Article
- ✓ "Stress and the First Responder Sources & Resources"

## Fast Facts about Stress



Stress is directly responsible for as much as \$20 billion in annual losses to the American economy, a proportion of which is assumed by national fire services due to serious funding problems and budgetary constraints (FEMA, USFA, 1991)



Stress related complaints were involved in 75% to 90% of all physician visits in 1990. (American Institute of Stress)



Stress contributes to 50% of all illnesses.



Stress causes, mediates or exacerbates illnesses of all kinds including heart disease, a leading killer and disabling affliction in the fire service.



Stress may be implicated in loss of motivation, absenteeism, decreased productivity, decreased quality performance, diminished creativity, and a host of maladaptive coping measures.



People who experience high levels of anxiety are four to five times more likely to die of heart attack or stroke.



According to the Surgeon General, up to 80% of non-traumatic deaths may really be due to stress.

## Defining Stress



Stress can be good, eustress (e.g. a promotion, the birth of a baby) or bad, distress, (e.g. ranging from divorce to more severe critical incidents such as the death of a friend or coworker or witnessing a scene perceived and/or experienced as traumatic).



Psychological stress occurs when you perceive or experience the demands of a particular situation exceeding your ability to cope.



Stress can affect us emotionally, cognitively and physically and influence our behaviors, relationships and spirituality.

### Sources:

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Federal Emergency Management Agency, United States Fire Administration, Stress Management: Model Program for Maintaining Firefighter Well-Being, 1991, Retrieved 3/4/04 from [www.usfa.fema.gov](http://www.usfa.fema.gov)  
 Morrison, D. (2001). Get a grip on Stress. Healthy and Natural Journal.  
 Pearson, J., Hayford, J., and Royer, W. (1995). Comprehensive Wellness for Firefighters: Fitness and Health Guide for Fire and Rescue Workers. NY: John Wiley & Sons, Inc.  
 Victims of Violence Program, Cambridge Health Alliance, Common Reactions to Violence and Trauma.

## The Mind-Body Connection and Stress Physiology of Stress

### The General Stress Response “Fight or Flight” (Cannon)

Originally based on experiments conducted with dogs confronting cats, the “Fight or Flight” response was first described by Harvard physiologist Walter Cannon in 1932.

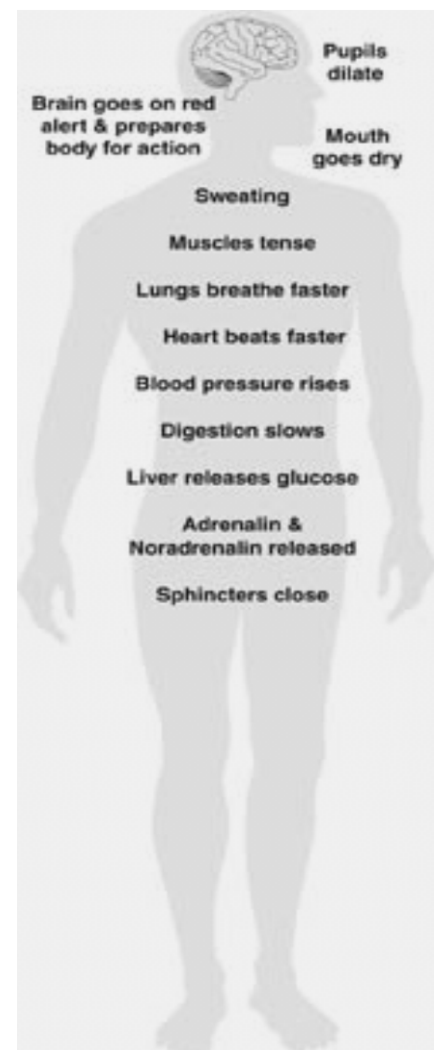
He described “fight or flight” as a response hard-wired into our brains to protect us from bodily harm and discovered that it corresponds to an area of our brain called the hypothalamus. With stimulation resulting from a stressor, the hypothalamus initiates a sequence of nerve cell firing and chemical release that prepares our body for running or fighting.

#### *Three processes when we respond to stress are:*

- 1) **PERCEPTION** - The information we gather from the five senses when we are faced with a situation.
- 2) **ANALYSIS** - The interpretation we attribute to the situation based on information (including past experience).
- 3) **REACTION** - Physical reaction to the situation based on the analysis or interpretation .

#### *Physiological Changes in the Body During Stress Response:*

- ✓ The brain releases hormones: cortisol and epinephrine (adrenalin) into the blood stream.
- ✓ Energy is directed away from normal activity.
- ✓ Heart rate goes up; blood supply increases.
- ✓ Liver channels extra sugar and adrenal gland sends adrenalin to blood stream.
- ✓ Breathing becomes faster.
- ✓ Hands and feet may feel tingly.
- ✓ Muscles tense up.
- ✓ Pupils dilate and you may become hypervigilant to environment.
- ✓ May feel aggressive or on edge; filled with fight or flight urges.



## Generalized Adaptation Syndrome (Hans Selye)

Another well-known researcher, Hans Selye, an endocrinologist, expanded on Cannon's fight-or-flight response. He published his research findings on the "general adaptation syndrome" in his classic book "The Stress of Life" (Selye, 1956). After investigating prolonged stress in laboratory animals, he described stress reactivity as a three-phase physiological process:

1) **ALARM** - Selye's **alarm** reaction is the **fight or flight** response originally described by Cannon. Within 3-5 seconds after a stressor (i.e. a call) the body receives an adrenalin shot. This is generally experienced as shaking and feeling keyed up as a result of the physical changes in the body by the increased activity of the autonomic nervous system.

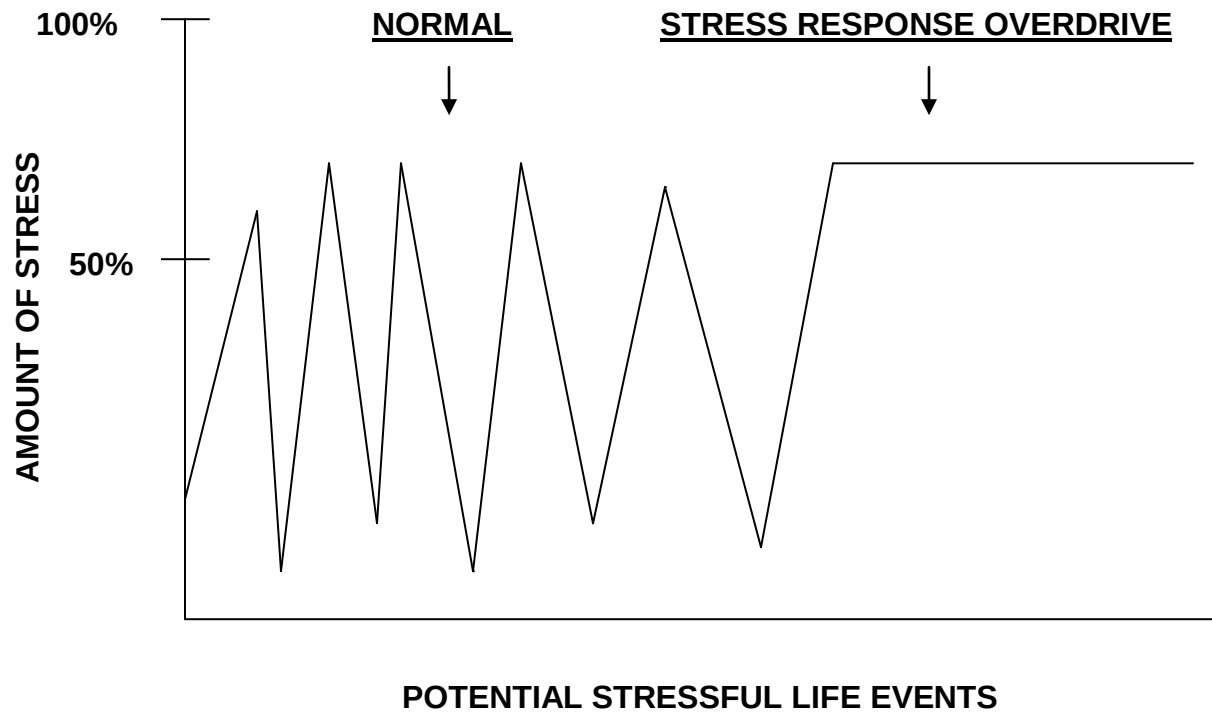
2) **RESISTANCE / ADAPTATION** – If your initial reaction has not resolved itself, the body proceeds to experience an increase in adrenal activity from pituitary gland and within 47 seconds, 31 different chemicals surge through the body to communicate what the body needs to do. Blood flow to muscles increases, all nonessential functions stop, information is processed 2-10 x's faster. Your body tries to maintain the changes that occurred in the alarm reaction, including the increased energy supply needed to cope with the stress.

Although the physiological response may level off as the organism becomes accustomed to the threat, it is more likely that it will continue to be higher than normal. A person tends to become fixed in his or her pattern of dealing with stress rather than re-evaluating the situation and finding a new way to cope which can be physically and psychologically exhausting.

3) **EXHAUSTION** – In Selye's model, adaptation energy is finite. If the stressor is severe and prolonged, the body enters the third stage. The person's resources are at an end since the resistance stage has been so energy consuming. As a result, the patterns of coping begin to collapse and result in 'nervous breakdown'. If the stress cannot be overcome, the body's resources may be depleted and physiological arousal will decrease.

With repeated cycles exhaustion gets deeper and more problematic. People often have difficulty sleeping, experience changes in appetite and other signs of this draining process. If not properly metabolized over time, this cumulative buildup of stress hormones can lead to disorders of our autonomic nervous system (causing headache, irritable bowel syndrome, high blood pressure and the like) and disorders of our hormonal and immune systems (creating susceptibility to infection, chronic fatigue, depression, and autoimmune diseases like rheumatoid arthritis, lupus, and allergies.)

### The Stress Inducing Process



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#### Overdrive may lead to:

- MORE PHYSICAL ILLNESS
- MORE ANXIETY
- MORE DEPRESSION
- SHORTER LIFE SPAN



## Stress and the First Responder

### *Occupational Stress*

"In addition to shouldering the effects of daily stress, firefighters are subjected to a great number of unusually powerful and potentially destructive stressors unique to their work. These stressors include but are not limited to: environmental hazards, such as noise, deadly gases, and building collapse; organizational factors, such as various staffing, leadership, training and scheduling policies; and psychological stressors, such as death, trauma, and mass casualties, to name just a few." (*Federal Emergency Management Agency, United States Fire Administration, 1991*)

- ✓ The National Fire Academy identifies some of the characteristics that make firefighting stressful:
  - \* Exposure to human trauma
  - \* High levels of uncertainty
  - \* Fear of death or injury
  - \* Tension between co-workers
  - \* Repeated emergency conditions
  - \* Limited control over the work environment
  
- ✓ McEvoy (2002) states that "firefighting is an occupation that has tremendously variable and totally unpredictable pattern of responses". He encourages that firefighters realize the importance of recognizing the potential for on-the-job stress and leave some room in their life for accommodating a sudden surge in their stress level. He recommends that first responders take advantage of planning for those life events that you can plan for which can alleviate some of the pressure from the occupational unpredictability.
  
- ✓ McEvoy's recommendations are well supported by Seyle's Adaptation Model that demonstrated that stress has negative long-term consequences on the body. This cumulative effect is even more likely for emergency responders who experience stressful cycles an average of 5-6x's per shift in response to emergency calls. It is because of this that health, fitness and wellness strategies are so important to counteract the build-up effect of stress and help the body more effectively meet demands with less physical damage.

## First Responder Personality

- ✓ McEvoy (2002), an EMS coordinator and psychologist, has determined that first responders can be distinguished from the personality as what he calls an “adrenaline junkie”.
- ✓ Investigative studies done by Jeffrey Mitchell (1986), a psychologist and rescue worker known for his work in developing Critical Incident Stress Management, have revealed some characteristics that are common among first responders that are different from ordinary citizens.

The following are some of the first responder personality characteristics. As we go through them consider to yourself which ones might describe you.

-  *Highly motivated by internal factors*
-  *Action-oriented*
-  *Desire to do a perfect job*
-  *Need to be in control*
-  *Attentive to detail*
-  *Tend to repeat the same actions for similar events; traditional (compulsive)*
-  *Need for immediate gratification*
-  *High need for stimulation*
-  *Family oriented*
-  *Highly dedicated*
-  *Easily bored*
-  *High expectations*
-  *Risk takers*
-  *Always rescuing*
-  *Strong need to be needed*

You can read more about these characteristics in the handout provided in your packet entitled “Managing Stress at Work and Home” (McEvoy, 2002).

As in many occupations, the personality traits that contribute to our success on the job can also interfere with other areas of our lives like our relationships and time for other personal activities. McEvoy discusses the specific issues that come up with firefighters and suggests that those in emergency responding consciously evaluate the facets of your job and work life that you can control and those things you cannot.

## Stress as a Firefighter

### Occupational Stressors

#### *Psychological Stressors:*

Death, Pediatric Death  
Mass Casualties  
Personal Injury, Death  
Disfigurement, Pain  
Anxiety in Family  
Lack of Feedback, Recognition  
Anticipation  
Crucial Mistakes  
Peer Pressure  
False Alarms

Specialized Duty  
Alarm Center – Rapid Decisions  
Lack of Advancement Opportunity  
Lack of Management's Respect  
Survivors and Relatives  
Suicide  
Poor Leadership  
Uncertainty  
Arson  
Boredom, Inactivity

#### *Environmental Stressors:*

Extreme Temperatures  
High Levels of Noise  
Deadly Gases  
Carcinogenic Agents

Hostile People  
Exposure to Radiation  
Building Collapse  
Explosions



### Personal Stressors

#### *Home Stressors:*

Unable to be at home for long periods due to Work-schedule  
Relationship difficulties as a result of conflicting views about job  
Dedication to job is source of stress in relationships with family members  
Loved ones concerned for firefighter's life  
Difficulty with communication compounded by issues unique to the fire service  
Financial concerns

#### *Health Stressors:*

Medical issues – diagnosed or concerns of developing a medical illness'  
Inability due to whatever reasons to care for self properly causes stress  
    May be incompatibility of work schedule,  
    Fatigue associated with work,  
    Wanting to spend time with family when home versus working out,  
    Not having enough time due to another job.  
Concern, worry, Guilt about not being as fit as possible

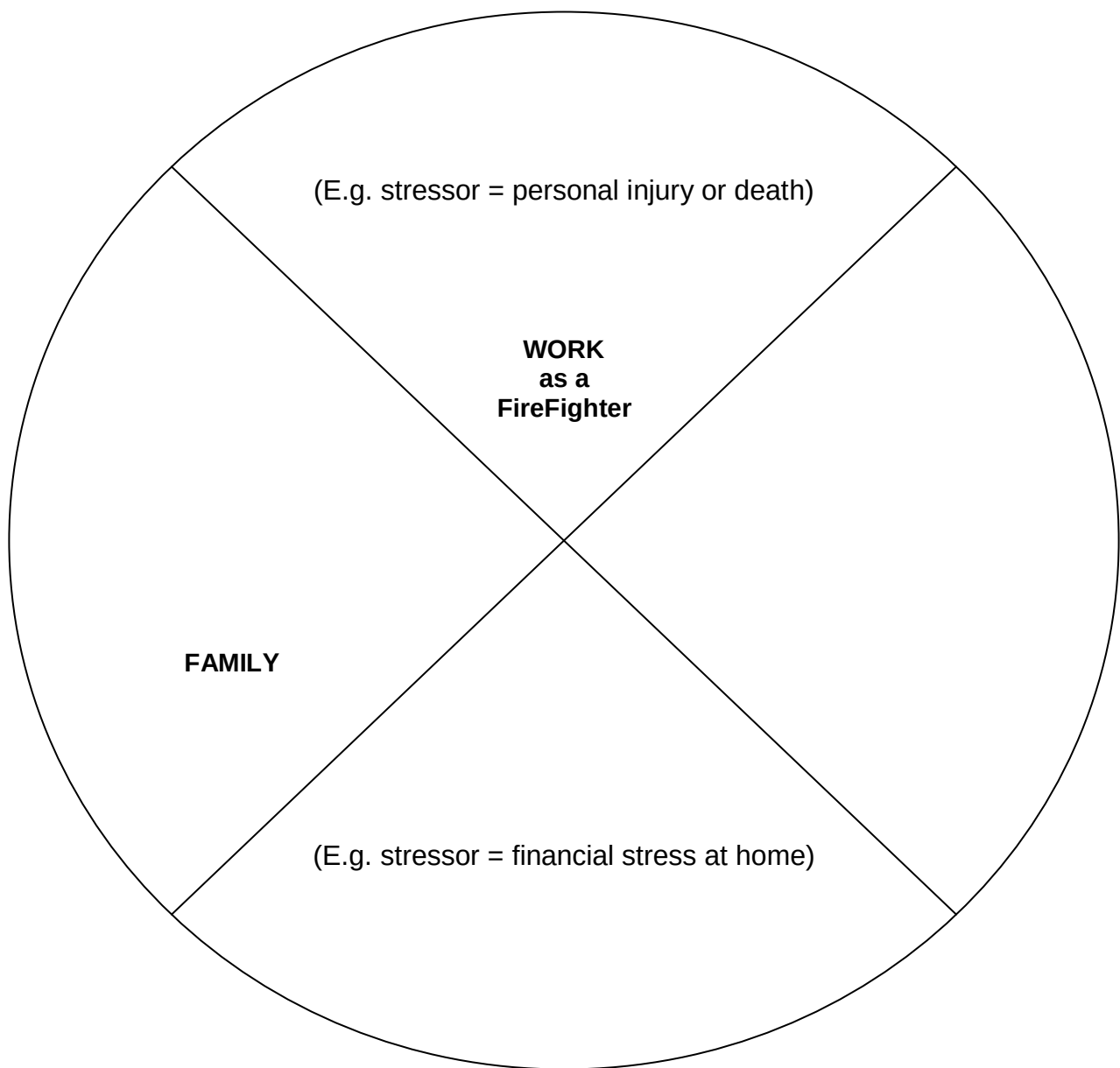
## Self Stress Inventory Exercise

As a result of the findings from research, we now know how important it is to:

- a) identify what causes us stress and
- b) consider what kinds of things we can do where in our lives to alleviate the stress.

Before we explore strategies for managing stress, this exercise is intended to increase your awareness of what you experience as stress and consider if you want to make changes in those areas of your lives

Add as many areas as you would like to the pie chart below that represent the areas of your life where you experience stress. i.e. Work as a firefighter, work at another job, family, stepfamily, children, school, physical health, etc. Then fill in the stressors for each. This is for your personal use.



## Symptoms of Stress

### Physiological Symptoms of stress

- Muscle tension in the jaw and forehead
- Upset stomach
- Dry throat
- Fatigue
- High blood pressure
- Grinding of the teeth
- Headaches
- Indigestion
- Muscle aches
- Pounding of the heart
- Shortness of breath
- Digestive changes, such as constipation or diarrhea



### Psychological Symptoms of stress

- Feelings of helplessness, hopelessness or worthlessness
- Feelings of being misunderstood or unappreciated
- Anxiety
- Anger
- Defensiveness
- Depression
- Difficulty concentrating
- Hypersensitivity
- Insecurity
- Irritability
- Lack of direction
- Apathy
- Cynicism
- Lessened enjoyment of activities that were once pleasurable
- Loss of appetite or, in contrast, overeating
- Pessimism
- Resentment
- Sadness
- Insomnia
- Isolation or withdrawal from others
- Loss of sexual desire
- Procrastination
- Readiness to argue



### Behavioral Symptoms of stress

- Increased smoking
- Increased use of alcohol or drugs
- Nail biting
- Neglect of responsibility
- Poor job performance
- Unusually poor hygiene

## Alcohol and Substances and the First Responder

### Abuse and Dependence in the General Public:

- ✓ The National Institute on Alcohol Abuse & Alcoholism (2003) reports that alcohol problems are highest among young adults between 18 and 29 years of age and that of the 14 million people in the United States, one in thirteen adults abuses alcohol or have become alcoholic.
- ✓ 22 million people (9.4%) 12 years and older in the United States are substance dependent or abuse substances (National Survey on Drug Abuse and Health, 2002).
  - ◆ 14.9 million with dependence on or abuse of alcohol.
  - ◆ 7.1 million with dependence on or abuse of illicit drugs
  - ◆ 4.3 million are dependent on or abuse marijuana.
  - ◆ 0.2 million are dependent on or abuse heroin.
  - ◆ 1.5 million are dependent on or abuse cocaine.
  - ◆ 1.5 million are dependent on or abuse pain relievers.
- ✓ Males (12.8%) are twice as likely as females (6.1%) to be classified as substance dependent or abusers.



### Abuse / Dependence and First Responders:

- ✓ Despite the lack of more comprehensive data, the International Association of Firefighters (IAFF) reports that the fire service experiences approximately twice the national average of people addicted to drugs and alcohol (Pearson, Hayford & Royer, 1995).

Pearson, Hayford & Royer suggest that in addition to the common stressors experienced by civilians, firefighters may experience “special pressures” that may contribute to alcohol and substance use and abuse such as:

- ◆ Fear of injury or death
- ◆ Traumatic incident stress (seeing victims or coworkers hurt)
- ◆ Long shifts, excessive time away from family
- ◆ Lack of appreciation
- ◆ Boring, repetitive tasks, (e.g., vehicle maintenance)
- ◆ Long periods of intense activity, or conversely inactivity
- ◆ Physical stressors (noise, heat, cold, toxic environments)
- ◆ Performance evaluations, annual physicals, trainings, etc.



- ✓ The United States Fire Administration (USFA) states “The fragmentary data and professional judgment suggest that the prevalence of current drug abusers is probably in the range of 1% to 10% of the firefighters, depending upon the policies of the department, the age distribution of the firefighters and the local environment. It is also likely that most of the abusers will have a light to moderate problem.”
- ✓ ☐☐☐☐☐ One study of 175 first responders following the Oklahoma City Bombing yielded some interesting findings about alcohol misuse as a common response to working the disaster. They found that 25% of this sample had an active alcohol problem after the bombing which in virtually all of these cases was a continuation of drinking behavior prior to the bombing (North, 2002).

The findings in this study indicate that the recorded alcohol problems did not necessarily result from emotional disturbance following this one disaster but rather was likely a continuation of problematic drinking behavior prior to the bombing. These authors noted that additional studies have also revealed similar findings of the high rates of substance abuse among firefighters of 20-30%, outside the context of an event.

- ✓ ☐☐☐☐☐☐ More recent findings from a poll conducted on the Fire Engineering’s website (2003) discovered startling findings when they asked “ Does your fire company allow alcohol to be consumed on its premises? Of the responding firefighters, 135 admitted to alcohol being served in their fire hall while 406 said No. Although poll numbers can be deceptive, this finding encourages consideration of the prevalence of such use and abuse in the fire service and availability of treatment resources.

### Effects of abuse in the fire service:

- ✓ ☐☐☐☐☐☐ Pearson, Hayford and Royer (1995) list the following problems that result from alcohol and drug abuse:

- ◆ Degraded capability to respond to emergencies.
- ◆ Increased accident rates, injuries, and deaths.
- ◆ More interpersonal strife, employee complaints, disciplinary actions, and arbitration’s.
- ◆ Increased absenteeism and health benefit claims.
- ◆ Higher departmental administrative costs
- ◆ More liability lawsuits.



They further cite the United States Fire Administration (1988) who state that “ firefighters face many situations where coping skills are essential. In addition to driving fire equipment in response to an emergency, firefighters can face a constantly changing set of dangers at the scene of the emergency. For the firefighter’s own protection and the protection of others at the scene, the firefighter must be able to recognize emerging dangers, make a timely response, and have the strength and ability to sustain that response.”

- ✓ ☐☐☐☐☐☐☐ In order to ensure the health and safety of firefighters, emergency service leaders and citizens the International Association of Fire Chiefs adopted a ‘Zero-Tolerance’

alcohol policy on August 14, 2003 which bans alcohol drinking “ by any members of any fire or emergency services agency/organization at any time when they may be called upon to act or respond as a member of those departments”.

#### Resources :

- ✓ Your **Employee Assistance Program**. Former Los Angeles Fire Captain Jerry Smith in his article “You’re Encouraged to Ask For Help!” encourages that “The employee’s decision to voluntarily enter treatment and rehabilitation will not be used as the basis for disciplinary action. Employees who are concerned about their alcohol and/or drug problem are strongly encouraged to voluntarily seek assistance from the Employee Assistance Program that is available as a resource for all employees, or a private provider of the employee’s choice and at the employee’s expense.”
- ✓ Cambridge Health Alliance, First Responder Wellness Program (Lynda Bolduc-Hicks at (857) 523-0923). This program can provide counseling and additional treatment resources.
- ✓ On-Site Academy, 216 Mill Street, Gardner, MA 01440-6031, (978) 632-3518. Unique program established for first responders provides rehabilitation and treatment at their facility.
- ✓ Professional Firefighters of Massachusetts, I.A.F.F. 130 Bowdoin Street, suite 710, Boston, MA 02108, John “Spike” Lawless (617) 429-8243 and John Brown (978) 963-3384.

#### Sources:

North, Carol S. (2002). Trauma Anonymous, Fire Chief, June 1, 2002. Retrieved 3/1/04 from [www.Firechief.com/ar/firefighting](http://www.Firechief.com/ar/firefighting)

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## National Institute on Alcohol Abuse and Alcoholism Publications

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# ALCOHOLISM

## *Getting the Facts*

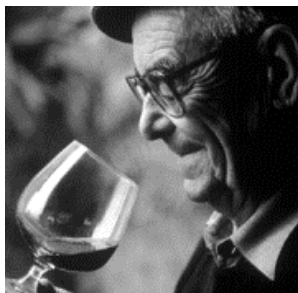


For many people, the facts about alcoholism are not clear. What is alcoholism, exactly? How does it differ from alcohol abuse? When should a person seek help for a problem related to his or her drinking? The National Institute on Alcohol Abuse and Alcoholism (NIAAA) has prepared this booklet to help individuals and families answer these and other common questions about alcohol problems. The following information explains both alcoholism and alcohol abuse, the symptoms of each, when and where to seek help, treatment choices, and additional helpful resources.

### ***A Widespread Problem***

For most people who drink, alcohol is a pleasant accompaniment to social activities. Moderate alcohol use—up to two drinks per day for men and one drink per day for women and older people—is not harmful for most adults. (A standard drink is one 12-ounce bottle or can of either beer or wine cooler, one 5-ounce glass of wine, or 1.5 ounces of 80-proof distilled spirits.) Nonetheless, a large number of people get into serious trouble because of their drinking. Currently, nearly 14 million Americans—1 in every 13 adults—abuse alcohol or are alcoholic. Several million more adults engage in risky drinking that could lead to

alcohol problems. These patterns include binge drinking and heavy drinking on a regular basis. In addition, 53 percent of men and women in the United States report that one or more of their close relatives have a drinking problem.



The consequences of alcohol misuse are serious—in many cases, life threatening. Heavy drinking can increase the risk for certain cancers, especially those of the liver, esophagus, throat, and larynx (voice box). Heavy drinking can also cause liver cirrhosis, immune system problems, brain damage, and harm to the fetus during pregnancy. In addition, drinking increases the risk of death from automobile crashes as well as recreational and on-the-job injuries. Furthermore, both homicides and suicides are more likely to be committed by persons who have been drinking. In purely economic terms, alcohol-related problems cost society approximately \$185 billion per year. In human terms, the costs cannot be calculated.

## ***What Is Alcoholism?***

Alcoholism, also known as “alcohol dependence,” is a disease that includes four symptoms:

- **Craving:** A strong need, or compulsion, to drink.
- **Loss of control:** The inability to limit one’s drinking on any given occasion.
- **Physical dependence:** Withdrawal symptoms, such as nausea, sweating, shakiness, and anxiety, occur when alcohol use is stopped after a period of heavy drinking.
- **Tolerance:** The need to drink greater amounts of alcohol in order to “get high.”  
People who are not alcoholic sometimes do not understand why an alcoholic can’t just “use a little willpower” to stop drinking. However, alcoholism has little to do with willpower. Alcoholics are in the grip of a powerful “craving,” or uncontrollable need, for alcohol that overrides their ability to stop drinking. This need can be as strong as the need for food or water.

Although some people are able to recover from alcoholism without help, the majority of alcoholics need assistance. With treatment and support, many individuals are able to stop drinking and rebuild their lives.

Many people wonder why some individuals can use alcohol without problems but others cannot. One important reason has to do with genetics. Scientists have found that having an alcoholic family member makes it more likely that if you choose to drink you too may develop alcoholism. Genes, however, are not the whole story. In fact, scientists now believe that certain factors in a person’s environment influence whether a person with a genetic risk for alcoholism ever develops the disease. A person’s risk for developing alcoholism can increase based on the person’s environment, including where and how he or she lives; family, friends, and culture; peer pressure; and even how easy it is to get alcohol.

## ***What Is Alcohol Abuse?***

Alcohol abuse differs from alcoholism in that it does not include an extremely strong craving for alcohol, loss of control over drinking, or physical dependence. Alcohol abuse is defined as a pattern of drinking that results in one or more of the following situations within a 12-month period:



- Failure to fulfill major work, school, or home responsibilities;
- Drinking in situations that are physically dangerous, such as while driving a car or operating machinery;
- Having recurring alcohol-related legal problems, such as being arrested for driving under the influence of alcohol or for physically hurting someone while drunk; and
- Continued drinking despite having ongoing relationship problems that are caused or worsened by the drinking.

Although alcohol abuse is basically different from alcoholism, many effects of alcohol abuse are also experienced by alcoholics.

## *What Are the Signs of a Problem?*

How can you tell whether you may have a drinking problem? Answering the following four questions can help you find out:

- Have you ever felt you should cut down on your drinking?
- Have people annoyed you by criticizing your drinking?
- Have you ever felt bad or guilty about your drinking?
- Have you ever had a drink first thing in the morning (as an “eye opener”) to steady your nerves or get rid of a hangover?

One “yes” answer suggests a possible alcohol problem. If you answered “yes” to more than one question, it is highly likely that a problem exists. In either case, it is important that you see your doctor or other health care provider right away to discuss your answers to these questions. He or she can help you determine whether you have a drinking problem and, if so, recommend the best course of action.

Even if you answered “no” to all of the above questions, if you encounter drinking-related problems with your job, relationships, health, or the law, you should seek professional help. The effects of alcohol abuse can be extremely serious—even fatal—both to you and to others.

## *The Decision To Get Help*

Accepting the fact that help is needed for an alcohol problem may not be easy. But keep in mind that the sooner you get help, the better are your chances for a successful recovery.

Any concerns you may have about discussing drinking-related problems with your health care provider may stem from common misconceptions about alcoholism and alcoholic people. In our society, the myth prevails that an alcohol problem is a sign of moral weakness. As a result, you may feel that to seek help is to admit some type of shameful defect in yourself. In fact, alcoholism is a disease that is no more a sign of weakness than is asthma. Moreover, taking steps to identify a possible drinking problem has an enormous payoff—a chance for a healthier, more rewarding life.

When you visit your health care provider, he or she will ask you a number of questions about your alcohol use to determine whether you are having problems related to your drinking. Try to answer these questions as fully and honestly as you can. You also will be given a physical examination. If your health care provider concludes that you may be dependent on alcohol, he or she may recommend that you see a specialist in treating alcoholism. You should be involved in any referral decisions and have all treatment choices explained to you.

## *Getting Well*

### Alcoholism Treatment

The type of treatment you receive depends on the severity of your alcoholism and the resources that are available in your community. Treatment may include detoxification (the process of safely getting alcohol out of your system); taking doctor-prescribed medications, such as disulfiram (Antabuse®) or naltrexone (ReVia™), to help prevent a return (or relapse) to drinking once drinking has stopped; and individual and/or group counseling. There are promising types of counseling that teach alcoholics to identify situations and feelings that trigger the urge to drink and to find new ways to cope that do not include alcohol use. These treatments are often provided on an outpatient basis.

Because the support of family members is important to the recovery process, many programs also offer brief marital counseling and family therapy as part of the treatment process. Programs may also link individuals with vital community resources, such as legal assistance, job training, childcare, and parenting classes.



### Alcoholics Anonymous

Virtually all alcoholism treatment programs also include Alcoholics Anonymous (AA) meetings. AA describes itself as a “worldwide fellowship of men and women who help each other to stay sober.” Although AA is generally recognized as an effective mutual help program for recovering alcoholics, not everyone responds to AA’s style or message, and other recovery approaches are available. Even people who are helped by AA usually find that AA works best in combination with other forms of treatment, including counseling and medical care.

### Can Alcoholism Be Cured?

Although alcoholism can be treated, a cure is not yet available. In other words, even if an alcoholic has been sober for a long time and has regained health, he or she remains susceptible to relapse and must continue to avoid all alcoholic beverages. “Cutting down” on drinking doesn’t work; cutting out alcohol is necessary for a successful recovery.

However, even individuals who are determined to stay sober may suffer one or several “slips,” or relapses, before achieving long-term sobriety. Relapses are very common and do not mean that a person

has failed or cannot recover from alcoholism. Keep in mind, too, that every day that a recovering alcoholic has stayed sober prior to a relapse is extremely valuable time, both to the individual and to his or her family. If a relapse occurs, it is very important to try to stop drinking once again and to get whatever additional support you need to abstain from drinking.

## Help for Alcohol Abuse

If your health care provider determines that you are not alcohol dependent but are nonetheless involved in a pattern of alcohol abuse, he or she can help you to:

- Examine the benefits of stopping an unhealthy drinking pattern.
- Set a drinking goal for yourself. Some people choose to abstain from alcohol. Others prefer to limit the amount they drink.
- Examine the situations that trigger your unhealthy drinking patterns, and develop new ways of handling those situations so that you can maintain your drinking goal.

Some individuals who have stopped drinking after experiencing alcohol-related problems choose to attend AA meetings for information and support, even though they have not been diagnosed as alcoholic.

## *New Directions*

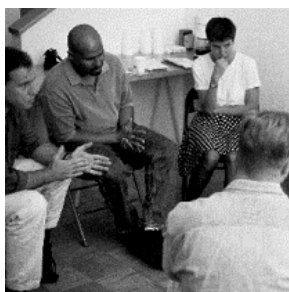
With NIAAA's support, scientists at medical centers and universities throughout the country are studying alcoholism. The goal of this research is to develop better ways of treating and preventing alcohol problems. Today, NIAAA funds approximately 90 percent of all alcoholism research in the United States. Some of the more exciting investigations focus on the causes, consequences, treatment, and prevention of alcoholism:

- **Genetics:** Alcoholism is a complex disease. Therefore, there are likely to be many genes involved in increasing a person's risk for alcoholism. Scientists are searching for these genes, and have found areas on chromosomes where they are probably located. Powerful new techniques may permit researchers to identify and measure the specific contribution of each gene to the complex behaviors associated with heavy drinking. This research will provide the basis for new medications to treat alcohol-related problems.
- **Treatment:** NIAAA-supported researchers have made considerable progress in evaluating commonly used therapies and in developing new types of therapies to treat alcohol-related problems. One large-scale study sponsored by NIAAA found that each of three commonly used behavioral treatments for alcohol abuse and alcoholism—motivation enhancement therapy, cognitive-behavioral therapy, and 12-step facilitation therapy—significantly reduced drinking in the year following treatment. This study also found that approximately one-third of the study participants who were followed up either were still abstinent or were drinking without serious problems 3 years after the study ended. Other therapies that have been evaluated and found effective in reducing alcohol problems include brief intervention for alcohol abusers (individuals who are not dependent on alcohol) and behavioral marital therapy for married alcohol-dependent individuals.



- **Medications development:** NIAAA has made developing medications to treat alcoholism a high priority. We believe that a range of new medications will be developed based on the results of genetic and neuroscience research. In fact, neuroscience research has already led to studies of one medication—naltrexone (ReVia™)—as an anticraving medication. NIAAA-supported researchers found that this drug, in combination with behavioral therapy, was effective in treating alcoholism. Naltrexone, which targets the brain's reward circuits, is the first medication approved to help maintain sobriety after detoxification from alcohol since the approval of disulfiram (Antabuse®) in 1949. The use of acamprosate, an anticraving medication that is widely used in Europe, is based on neuroscience research. Researchers believe that acamprosate works on different brain circuits to ease the physical discomfort that occurs when an alcoholic stops drinking. Acamprosate should be approved for use in the United States in the near future, and other medications are being studied as well.
- **Combined medications/behavioral therapies:** NIAAA-supported researchers have found that available medications work best with behavioral therapy. Thus, NIAAA has initiated a large-scale clinical trial to determine which of the currently available medications and which behavioral therapies work best together. Naltrexone and acamprosate will each be tested separately with different behavioral therapies. These medications will also be used together to determine if there is some interaction between the two that makes the combination more effective than the use of either one alone.

In addition to these efforts, NIAAA is sponsoring promising research in other vital areas, such as fetal alcohol syndrome, alcohol's effects on the brain and other organs, aspects of drinkers' environments that may contribute to alcohol abuse and alcoholism, strategies to reduce alcohol-related problems, and new treatment techniques. Together, these investigations will help prevent alcohol problems; identify alcohol abuse and alcoholism at earlier stages; and make available new, more effective treatment approaches for individuals and families.



## *Resources*

For more information on alcohol abuse and alcoholism, contact the following organizations:

**Al-Anon Family Group Headquarters, Inc.**

1600 Corporate Landing Parkway

Virginia Beach, VA 23454-5617

Phone: (757) 563-1600; Fax: (757) 563-1655

Email: WSO@al-anon.org

Internet address: <http://www.al-anon.alateen.org>

Makes referrals to local Al-Anon groups, which are support groups for spouses and other significant adults in an alcoholic person's life. Also makes referrals to Alateen groups, which offer support to children of alcoholics. Free informational materials and locations of Al-Anon or Alateen meetings worldwide can be obtained by calling the toll-free number (888) 425-2666 from the United States or Canada, Monday through Friday, 8 a.m.–6 p.m. (e.s.t.).

**Alcoholics Anonymous (AA) World Services, Inc.**

475 Riverside Drive, 11th Floor  
New York, NY 10115  
Phone: (212) 870-3400; Fax: (212) 870-3003  
Email: via AA's Web site  
Internet address: <http://www.aa.org>

Makes referrals to local AA groups and provides informational materials on the AA program. Many cities and towns also have a local AA office listed in the telephone book. *All communication should be directed to AA's mailing address: AA World Services, Inc., Grand Central Station, P.O. Box 459, New York, NY 10163.*

**National Council on Alcoholism and Drug Dependence, Inc. (NCADD)**

20 Exchange Place, Suite 2902  
New York, NY 10005  
Phone: (212) 269-7797; Fax: (212) 269-7510  
Email: [national@ncadd.org](mailto:national@ncadd.org)  
HOPE LINE: (800) NCA-CALL (24-hour Affiliate referral)  
Internet address: <http://www.ncadd.org>

Offers educational materials and information on alcoholism. Provides phone numbers of local NCADD Affiliates (who can provide information on local treatment resources) via the above toll-free, 24-hour HOPE LINE.

**National Institute on Alcohol Abuse and Alcoholism (NIAAA)**

5635 Fishers Lane, MSC 9304  
Bethesda, MD 20892-9304  
Phone: (301) 443-3860; Fax: (301) 480-1726  
Email: [niaaaweb-r@exchange.nih.gov](mailto:niaaaweb-r@exchange.nih.gov)  
Internet address: <http://www.niaaa.nih.gov>

Makes available free informational materials on all aspects of alcoholism, including the effects of drinking during pregnancy, alcohol use and the elderly, and help for cutting down on drinking.



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# How to Cut Down on Your Drinking

**NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM  
NATIONAL INSTITUTES OF HEALTH**

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## How to Cut Down on Your Drinking

If you are drinking too much, you can improve your life and health by cutting down. How do you know if you drink too much? Read these questions and answer "yes" or "no":

- Do you drink alone when you feel angry or sad?
- Does your drinking ever make you late for work?
- Does your drinking worry your family?
- Do you ever drink after telling yourself you won't?
- Do you ever forget what you did while you were drinking?
- Do you get headaches or have a hang-over after you have been drinking?

If you answered "yes" to any of these questions, you may have a drinking problem. Check with your doctor to be sure. Your doctor will be able to tell you whether you should cut down or abstain. **If you are alcoholic or have other medical problems, you should not just cut down on your drinking- you should stop drinking completely. Your doctor will advise you about what is right for you.**

If your doctor tells you to cut down on your drinking, these steps can help you:

### 1. Write your reasons for cutting down or stopping.

Why do you want to drink less? There are many reasons why you may want to cut down or stop drinking. You may want to improve your health, sleep better, or get along better with your family or friends. Make a list of the reasons you want to drink less.

### 2. Set a drinking goal.

Choose a limit for how much you will drink. You may choose to cut down or not to drink at all. If you are cutting down, keep below these limits:

**Women:** No more than one drink a day



**Men:** No more than two drinks a day

**A drink is:**



- a 12-ounce bottle of beer;
- a 5-ounce glass of wine; or
- a 1 1/2-ounce shot of liquor.

These limits may be too high for some people who have certain medical problems or who are older. Talk with your doctor about the limit that is right for you.

**Now**--write your drinking goal on a piece of paper. Put it where you can see it, such as on your refrigerator or bathroom mirror. Your paper might look like this:

**My drinking goal**

- I will start on this day \_\_\_\_\_.
  - I will not drink more than \_\_\_\_\_ drinks in 1 day.
  - I will not drink more than \_\_\_\_\_ drinks in 1 week.
- or
- I will stop drinking alcohol.

**3. Keep a "diary" of your drinking.**

To help you reach your goal, keep a "diary" of your drinking. For example, write down every time you have a drink for 1 week. Try to keep your diary for 3 or 4 weeks. This will show you how much you drink and when. You may be surprised. How different is your goal from the amount you drink now? Use the "drinking diary" below to write down when you drink.

| <b>Week:</b> |                    |                       |                       |
|--------------|--------------------|-----------------------|-----------------------|
|              | <b># of drinks</b> | <b>type of drinks</b> | <b>place consumed</b> |
| Mon.         |                    |                       |                       |
| Tues.        |                    |                       |                       |
| Wed.         |                    |                       |                       |
| Thurs.       |                    |                       |                       |
| Fri.         |                    |                       |                       |
| Sat.         |                    |                       |                       |
| Sun.         |                    |                       |                       |

| Week:  |             |                |                |
|--------|-------------|----------------|----------------|
|        | # of drinks | type of drinks | place consumed |
| Mon.   |             |                |                |
| Tues.  |             |                |                |
| Wed.   |             |                |                |
| Thurs. |             |                |                |
| Fri.   |             |                |                |
| Sat.   |             |                |                |
| Sun.   |             |                |                |

| Week:  |             |                |                |
|--------|-------------|----------------|----------------|
|        | # of drinks | type of drinks | place consumed |
| Mon.   |             |                |                |
| Tues.  |             |                |                |
| Wed.   |             |                |                |
| Thurs. |             |                |                |
| Fri.   |             |                |                |
| Sat.   |             |                |                |
| Sun.   |             |                |                |

| Week:  |             |                |                |
|--------|-------------|----------------|----------------|
|        | # of drinks | type of drinks | place consumed |
| Mon.   |             |                |                |
| Tues.  |             |                |                |
| Wed.   |             |                |                |
| Thurs. |             |                |                |
| Fri.   |             |                |                |
| Sat.   |             |                |                |
| Sun.   |             |                |                |

*Now you know why you want to drink less and you have a goal. There are many ways you can help yourself to cut down. Try these tips:*

**Watch it at home.**

Keep a small amount or no alcohol at home. Don't keep temptations around.

**Drink slowly.**

When you drink, sip your drink slowly. Take a break of 1 hour between drinks. Drink soda, water, or juice after a drink with alcohol. Do not drink on an empty stomach! Eat food when you are drinking.

**Take a break from alcohol.**

Pick a day or two each week when you will not drink at all. Then, try to stop drinking for 1 week. Think about how you feel physically and emotionally on these days. When you succeed and feel better, you may find it easier to cut down for good.

### Learn how to say NO.



You do not have to drink when other people drink. You do not have to take a drink that is given to you. Practice ways to say no politely. For example, you can tell people you feel better when you drink less. Stay away from people who give you a hard time about not drinking.

### Stay active.



What would you like to do instead of drinking? Use the time and money spent on drinking to do something fun with your family or friends. Go out to eat, see a movie, or play sports or a game.

### Get support.

Cutting down on your drinking may be difficult at times. Ask your family and friends for support to help you reach your goal. Talk to your doctor if you are having trouble cutting down. Get the help you need to reach your goal.

### Watch out for temptations.

Watch out for people, places, or times that make you drink, even if you do not want to. Stay away from people who drink a lot or bars where you used to go. Plan ahead of time what you will do to avoid drinking when you are tempted.

Do not drink when you are angry or upset or have a bad day. These are habits you need to break if you want to drink less.

### DO NOT GIVE UP!



Most people do not cut down or give up drinking all at once. Just like a diet, it is not easy to change. That is okay. If you do not reach your goal the first time, try again. Remember, get support from people who care about you and want to help. Do not give up!

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### AUDIT

Please circle the answer that is correct for you

1. How often do you have a drink containing alcohol?

|       |                 |                           |                             |                           |
|-------|-----------------|---------------------------|-----------------------------|---------------------------|
| Never | Monthly or less | Two to four times a month | Two to three times per week | Four or more times a week |
|-------|-----------------|---------------------------|-----------------------------|---------------------------|

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

|        |        |        |        |            |
|--------|--------|--------|--------|------------|
| 1 or 2 | 3 or 4 | 5 or 6 | 7 to 9 | 10 or more |
|--------|--------|--------|--------|------------|

3. How often do you have six or more drinks on one occasion?

|       |                   |         |                             |                           |
|-------|-------------------|---------|-----------------------------|---------------------------|
| Never | Less than monthly | Monthly | Two to three times per week | Four or more times a week |
|-------|-------------------|---------|-----------------------------|---------------------------|

4. How often during the last year have you found that you were not able to stop drinking once you had started?

|       |                   |         |                             |                           |
|-------|-------------------|---------|-----------------------------|---------------------------|
| Never | Less than monthly | Monthly | Two to three times per week | Four or more times a week |
|-------|-------------------|---------|-----------------------------|---------------------------|

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

|       |                   |         |                             |                           |
|-------|-------------------|---------|-----------------------------|---------------------------|
| Never | Less than monthly | Monthly | Two to three times per week | Four or more times a week |
|-------|-------------------|---------|-----------------------------|---------------------------|

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

|       |                   |         |                             |                           |
|-------|-------------------|---------|-----------------------------|---------------------------|
| Never | Less than monthly | Monthly | Two to three times per week | Four or more times a week |
|-------|-------------------|---------|-----------------------------|---------------------------|

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

|       |                   |         |                             |                           |
|-------|-------------------|---------|-----------------------------|---------------------------|
| Never | Less than monthly | Monthly | Two to three times per week | Four or more times a week |
|-------|-------------------|---------|-----------------------------|---------------------------|

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

|       |                   |         |                             |                           |
|-------|-------------------|---------|-----------------------------|---------------------------|
| Never | Less than monthly | Monthly | Two to three times per week | Four or more times a week |
|-------|-------------------|---------|-----------------------------|---------------------------|

9. Have you or someone else been injured as a result of your drinking?

|    |                               |                           |
|----|-------------------------------|---------------------------|
| No | Yes, but not in the last year | Yes, during the last year |
|----|-------------------------------|---------------------------|

10. Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?

|    |                               |                           |
|----|-------------------------------|---------------------------|
| No | Yes, but not in the last year | Yes, during the last year |
|----|-------------------------------|---------------------------|

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**Procedure for Scoring AUDIT** Questions 1-8 are scored 0, 1, 2, 3 or 4. Questions 9 and 10 are scored 0, 2 or 4 only. The response is as follows:

---

|                | 0      | 1                 | 2                             | 3                           | 4                           |
|----------------|--------|-------------------|-------------------------------|-----------------------------|-----------------------------|
| Question 1     | Never  | Monthly or less   | Two to four times per month   | Two to three times per week | Four or more times per week |
| Question 2     | 1 or 2 | 3 or 4            | 5 or 6                        | 7 to 9                      | 10 or more                  |
| Question 3-8   | Never  | Less than monthly | Monthly                       | Weekly                      | Daily or almost daily       |
| Questions 9-10 | No     |                   | Yes, but not in the last year |                             | Yes, during the last year   |

The minimum score (for non-drinkers) is 0 and the maximum possible score is 40. A score of 8 or more indicates a strong likelihood of hazardous or harmful alcohol consumption.

Updated: October 2000

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***What You Can Do to Manage Stress  
Lifestyle Changes and Stress Management Strategies***

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www.glasbergen.com



**“Howl at an ambulance or fire siren every chance you get.  
Run around the room in circles with a sock in your mouth.  
Eat a messy meal without using your hands or utensils.  
Ask a friend to scratch your belly...”**

### **Defining Stress Management:**

According to the US Army Physical Fitness Research Institute, stress management is about learning to appreciate how the body reacts to stressors, and about learning how to develop skills which enhance the body's adjustment. To learn stress management is to learn about the mind-body connection and the degree to which we can control our health in a positive sense.

### **The Goals of Stress Management are to:**

- ✓ ☐ Help us to limit the harmful effects of stress
- ✓ ☐ Help us to maintain life's quality and vitality

### **Lifestyle Changes and Stress Management Strategies:**

➤ **Nutrition: Stress Response is influenced by specific dietary deficits and excesses:**

Maintaining a balanced diet, with low consumption of caffeine and alcohol, can affect the ways people experience and are able to manage stress. Specifically, keeping one's body nourished with the proper vitamins and minerals from foods and water.

Psychological arousal is exaggerated, behaviors may be altered by

- Caffeine
- Sugar
- Fatty foods
- Sodium
- Alcohol
- Nicotine



Three vitamins are depleted in the body during prolonged periods of stress:

- Vitamin C
- Vitamin B complex
- Vitamin D

➤ **Sleep and ability to cope with stress:**

- Necessary recovery from effort/stress/strain
- Sleep: not restful amidst stress (nightmares)
- REM sleep influences quality of sleep

➤ **Cognitive Strategies and Behavioral Strategies including relaxation, to improve sleep patterns:**

- Important to have regular patterns of sleep onset and awakening
- Minimize disturbances (telephone) during sleep
- Relaxation strategies such as deep breathing or muscle relaxation help

➤ **Positive Mental Attitude:**

- Ways of thinking about the situation - Having a positive mental attitude can help reduce stress. The glass is half full – consider the things in your life that are enjoyable.

➤ **Leisure: Recreational activities to unwind and control stress**

- Leisure and recreation should be rejuvenating.



- Making time for activities that are enjoyable to you for stress relief. (hobbies, vacations)

➤ **Relaxation:**

- Take time to Relax. Relaxation exercises can be one way to release tension from Your muscles as well as allowing your mind to pause from daily issues and worries.

➤ **Family and Other Social Supports:**

- Relationships are also very important to manage stress. Talking or spending time with family and friends can help us balance the stress we can let build up.
- If you experience stress as a result of your family members, i.e. while visiting relatives, caring for children etc., try to limit contact, add activities that are stress relieving to help you manage this stress and/or take time out from these relationships when you can.

➤ **Sex and intimacy:**

- Can be helpful in reducing stress.
- Can increase one's sense of wellbeing.
- Sexual activity also burns calories.



➤ **Yoga:** involves the mind-and the mind's control over every aspect of our existence- biological, mental, emotional, and creative. The goal of yoga is to peel away the layers of obscurity that cloud our ability to see clearly. This clarity comes from a place within that is innate, immutable and perfect.

- Relaxation, increased flexibility, strength, vitality, improved concentration and immune system function as well as healing musculo-skeletal problems.

➤ **Acupuncture:** the insertion of very fine needles, (sometimes in conjunction with electrical stimulus), on the body's surface, in order to influence physiological functioning of the body.

- Raises levels of triglycerides, specific hormones, prostaglandins, white blood counts, gamma globulins, opsonins, and overall anti-body levels
- Stimulates the secretions of endorphins in the body (specifically Enkephalins).
- Stimulates neurotransmitter levels (such as Serotonin and Noradrenaline)
- Has the effect of constricting or dilating blood vessels. This may be caused by the body's release of Vasodilators (such as Histamine).

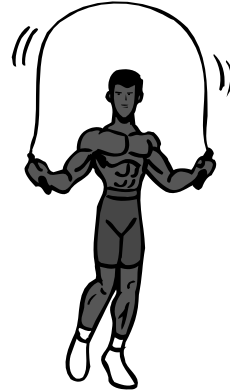
➤ **Physiological /psychological effect of exercise in controlling or relieving stress:**



- Y Physically active people have lower rates of anxiety and depression.
- Y Physical activity may cause an increase in norepinephrine to help the brain deal with stress more efficiently versus endorphins.
- Y Norepinephrine is thought to play a major role in modulating the action of the neurotransmitters that play a role in the stress response.
- Y Physical Activity has a natural mood-enhancing effect (anti-depressant) and anxiolytic effect (anti-anxiety).
- Y Some believe that long-term exercise training adjusts the responsiveness of the stress reaction system and makes it more efficient. Exercise allows the body to practice dealing with stress by forcing all the systems to communicate more closely
- Y The benefit of exercise may actually result from the “behavioral boost” from exercise. (e.g. increased activity in other areas of life)

➤ **Massage:**

- Both body and mind can benefit from tension release in one's muscles and also the quieting and relaxing of one's mind.



## Massage for Firefighters

### Massage & Stress

Inducing one relaxation response will tend to reflexively kick off the others.

#### Stress response

↑ Heart rate  
 ↑ Blood flow to larger muscles  
 ↓ Blood flow to extremities & internal organs  
 ↓ Immune function  
 ↓ Digestive system function  
 Shallow respiration

#### Relaxation response

↓ Heart rate  
 ↓ Blood pressure  
 ↑ Blood flow to all muscles  
 ↑ Alpha brain waves  
 ↑ Immune function  
 ↑ Digestive system function  
 Deep respiration

### The Physiological Effects of Massage

- ✓ Increased Circulation of Blood & Lymph
  - ☞ Due to manual pressure and dilation of blood vessels
- ✓ Muscular Relaxation
  - ☞ Due to changes in the autonomic nervous system and letting go of muscle tension by higher brain centers
- ✓ General Relaxation
  - ☞ Does calming the mind cause relaxation of the body? Or does relaxing the body cause a calming of the mind?
- ✓ Connective Tissue Normalization
  - ☞ Under chronic stress, connective tissue tends to thicken and become rigid, losing its range of motion & inhibiting overall movement.
  - ☞ Massage keeps connective tissue more fluid, nourished, and prevents and breaks up adhesions
- ✓ Functional Separation of Muscle & Connective Tissue (fascia, tendons, ligaments)
  - ☞ Lifting, broadening and breaking up adhesions between muscle and connective tissues
  - ☞ By “unsticking” stuck areas, you can improve range of motion and achieve more fluid movement



Together, these lead to:

- ✓ More pain-free and fluid movement
- ✓ Greater energy
  - ☞ By increasing supply of nutrients and carrying away waste products
  - ☞ By relaxing unnecessary muscular tension which depletes energy
- ✓ Normal range of motion
  - ☞ By decreasing muscle hypertonicity, preventing and breaking up adhesions, decreasing scar tissue formation, and normalizing connective tissue

- ✓ Faster recovery from heavy workloads
  - ☞ By increasing blood flow, which increases the supply of nutrients and the carrying away of wastes
- ✓ Pain reduction
  - ☞ Pain can be caused by hypertonicity and ischemia. Therefore, increasing blood flow will decrease pain.
  - ☞ Massage facilitates the release of endorphins
- ✓ Increased strength
  - ☞ A tight muscle is a weak muscle because it can't contract to its full potential. Therefore, decreasing muscle tightness will increase potential strength.

## Massage in Injury Prevention & Treatment

### Prevention:

- ☞ By keeping muscles nourished, fluidly moving, lengthened and broadened.
- ☞ A massage therapist can often feel irregularities in muscle and connective tissue before they become painful. They are injuries waiting to happen.
- ☞ Prevent acute and chronic injuries (such as muscle tears, tendonitis and bursitis) that are the result of abnormal and tight tissue.

### Treatment:

- ☞ Tissues heal with good circulation to bring in nutrients and carry away wastes. Therefore, healing can be accelerated by massage.

## What to expect when you get a massage

- Generally 1 hour in length (though you may also do ½ hour, 1½ hours or 2 hours).
- You are asked to remove as much clothing as is comfortable. Some clients take everything off, others leave on their underwear. But it can also be done over clothes as in sports massage and chair massage.
- You will be covered with a sheet or towel so that only the body part being worked on is exposed at any given time.
- Whether or not you would expect to talk during a session depends on your needs at the time. The massage therapist will check in on you periodically to make sure you are comfortable, the pressure is okay, the technique is not too painful, etc. you should feel comfortable telling the massage therapist about your needs, what you like or don't like, if you are too hot or too cold, or if something is painful.

## How to find a massage therapist

First, take some time to think about:

- ✓ What kind of massage are you looking for? (i.e. relaxing vs. vigorous, general whole body vs. specific areas of concern)
- ✓ Do you have any special health considerations?
- ✓ Are you looking for help with a specific injury or condition?

- ✓ Are you looking for someone who does a specific type of massage? (i.e. Muscular Therapy, Swedish, Myofascial Release, Neuromuscular Therapy, Trigger Point Work, Deep Tissue, Rolling, Structural Integration, etc. There are over 80 different techniques.)

If you don't know what you want, relax, most people don't know what they want, like or need in the beginning. Be open-minded and try different types of massage and different massage therapists until you find one that you like. Everybody is different.

To schedule a massage at the Muscular Therapy Institute's Student Therapy Center or Professional Therapy Center, call (617) 547-5800.

To find a graduate of the Muscular Therapy Institute in your area, call Patti Ball at MTI at (617) 576-1300. Tell her your specific needs and she will match you up to a licensed graduate of MTI.

To find any massage therapist in your area, call the AMTA (American Massage Therapy Association) at (847) 864-0123 or go online to [www.amtamassage.org](http://www.amtamassage.org).

**Kate Peck, CLMT, LATC**, Associate Faculty at the Muscular Therapy Institute, Muscular Therapist, 1113 Washington Street, Newton, MA 02465

Insert "welcome to the MTI therapy center!" ????

Insert page two of mti brochure

Insert ICISF how do you cope with stress checksheet

Insert page 2 ICISF how do you cope with stress checksheet



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## Emergency Services: The Burnout Factor

By Rebecca Richardson , Staff Writer



"Bringing Out The Dead" was a different kind of movie to say the least. But whether you loved the movie or hated it, if you work in emergency services you could recognize the reality of the "burnout factor".

The national average for a paramedic to stay on the job is just eight years. Firefighters tend to stay on the job longer but suffer from burnout just the same. We see the best, and the worst, of people everyday. Every call we run leaves it's mark on us. For every cardiac arrest we successfully resuscitate, there are several more we couldn't bring back. For every person we bring out of a burning building alive, there are several more we could not save.

The number of suicides among emergency responders each year is double to triple the number of line-of-duty deaths. In a profession that is full of stress, anguish, highs and lows, how do we keep from burning out?

### Humor:

Humor is one of the ways emergency workers cope with their jobs. What may seem macabre and inappropriate humor to others is actually a coping mechanism for emergency workers. Humor helps us to deal with what we see every day. Don't stifle that sense of humor... go with it!

### Hobbies:

Anything that helps you relax and forget about the job is a plus. Many counselors encourage emergency workers to find a hobby or activity that they enjoy doing as a way of releasing tension and diffusing stress. Take guitar lessons, raise birds, go camping... find the activity that is right for you.

**Exercise:**

Either brief periods of intense training or long aerobic workouts can raise levels of chemicals in the brain, such as endorphins, adrenaline, serotonin, and dopamine, that produce feelings of pleasure. Exercise is a great way to beat depression. A brisk walk around the block is better than nothing.

**Eat Right:**

It can be hard to eat right on the job when all you have time to do is eat potato chips between calls. But good nutrition is vital stress-fighting tool. When our bodies are poorly nourished, the effects of stress become even more pronounced. Stick a high protein bar in your pocket for a quick fix. When home, try to eat healthy foods.

**Keep a Journal:**

Writing about problems, concerns, and daily events can ease anxiety and help individuals work through painful feelings.

**Talk to your peers:**

No one understands what you are dealing with better than your co-workers. Keeping things bottled up inside only makes it worse. You may find they need to talk as much as you do.

**CISD:**

This can literally be a lifesaver after an overwhelming incident. Most agencies have it or have access to it. Use it!

If you feel overwhelmed and none of these techniques work for you then it is time to seek help. Talk to your chaplain, doctor, or a counselor. There is no shame in needing support to work through depression or job burnout.

For more information on job related burnout you can visit these websites:

[The Global Emergency Medical Services Network!](http://www.gemsn.com/) <http://www.gemsn.com/>

[Fear Not Firefighter Ministries](http://www.theultimatefirehouse.com/) <http://www.theultimatefirehouse.com/>

[About.com Stress Management](http://stress.about.com/health/stress/mbody.htm) <http://stress.about.com/health/stress/mbody.htm>

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## MANAGING STRESS AT WORK AND HOME

BY MIKE McEVOY, Ph.D., REMT-P, RN, CCRN

The same personality characteristics that attract firefighters to the fire service, such as the ability to perform under pressure, and that help them to be effective firefighters also have a negative side. They increase stress on the job and can ruin relationships at home.

We all know someone who consistently seems happy and cheerful. Have you ever wondered how it is that such people maintain such a positive outlook on life? The answer is very simple: Happy people choose to be happy. They recognize stress in their lives and control their response to it. In the same way, miserable people choose to be miserable. Explanations for how and why people make these choices are rooted in the definition of stress.

### WHAT IS STRESS?

The first obstacle in effectively dealing with stress is a lack of understanding of exactly what stresses us. Hans Selye, a researcher considered by many to be the father of stress management, defined stress as a response from our bodies to any demand for change.<sup>1</sup> This response is both physical and psychological, leading to Selye's theory that continued high levels of stress lead to illness, then to disease, and eventually to death.

**Table 1. Firefighter Personality Characteristics**

The "adrenaline junkie" is one who

- is attentive to detail,
- is control oriented,
- is histrionic (needs to be needed),
- is action oriented,
- is a risk taker,
- is highly dedicated,
- is family oriented,
- has high expectations, and
- is strongly rescue oriented.

*Adapted from Reference 4.*

The American Psychological Association reports that stress costs American industry \$300 billion each year in absenteeism and lost productivity.<sup>2</sup> Overstressed individuals take sick days at work more frequently, have trouble sleeping, tend to abuse drugs or alcohol, overeat more often, have increased relationship troubles (including fighting with others), suffer more depression, and often exhibit avoidance behaviors such as quitting jobs or job hopping. If you see these symptoms in yourself or others, they may well be stress related. (2)

Some level of stress is necessary for people to be productive. People with no stress whatsoever are dead. Preventing very high levels of stress is the art and science of stress management.

The second challenge when dealing with stress is to recognize that stress is not an event but rather our reaction to an event. This concept is important and explains why different people experience different levels of stress from the same event. Your spouse, dog, boss, child, or car is not a stressor. Stress is your reaction to these people and objects and the happenings they bring into your life.

None of us react to a situation in the same way; therefore, the level of stress each experiences is different. An interesting study of self-reported stress levels in skydivers showed that veteran skydivers experienced nearly opposite levels of stress than novices beginning the night before a planned jump through parachute deployment and landing.<sup>3</sup> Although it has never been studied, I am confident that similar observations could be found in a comparison of probationary and seasoned firefighters as well.

If you think about events that cause you to react with stress, you typically think only of negative happenings. This leads you to exclude a number of life events that are equally stress producing. All of us would consider such things as being fired from a job, getting a pay cut, suffering the death of a friend, or

being involved in a motor vehicle crash as life events that lead to stress. In fact, getting married, buying a new home, retiring, having a new baby, going on vacation, and even ensuring the holidays can have an equally significant impact on our lives in terms of stress.

Firefighters have a stress management opportunity here. All of us have some internal stress limit beyond which we would not be able to function psychologically. At the same time, firefighting is an occupation that has a tremendously variable and totally unpredictable pattern of responses. You can never predict when you may be called to a motor vehicle crash with multiple fatalities or when you may see a person burned to death. It is important that you recognize this "on-the-job potential for stress" and leave some room in your life for accommodating a sudden surge in your stress level. Consider the life events mentioned earlier. Which could you predict or even control? It would be unwise for any emergency services worker to plan a wedding, move to a new home, buy a new car, and take a vacation all in the same week. Take advantage of the life events you can plan; schedule them so that you leave some room for unpredictable events that might occur on the job. You'll find that you will be much better able to deal with the unplanned occurrences in your life.

### **ARE FIREFIGHTERS DIFFERENT?**

Jeff Mitchell, a psychologist known for his work in developing critical incident stress debriefing (CISD) programs, once speculated that firefighters have a personality different from that of the ordinary citizen.<sup>4</sup> Mitchell's research on this topic has never been scientifically validated,<sup>5-6</sup> but it has been consistently recognized as a personality framework for numerous high-stress occupations. Table 1 lists some of the personality characteristics that Mitchell attributed specifically to rescue workers. To highlight what I consider to be the overall difference in personality between a firefighter and an ordinary citizen, I have labeled this personality the "adrenaline junkie."

Firefighters tend to enjoy most those experiences that get their adrenaline flowing. Interestingly, it would appear that 90 percent of the population has an opposite point of view: They do not like high-stress experiences.

Often, individuals in high-stress occupations are not aware that the average citizen doesn't enjoy the same adrenaline rushes they do. If you've ever had a friend or neighbor tell you that he admires your ability to deal with danger or blood and guts and is certain he could never be a firefighter, he is telling you the truth. It is quite likely that 90 percent of the population I categorize as ordinary citizens would be completely unable to function as a firefighter or in any other high-stress occupation.

A classic example is the following analogy. Consider the reactions of a driver when a deer suddenly darts in front of his car. After swerving several times, nearly running off the road, skidding around in a complete circle, and finally bringing the car to a controlled stop, how might ordinary citizens react? Most would probably shake uncontrollably for several minutes, slowly drive home, and leave the vehicle in the driveway for at least a few days before they get the nerve to drive again.

Many firefighters, on the other hand, would be likely to think the whole escapade was fun and perhaps the most enjoyment they've had all week-hence, the label "adrenaline junkie."

Other unique characteristics seem to accompany this adrenaline-driven personality. Firefighters appear to be particularly attentive to detail in many aspects of their lives. "A place for everything and everything in its place" is a motto that often characterizes firefighters.

Firefighters are control-oriented individuals, seeking to always understand and take charge of their environment, the people, and the things around them. They do not like to be told what to do. In a crisis, control-oriented people provide smooth, effective operations and safe resolution of dangerous situations.

Firefighters are histrionic people: They have a strong need to be needed and take pride in being identified with a department or organization. Histrionic people enjoy seeing themselves in the newspapers and on television.

People in high-stress occupations often recreate in action-oriented ways. Their risk-taking behavior follows them from work into their leisure time. Firefighters tend to have equally dangerous hobbies such as racing cars or motorcycles, mountain climbing, parachuting, and the like.

Firefighters are highly dedicated people and have a strong commitment to their jobs, tasks, and projects. They are also very family oriented, which may seem strange at first. Perhaps you've been told that you often ignore your family. In truth, however, firefighting is often a family tradition handed from generation to generation. Compare firefighting with other occupations, such as accounting. If an accountant died on the job, would a huge contingent of brother accountants attend the wake and funeral? The answer is obvious. Firefighters belong to a huge family of fellow firefighters that extends throughout the world.

Having high expectations is another characteristic of firefighters. They expect perfection from themselves and tend to hold those around them to the same high standards. Finally, firefighters are more rescue oriented than ordinary citizens. A firefighter is more inclined to stop and help a stranger in trouble.

### **TRAITS THAT HELP ALSO HINDER**

Different personality characteristics actually help to make you a good firefighter. Having a take-charge attitude, a penchant for doing things in an organized and detailed manner, a certain degree of fearlessness, a high degree of dedication to the job, respect and concern for fellow members of the fire service family, and the highest standards and expectations all combine to produce exactly what the public needs in an emergency response. Although these traits make you helpful to others, they can sometimes be harmful to you on the job and at home.

Being oriented to control and having high expectations are two such traits. As a control-oriented person, you prefer to be in charge and are an independent thinker. You don't take direction well and are difficult to supervise. Sound familiar? In truth, control-oriented people comprise a significant proportion of people categorized as "difficult people." Not surprisingly, nearly all troubles at work revolve around issues of control. Control-oriented people can also have problems in their relationships. A relationship problem coupled with job-related stress can lead to isolation. In fact, isolation is the most common cause of stress at home for firefighters. Sadly, being deprived of meaningful contact with those we love adds even greater stress to our lives.

Anger, frustration, and burnout are the results of work-related stress, which often begins with problems we seek to control but have no ability to change or affect. It is important that you consciously evaluate which facets of your job and work life you can control and those you cannot control. Let go of those issues that are beyond your control. Doing this will considerably reduce your stress level. This is not to be construed as advice to quit a job that causes you a great deal of anger and frustration.

There are positive and negative ways to handle conflict; withdrawing, quitting, surrendering, and performing acts of hostile aggression are examples of negative, and unhelpful, strategies. All increase rather than decrease stress levels. Examples of positive strategies for handling conflict include persuasion and open dialogue.

Continually expecting to be perfect can lead to poor self-esteem. The constant flawlessness you expect from others makes you quick to criticize. Be constantly vigilant for high expectations. Maintaining your self-esteem is critical. Negative thoughts will produce negative results. Fight negative self-talk that creeps into your mind. Recognize that "should have" is a form of negative thinking, as is comparing yourself with others. Learn to say no to such activities. Instead, focus on your assets. Avoid placing blame, being pessimistic, feeling victimized, and striving to be a perfectionist. Remember also that you are not alone in the high-expectation personality group. Negativity is extremely contagious in the fire station. Any outbreak will quickly spread! Keeping a positive outlook in your own mind helps, and helping others to fight negativity will keep your environment more positive.

## STRESS FROM MAJOR INCIDENTS

A "normal" individual exposed to an extremely unusual event can be expected to develop some psychological symptoms. The mental health profession first saw this constellation of symptoms in soldiers returning from battle and labeled it "post traumatic stress disorder" (PTSD). Firefighters often experience these same symptoms from extremely unsettling runs, which I'll refer to as "critical incidents." More recently, the name "acute stress disorder" has been applied to the immediate time period following a critical incident. Its symptoms are virtually the same as those for PTSD. Fire service instructors, mentors, and leaders must educate new members and recruits about the symptoms of PTSD. Without some warning, firefighters may believe that their emotional reaction to a serious incident is abnormal and signifies an inability to handle occupational stress. Nothing could be further from the truth. Any normal person exposed to a significantly upsetting situation can develop symptoms of PTSD; firefighters are no exception. A firefighter may experience symptoms after seeing for the first time a dead body after a particularly gruesome motor vehicle accident. Symptoms may also result following a serious and dangerous fire operation.

No amount of experience prevents a person from developing PTSD symptoms. Experience on the job teaches us that we are all human and that the symptoms we develop following a critical incident normally fade with time. Not every person involved in a critical incident will develop PTSD symptoms for the simple reason that we all react differently to life experiences. What constitutes a critical incident for one firefighter may not be of significance to another. When we are affected by a critical incident, the symptoms typically last from two to three weeks. In addition to educating new members on the symptoms of PTSD, it helps to let them know that veteran members of the department are also affected by serious calls.

Table 2 lists some of the most common PTSD symptoms. Each can be categorized as being part of one of three distinct changes:

- Continual reliving of the critical incident. Sights, sounds, smells, and sensations are more clearly imprinted in the mind of a detail-oriented firefighter than that of the average citizen. Nightmares, flashbacks, and other intrusive images cause the individual to continually re-experience the critical incident, making it difficult to get it out of his mind.
- Feeling numb or detached. Emotions seem disconnected, and it becomes very difficult to enjoy life. Often, the firefighter may feel withdrawn, experience a lack of appetite, and lose interest in sex (decreased libido).
- Experiencing anxiety. The firefighter feels nervous, is jumpy, and has trouble concentrating. Memory is often impaired. Sights, sounds, or smells that bring the event back to mind (symbols) greatly increase the symptoms. Some people become extremely irritable and have angry outbursts with little or no provocation.

**Table 2. Post Traumatic Stress Disorder (PTSD)  
Signs and Symptoms**

- Dreams and sleep disturbances
- Flashbacks
- Feeling withdrawn/detached/estranged
- Hyperalertness/exaggerated startle response
- Impaired memory/trouble concentrating
- Avoidance of symbols (increased signs and symptoms)
- Appetite disturbances
- Decreased libido

*Adapted from References 7, 8.*

There is no magic cure for PTSD or acute stress disorder. It is important to provide support and show concern for firefighters affected by critical incidents. Some departments use CISD teams to help firefighters recover from the effects of critical incidents. The CISD teams consist of several trained peer-support personnel and a mental health professional. They lead a group discussion of the critical incident and its effects on the firefighters. The session is not considered therapy or counseling. It follows a format that encourages participants to discuss the incident and its effects on their lives, acquaints them with the symptoms of critical incident stress, and focuses energy on returning to service emotionally. CISD teams have been in existence for nearly two decades in many areas; their use has placed debriefing skills in the hands of many leaders and fire service officers, who probably debrief informally without the aid of organized teams.

Nonetheless, firefighters with symptoms significant enough to disrupt their ability to work or who experience PTSD symptoms beyond a two- to three-week period should be referred to a mental health professional for evaluation.

## RELATIONSHIP STRESSORS

Relationship stressors may result from the firefighters' personality or the nature of their work. Other high-stress occupations, especially those public health and safety professions that require round-the-clock staffing, share some of these work-related relationship stressors.<sup>9</sup> The work schedule-variable hours, shift work, on-call rotations, and the inclination to work additional hours because of dedication to the job-is often the first and most significant source of relationship stress for the firefighter.

Loyalty is another relationship stressor. Although most firefighters would say that their loved ones and family come first, their behavior does not always reflect that. A further complication for the firefighter is the extended family of the fire service, which significantly divides loyalty.

Danger, a relationship stressor frequently mentioned by family and loved ones, does not always occur to firefighters. Today, it is recognized that there are new and ever-increasing dangers in all of the public safety professions, particularly firefighting. Even routine responses can suddenly turn sour. There is no longer a relatively safe firefighting job.

Finally, negativity is commonly mentioned as a significant relationship stressor. Negativity can be manifested in two ways. Firefighters carry their high expectations into their personal life and relationships. Negativity results when toxic thoughts and critical analysis of others appear in personal interactions. Emotional stress on the job also causes firefighters to bring negativity into the home. Constantly caring for other people is draining and can leave firefighters tired, irritable, and low on emotional energy.

The word understanding summarizes the major issue in relationships between firefighters and their significant others. Firefighters believe that their loved ones don't understand them or their firefighting career; their loved ones believe that firefighters do not understand their needs and interests. It seems sensible for firefighters to want to protect those they love from the stresses of public safety work. Unfortunately, attempts to isolate family members from a firefighter's stress often send the exact opposite message. In relationship counseling, about half of all problem behaviors between couples are found to be caused by a lack of feedback. Without clear feedback and communication, firefighters' significant others will believe that something they did resulted in the firefighters' behavior toward them.

## IMPROVING FIREFIGHTERS' RELATIONSHIP SKILLS

Better communication is the key to better relationships and a less stressful home environment. For firefighters, better communication involves improved listening skills and greater self-disclosure. Listening does not always come easily to firefighters, yet they already have the needed skills. The goal is to listen to others with the same attention you listen to your radio at a fire scene. Eye contact, paraphrasing what you think you heard back to the speaker for clarification, and avoiding bias or preconceived notions are all components of good listening. Arguments are clear evidence of failed communication; so are dismissive statements such as "Yes, dear" Silence is a means of avoiding communication and sends negative feedback to others.

When problems arise, they need to be addressed. Behavior not discussed will never, ever change. The best way to open discussion about a problem would be for you to say what is bothering you and why; explain the feelings involved. Suggest a change or solution, and ask for feedback-for example, "Paging me seven or eight times each day while I'm at work bothers me. I feel out of control, embarrassed, and anxious. I'd like to suggest that I call you twice a day. You could always page me if you have an emergency. How does that sound to you?"

Greater self-disclosure builds better and stronger relationships. It is risky to talk about yourself and share your secrets with others, but this is exactly how bridges are built between people. The tough shell you use

at work is not for use at home. Letting your family members know that you need them is an important message to convey. Making sure that you reserve time together is essential to keeping relationships alive and growing.

### **Improving Relationship Skills for Significant Others**

Someone involved in a relationship with a firefighter must understand the basis and nature of the relationship. It may not always be possible to help firefighters deal with stress, but building a supportive and helping relationship that promotes better communication would be very helpful.

Firefighters are control-oriented individuals who tend to be sensitive to criticism. It is helpful for the loved one to show interest in what happens at work, and it is imperative to keep the doors open by listening empathetically, to try to hear the feelings behind the facts and to avoid judging or second-guessing the situation. If there are issues or needs you think need to be addressed, be sure to mention them. Behavior never discussed or confronted will never change.

Supporting the decisions your partner makes and expressing your confidence in his/her ability to solve problems are incredibly helpful. Firefighters' self-esteem is fragile as a result of the extremely high expectations they apply to themselves and others. They get frequent criticism and probably very little credit for what they do each day. Supportive messages can never be given too often! Reserving time together, regardless of how busy both partners may be, is critical to keeping shared interests and open communication.

As indicated, some of the keys to managing stress include recognizing and letting go of those things you are unable to control, keeping a positive focus, and consciously trying to abandon negative thinking. Also, keep in mind that improved communication leads to better relationships with the people in your life. Making your loved ones aware of the stresses and demands of your job as a firefighter can help you to build bridges and decrease isolation.

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## SLEEP TO SURVIVE: HOW TO MANAGE SLEEP DEPRIVATION

BY ROBIN WIDMAR

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Did you sleep well last night? If not, you may be at risk for more than just a bad mood. Like good nutrition and exercise, sleep is essential to mental and physical well-being. Chronic lack of sleep impairs performance, contributes to serious health problems, and may even shorten life-span. In an age of increased emphasis on firefighter health and safety, the importance of sleep should not be minimized.

Respondents to the National Sleep Foundation's 2002 Sleep in America poll expressed concerns about work schedules for people entrusted with public health and safety. Eighty-two percent agreed that employees should not be required to work beyond a regular shift if they are too tired or sleepy. Although the survey specifically addressed physicians, nurses, and police officers, it is easy to see how this would apply to firefighters as well.

Firefighters respond to emergencies 24 hours a day and are not immune to the mental and physical consequences of sleep deprivation. Extended periods without sleep, interrupted sleep, and working against the body's natural sleep/wake cycle negatively impact performance and contribute to workplace accidents. Employers can be held liable for accidents involving their sleep-deprived workers. Although you cannot avoid 24-hour operations, you can manage them to minimize their effects on firefighter health and safety.

### THE BIOLOGY OF SLEEP

Sleep, like food, oxygen, and water, is an essential biological need. It reenergizes the body and allows the brain to store and reorganize information. Studies show that performance of newly learned skills does not improve until a person has had at least six—and preferably eight—hours of sleep. During sleep, the body secretes hormones that affect growth, metabolic, and endocrine functions. Activity in the "sleeping" brain helps regulate gastrointestinal, cardiovascular, and immune functions.

The sleep/wake cycle is part of the body's natural circadian rhythms (from the Latin *circa* "around" and *diem* "day"). While the circadian rhythm can be affected by exposure to light, it is primarily governed by an internal clock. Located in the hypothalamus of the brain, this genetically programmed mechanism controls rhythms of alertness, body temperature, and hormone production over a 24-hour cycle. Circadian rhythms direct humans to sleep at night and be awake during the day. All living beings, including plants and single cells, follow some sort of natural circadian rhythm.

Circadian rhythms differ slightly from person to person. Generally speaking, most people experience peaks of energy and alertness in the mid-morning hours and again during late afternoon and early evening. Two periods of decreased alertness and increased sleepiness occur in the early afternoon and at night, with the hours between 1 a.m. and 4 a.m. being the sleepiest. There are inborn preferences for some people to go to bed early and rise early, while others stay up late and get up late.

Every person needs a different amount of sleep to awaken feeling refreshed. Individual sleep requirements are genetic and may be hereditary. Scientists consider six to 10 hours of sleep a normal range, with most people requiring 7.5 to 8.5 hours of sleep in a 24-hour period. At least four to five hours of uninterrupted core sleep is necessary to maintain minimum performance levels. Sleep requirements may change slightly with age and can be affected by general health. Illness, stress, and depression cause the body to require more sleep to heal and recuperate.

Sleep progresses through four distinct stages and a phase known as rapid eye movement (REM).

- Stage 1: A relaxed, semiconscious state in which a person may be vaguely aware of his or her surroundings.
- Stage 2: The actual beginning of sleep.
- Stages 3 and 4: Deeper sleep, during which body temperature drops; metabolic activity slows; and hormones responsible for growth, development, and tissue repair are secreted.
- Stage 4: The deepest phase of sleep, when the body recovers and heals.

Sleep then moves into the REM phase. During REM, the eyes move rapidly, breathing and heart rates become irregular, blood pressure fluctuates, and muscles become virtually paralyzed. REM plays a major role in memory storage and retention, new learning, and mental performance. It is also the stage of sleep where the most dreaming occurs. At the end of REM, sleep progresses back to the lighter stages of sleep, and the sequence begins again.

Sleep cycles last approximately 90 to 100 minutes and may repeat four to five times a night. If sleep patterns are interrupted too many times, a person will awaken feeling tired. A person's level of alertness depends on the stage of sleep he was in when awakened. In Stage 1 or 2, the person is more likely to wake up feeling alert and refreshed. If he is roused during REM, he more easily remembers his dreams. But if he is awakened from Stage 3 or 4, he may experience sleep inertia, a state of confusion, and diminished performance experienced on waking suddenly from a deep sleep or a nap.

### **WHAT IS SLEEP DEPRIVATION?**

Sleep deprivation occurs when a person does not get sufficient amounts of quality sleep and/or experiences a circadian rhythm disturbance. Work demands, family life, and lifestyle choices may cause a person to sleep fewer hours than his body needs to maintain wakefulness and energy levels. Shift workers and night workers toil and sleep contrary to the body's natural wake/sleep cycle. Some medical conditions or medications may affect a person's quality of sleep. Sleep disorders such as sleep apnea, insomnia, and narcolepsy also contribute to the problem of sleep deprivation.

In today's fast-paced world, sleep is frequently regarded as a luxury instead of a necessity. People view it as a commodity that can be sacrificed for money and lifestyle. Those who sleep less are considered ambitious, hard working, and tough. Unfortunately, this attitude contributes to a lethargic society.

The National Sleep Foundation's 2002 Sleep in America poll found that one-third of the people in the United States regularly sleep 6.5 hours or less per night, short of the 7.5 to 8 hours recommended by scientists and researchers. Studies have proved that decreasing sleep time by one hour a night for seven consecutive nights is equal to staying up for 24 hours straight once a week. Lack of sleep results in drowsiness, fatigue, decreased alertness, slowed reaction times, and impaired thinking and judgment. In fact, recent studies show that being awake for 18 hours produces impairment equal to a blood alcohol concentration (BAC) of .05 and reaches a BAC equivalent of .10 after 24 hours of wakefulness. Thus, a drowsy driver may be as dangerous as a drunk driver and may be so tired that he does not recognize the onset of sleep.

### **ARE YOU SLEEP DEPRIVED?**

If you feel alert throughout the day and can make it through a boring afternoon meeting without falling asleep, then you're probably getting the right amount of sleep. It's easy to stay alert during challenging and interesting activities. Well-rested people are able to endure monotonous, sedentary tasks without feeling drowsy and do not feel sleepy until bedtime. Once in bed, they may take between 10 and 20 minutes to fall asleep.

Here are some indications that you may not be getting enough sleep:

- You need an alarm clock to wake you up at the appropriate time.
- You struggle to get out of bed in the morning.

- You feel irritable, tired, and stressed during the week.
- You have trouble concentrating and remembering.
- You fall asleep in warm rooms during meetings or classroom training.
- You need a nap to get through the day.
- You feel drowsy while driving.
- You fall asleep within five minutes of going to bed.

## THE EFFECTS OF SLEEP DEPRIVATION

Sleep loss is cumulative and creates a sleep debt. Larger sleep debts require greater amounts of restorative sleep to return the body and mind to normal, rested levels. In a controlled study, people who slept only four to five hours per night for one week needed two full nights of sleep to recover normal levels of performance and mood. Habitually compromising sleep over a long period of time leads to chronic sleep deprivation.

Sleep deprivation affects mental processes and intellectual abilities. Studies of third-year medical residents show that losing only one night's sleep caused medical knowledge test scores to drop to first-year level. Sleep deprivation impedes decision making and memory. It reduces performance on challenging tasks and negatively affects psychomotor skills. Mood, productivity, and communication skills suffer. Increased rates of errors and on-the-job injuries are also attributed to sleepiness and fatigue. Extended periods without sleep may cause hallucinations and paranoia.

Physical and mental performances are not the only casualties of sleep deprivation. Even a minimal loss of sleep impacts general health. Chronic lack of sleep can contribute to serious health problems and even shortened lifespan. In a 1983 study at the University of Chicago, rats kept from sleeping became sick and died after two and a half weeks. Sleep-deprived rats that became ill but were then allowed to sleep recuperated fully.

Lack of sleep may slow glucose metabolism by 30 to 40 percent and increase levels of the stress hormone cortisol. Sleep deprivation has also been linked to inadequate levels of the hormone leptin. Leptin signals the body to stop eating when it's full. Decreased levels of leptin lead to increased carbohydrate cravings and eating.

Other effects of chronic sleep deprivation include depression and mood swings; gastrointestinal dysfunction; adult-onset diabetes; menstrual and infertility problems; increased use of drugs and alcohol; impaired sexual function; less satisfaction in personal and domestic pursuits; increased appetite and weight gain; and personality changes, particularly loss of humor and increased ill temper.

Chronic sleep deprivation may be difficult to recognize. Says Dr. James B. Maas in his book *Power Sleep*: "Often we are totally unaware of our own reduced capabilities because we become habituated to low levels of alertness. Many of us have been sleepy for such a long time that we don't know what it's like to feel wide awake."

People suffering from sleep deprivation may not recognize their sleepy condition or the fact that they are making mistakes. Micro-sleeps, brief episodes of unintended sleep, last only a few seconds but can result in serious accidents. Sleepiness can also cause automatic behavior syndrome, or "sleeping with one's eyes open." Lasting several minutes or more, a person continues to perform routine duties but is incapable of active cognition. An example would be a train engineer who remains at the controls but does not recognize a warning signal on the track. The victim of this behavior usually has no memory of the incident.

## CONSEQUENCES OF SLEEP DEPRIVATION

Short-changing the body on sleep can have disastrous consequences. A combination of excessive overtime, insufficient sleep, and irregular working hours contributed to the critical decisions that led to the fatal 8 a.m. launch of the space shuttle Challenger in 1986. When the Exxon Valdez ran aground in 1989, the crew member at the helm was "severely sleep-deprived and apparently asleep on his feet." A 1984 head-on collision of two Burlington-Northern freight trains was blamed on a train engineer and crew's falling asleep; five crew members were killed and seven locomotives destroyed.

No one is immune to the effects of sleep deprivation, including emergency services workers.

- A police officer notices an ambulance stopped in the middle of an intersection with emergency lights and siren activated. He discovers both crew members asleep in the cab.
- On arrival at the hospital with a critical patient, the paramedic driving an ambulance finds the patient still unconscious and his partner asleep in the jump seat.
- The driver of a fire engine arrives at an early-morning emergency scene and doesn't know where he is or remember how he got there.
- A rescue worker is killed when he falls asleep at the wheel of his car and hits a tree after a lengthy search for a missing child. He had not slept in 23 hours.
- While transporting a noncritical patient early in the morning and four hours into overtime, an ambulance driver stops for pedestrians. Mistaking the stop for arrival at the hospital, the attendant opens the side door as the driver starts forward again, damaging nine parked cars.

## WORKING IN A 24-HOUR WORLD

Firefighters must operate around the clock out of necessity. Researchers have studied the impact of sleep deprivation on pilots, military personnel, truck drivers, and shift workers in various occupations, but few have focused on firefighting and EMS. Stress and the unpredictability of emergency work set firefighters apart from other occupations studied by researchers. Even so, the effects of sleep deprivation and night work are shared by all shift workers and translate easily into the fire service.

The human body was not designed to work around the clock. Firefighters who work 24-hour shifts, a common fire service schedule, are subjected to lack of adequate sleep and interrupted sleep on duty because of alarm responses. They may not be able to obtain adequate sleep off duty because of family demands, daytime noise, and fighting their biological clocks.

Shift work in general interferes with circadian sleep patterns and creates sleep deprivation. This in turn leads to fatigue and accidents, both on and off the job. According to Dr. Maas, shift workers are 40 times more likely than day workers to have accidents at work, on the road, and at home. Sleep expert David Dinges, Ph.D., estimates that human error causes between 60 percent and 90 percent of all workplace accidents. "Inadequate sleep is a major factor in human error, at least as important as drugs, alcohol, and equipment failure," he says.

Circadian rhythms affect alertness as much as lack of sleep. Workers are at greater risk for making critical errors during late-evening and early-morning hours. The nuclear accidents at Three-Mile Island and Chernobyl; the Exxon Valdez oil spill; and the catastrophic chemical leak in Bhopal, India, all occurred during early-morning hours. Studies show that most injuries in shift workers occur between 10 p.m. and 2 a.m. The National Highway and Transportation Safety Administration found that truck drivers are 16 times more likely to have accidents in the early-morning hours.

Tasks requiring brief, intense concentration can be performed with little impairment after sleep loss, but alertness and persistence are lost, and monotonous tasks suffer. Research suggests that emergency responders can temporarily overcome fatigue on critical calls but not so much on routine calls. Nothing can compensate for sheer exhaustion.

Shift workers are more prone than day workers to heart attacks, ulcers, depression, and serious sleep disorders. They are three to four times more likely to have sleep apnea than the rest of the population. Studies with animals suggest that rotating shifts contribute to diminished longevity. Night work is considered a compensable cause of premature death in Japan.

Adaptation to shift work appears to be a combination of biological, sleep, and social factors that vary by individual. Generally speaking, those who biologically require less sleep fare better in shift work than those who need more. Extreme morning people suffer more from shift work than "night owls." Age is also a factor. After age 25, the ability to withstand night shifts decreases. Workers in their late 40s or early 50s become even less tolerant to the demands of shift work. Gender differences in coping are more likely attributable to societal and domestic demands than biological differences, since many women are also the primary caretakers of children and households.

During a 1983 congressional hearing on shift workers, sleep researcher Dr. Charles A. Czeisler stated, "... it has been assumed if an individual is 'tough,' he or she should be able to handle almost any type of schedule. We must now begin to awaken to the fact that this simply is not so." Each person adjusts to shift schedules differently. For some people, their physiology doesn't allow them to adjust at all. Others, however, experience peak performance at night. They are the exceptions among those who work nights or rotating shifts.

## SHIFT SCHEDULES

In the United States, firefighters work a variety of shift schedules to cover 24-hour operations. Work periods range from eight to 24 hours. Regardless of the schedule, alertness and performance suffer when personnel work during the hours when the body wants to sleep.

In 1994, University of Connecticut researchers Michael J. Paley and Donald I. Tepas published a study of firefighters working an eight-hour rotating shift schedule. In this schedule, firefighters worked the day, afternoon/evening, or night shift for five consecutive days with two or three days off. Over the course of the two-week shifts, the study showed that night-shift workers slept less than day and afternoon/evening shift workers. These findings were similar to a sample of industrial workers on the same schedule. Firefighters on this schedule suffered decreased mood and greater sleepiness on the night shift and were unable to adapt to the changes in their sleep schedule.

Research indicates that the "direction" of rotation has a significant impact on worker fatigue and productivity. Schedules that move workers from days to nights to evenings, for example, do not allow for adequate adaptation. The recommended rotation is from day shift to afternoon/evening to night shift.

Paley, Tepas, and Jana M. Price published another study in 1998 in which they replaced an eight-hour rotating schedule with two 10-hour day shifts followed by two 14-hour night shifts and four days off. This schedule provided for a faster rotation from day to night shifts and limited exposure to night-shift work. Results suggested that the faster rotation improved health and well-being and reduced sleep difficulties and feelings of fatigue on the job. Time off following the second day shift and last night shift also seemed to offset chronic sleep debt effects. Firefighters reported significantly greater satisfaction with the new schedule. However, longer hours promoted increased sleepiness and decreased mood as the shift progressed. The night shift also experienced more sleep loss than the day shift, despite the opportunity for sleep at the station.

There is still little research about 24-hour shifts. In a 1999 letter to the author, William G. Sirois, senior vice president of Circadian Technologies, Incorporated, commented, "This is particularly frustrating to us because we have the technology to scientifically establish their (24-hour shift) impact on employee health, safety, and performance." Circadian Technologies is a consulting and research firm specializing in shift-work scheduling and training.

Several EMS systems changed their traditional 24-hour schedules, citing rising call volume resulting in chronic fatigue among emergency crews. Overworked EMS personnel experienced a deterioration of mental and physical health; as the call volume increased, so did sick time usage. Explaining why his department considered changing work schedules in 1993, former Austin, Texas, Director of EMS David Wuertz said, "Twenty-four hour shifts stop making sense when workers average 18 calls in 24 hours and

stay awake most of the night .... The public has an absolute right to people who are alert." Twenty-four hour shifts also disrupt family and social activities and contribute to emotional exhaustion and burnout.

The success of the 24-hour schedule depends on how much workers are awake during the night. Marty Klein, Ph.D., author of *The Shiftworkers Handbook*, does not support 24-hour shifts for EMS workers unless they work in systems with low call volumes. Instead, he advocates 12-hour shifts to minimize circadian rhythm problems, avoid commuter hassles, and facilitate family/social interaction.

There is no perfect shift schedule. Different operations require different work systems, and there are advantages and drawbacks to each type of schedule. Assistance is available from companies and consultants who specialize in evaluating operations and work schedules. Deciding which schedule works best for any given system is a complex process of pitting call volume against stress and efficiency against employee preference. In their 1998 report, Paley, Price, and Tepas observed, "No magic bullets exist ... even when schedules are seemingly improved, problems associated with shift work in general and night work in specific will remain."

## COUNTERMEASURES AND COPING STRATEGIES

Quality sleep is the primary weapon in the battle against sleep deprivation. Firefighters must take advantage of opportunities for sleep, both on and off duty. Sleeping areas at home and at the fire station should be quiet and dark, and the room temperature should be cool. A comfortable, good-quality mattress is a must. Invest in comfortable bedding and pillows as well. Good sleep habits are essential. Firefighters need to get an adequate amount of uninterrupted sleep every off-duty night. Going to sleep and waking up at the same times every day, even on weekends, is important for maintaining the body's natural rhythms.

Other tips for quality sleep include the following:

- Avoid eating, reading, and watching TV in bed.
- Avoid nicotine prior to bedtime. Better yet, give up tobacco altogether.
- Restrict caffeine intake, and avoid caffeinated drinks at least six hours before bedtime.
- Eat healthful foods. Do not eat large meals within four to five hours of sleeping.
- Do not use alcohol to induce sleep. The effects of alcohol-induced drowsiness last only a few hours and cause poor-quality sleep.
- Avoid long-term use of over-the-counter sleeping pills. Habitual use can reduce effectiveness and lead to addiction.
- Reduce life stress as much as possible.
- Use relaxation techniques to relieve stress and invite sleep.
- Exercise, but not more than four hours before bedtime. For 24-hour shift workers, outdoor exercise during daylight hours can help the body maintain natural biological rhythms and increase sleep quality off-duty.

Daytime sleep after a night shift is essential to staying well rested, but trying to sleep when the rest of the world is awake can be challenging at best. The shift worker must emphasize to friends and family the importance of restorative sleep and enlist their support and cooperation. Daytime sleep should be scheduled on the family calendar along with ballgames, school meetings, and other activities. Telephones should be removed from the sleeping area and silenced. Sleeping areas may need additional soundproofing and darkening to block daytime noise and sunlight.

Napping is an effective coping strategy that can be used in anticipation of a long night or during extended operations. Naps as short as 20 minutes can be effective. Two-hour naps during around-the-clock operations are highly restorative.

Melatonin may help promote better sleep, particularly during the day. However, this supplement is not FDA-approved, and current research is contradictory on short-term and long-term effects.

People who are regularly unable to sleep should consult their physicians to rule out underlying health problems. Doctors may also be able to prescribe medication to help with sleep. Sleep disorders can be aggravated by shift work. Shift workers with diagnosed sleep disorders need to work closely with their physicians to effectively manage their disorder.

## **EMPLOYER AND EMPLOYEE RESPONSIBILITIES**

Firefighters and other shift workers have a responsibility to report for duty rested and ready for work. Just as an employee should not report for duty if intoxicated, fatigued workers should stay home rather than endanger themselves and their coworkers. During the course of a shift, firefighters need to monitor their own levels of fatigue and watch out for their coworkers as well.

Fire departments have a responsibility to teach their employees how to manage shift work and sleep deprivation. Education should begin with the first day of orientation and be presented as part of ongoing health awareness and safety programs. Periodic physicals are recommended to identify health problems associated with shift work. Supervisors should be trained to identify fatigue in workers and must carefully monitor employees for fatigue symptoms. For liability reasons, if an employee complains of being overly tired, management should consider sending him home.

Other suggestions to consider for managing employee fatigue include the following:

- Evaluate crew sleeping quarters for darkness, quiet, temperature control, and overall comfort. Make upgrades as necessary to provide the best sleep environment possible.
- Allow tired employees an extra hour or two of sleep, even after shift change, to help keep them awake on the drive home.
- Limit the number of consecutive hours an employee may work, including regular hours, overtime, and time trades. Enforce the policy.
- Modify work schedules to better accommodate increasing alarm loads.
- Provide additional staffing and response units during periods of peak-alarm activity.
- Rotate busy units/crews with slower units.
- Limit the length of time personnel can be assigned to busy companies. Lengthy assignments to the busiest companies can lead to burnout; poor attitudes; and, potentially, health problems stemming from chronic lack of sleep.

Fire departments need to address fatigue, sleep deprivation, and the effects of shift work in accident and injury investigations. These factors may easily be overlooked, and the accidents may be falsely attributed to other causes. Even when addressed, the involved parties may deny fatigue because of personal pride and a desire not to look "weak." Accident reviews should include, but not be limited to, the following:

- hours of consecutive duty at the time of the accident,
- the time of day relative to the biological clock,
- hours since last consolidated sleep,
- duration of last consolidated sleep,

- cumulative sleep deprivation over past week,
- timing and duration of naps since last consolidated sleep, and
- ingested chemical stimulants/depressants.

Ignoring shift-fatigue problems can expose employers to litigation and lead to reactionary legislation. An Oregon court has already established that employers are responsible for monitoring employee fatigue and that an employer may be held liable for injuries sustained by fatigued and sleepy employees.

Individuals may also be held liable in drowsy-driving crashes. Tired New Jersey drivers involved in fatal crashes could face up to 10 years in prison and fines up to \$150,000.

Twenty-four hour work schedules have been called a "sacred cow" of the fire service. Many employees find these schedules desirable, and few are willing to sacrifice the benefits they provide. But the time has come to reconsider the 24-hour workday. Ever-increasing alarm loads place demands on a human body that was not designed to operate around the clock. The impact to health and performance can no longer be ignored. Fire departments need to evaluate their operations and the impact of their shift schedule on employees. Whether or not alternate schedules are implemented, workers must be educated on the effects of sleep deprivation and shift work. Employers and employees alike are responsible for identifying and managing the effects of sleep deprivation. Finding solutions will help firefighters and those they serve.

### Recommended Reading

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## **SMOKING UP AMONG FIREFIGHTERS SINCE 9/11**

### **NYC FIRE DEPARTMENT RUNNING FREE SMOKING CESSATION COURSE**

*By Ross Grant*

*HealthScoutNews Reporter*

WEDNESDAY, Sept. 11 (HealthScoutNews) -- Martin Merrick, a 56-year-old New York City firefighter, has been smoking cigarettes since his early teens, but in all those years his strongest urge to smoke came right after the attacks on the World Trade Center.

In the city's tightly knit team of firefighters, Merrick knew 83 of the 343 firefighters who died in the disaster.

"My smoking went up. I'm sure of it," he says nearly a year later. "You don't realize it at first because you're busy, but then it hits you. I talked to another firefighter I know, and he said he started smoking like crazy after September."

The two men aren't alone. To deal with the stress and grief following the terrorist attacks, 29 percent of the smokers in the 11,000-person Fire Department of New York City admitted smoking more cigarettes; 23 percent of the ex-smokers said they had started again, according to data collected by the department's medical office.

The figures dovetail with estimates released this week by the New York City Department of Health that 75,000 people may have taken up the habit for the first time as a result of 9/11.

The disturbing trend didn't stop at the city line. Another survey found 21 percent of smokers increased their smoking in New York, New Jersey and Connecticut. One percent of nonsmokers started smoking and 3 percent of drinkers increased their alcohol intake, according to the Centers for Disease Control and Prevention.

However, among the firefighters, who are often exposed to carcinogens that can become much more damaging when coupled with smoking, the risks are extreme, says Dr. David J. Prezant, the fire department's deputy medical officer.

"Firefighting is one of the most stressful jobs in America. You come across death on a regular basis, unfortunately too regular," he says. "Most of these people who smoke want to stop smoking, now more than ever."

To help firefighters kick the habit, the department last month began offering a free stop-smoking course designed for firefighters. Merrick, who works in the medical examiner's office, is one of the 160 firefighters who have already started the weekly course.

"I've tried it before. I must have tried it 10 times or more, but it only lasts a week or so," Merrick says about his efforts to quit.

This time, because of help from his comrades and his daughter's ultimatum that he can't visit his grandson if he smokes, the 30-year firefighter has held on longer than ever before.

"The first week was a little tough. I had a few cigarettes," he says. "But it's been about three weeks since I had a cigarette. It feels good."

The program relies on nicotine replacement therapies such as inhalers and patches; small group sessions to discuss cravings other aspects of quitting smoking, and medical monitoring of all participants. The department is also offering the program to spouses of the firefighters to root the behavior change in the family.

Prezant helped design the program after examining other smoking cessation initiatives. Other sponsors are the Chest Foundation and Pharmacia Corp., makers of the Nicotrol line of smoking cessation products.

"I can't take away their exposure from 9/11. I don't have a magic wand," Prezant says. "But I want to look forward the next 20 years for their health, and one of the most major modifiable behaviors is smoking."

Besides preventing the long-term dangers of smoking, there are other reasons for addressing the smoking trend by New York City firefighters and nearby residents, says David Vlahov, director of the New York Academy of Medicine's Center for Urban Epidemiological Studies. Smoking is just one sign of a panic attack that can also lead to depression and drug and alcohol abuse, which should also be treated.

"The World Trade Centers were a symbol for the city. To what extent did this affect the general attitude of the city?" Vlahov says. "We were wondering if there were going to be ripple effects to the disaster that continue to affect us."

For the New York City firefighters, the cessation program is so successful the fire department plans to expand it to bring in more of the 1,500 firefighters who smoke.

"Right now we have more people than we can handle. That's still only 10 percent of what we want to get, but every week we're starting a new program," Prezant says.

### **What To Do**

For tips on stopping smoking, visit the Centers for Disease Control and Prevention (<http://www.cdc.gov/tobacco/how2quit.htm>). For a list of groups that run smoking cessation programs in your area, go to [www.cdc.gov/tobacco/quit/outside\\_resources.htm](http://www.cdc.gov/tobacco/quit/outside_resources.htm).

SOURCES: Martin Merrick, firefighter, New York City; David J. Prezant, M.D., deputy medical officer, Fire Department of New York City; David Vlahov, director, Center for Urban Epidemiological Studies, New York Academy of Medicine

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## Nicotine Effects – Fast Facts

### Nicotine Stats

- ✓ Nicotine is one of the most used addictive drugs in the US, and may come in the form of cigarettes, cigars, pipes, or chewing tobacco.
- ✓ Smoking related diseases kill an estimated 440,000 Americans each year, costs the US about \$150 billion in health care costs and lost productivity, and is directly responsible for 87% of lung cancer cases and most cases of emphysema and chronic bronchitis.
- ✓ Second hand smoke from adults is associated with a wide range of illnesses in children, including asthma, increased frequency of ear infections and colds, as well as SIDS.
- ✓ Tobacco is the leading cause of preventable death in MA, accounting for close to 9,300 deaths.
- ✓ If you're 35 or over, smoking increases your risk dying from:
  - Lung cancer – 12 times more likely than non-smokers
  - COPD – 10 times more likely
  - Larynx cancer – 10 times more likely
  - Mouth cancer – 6 times more likely
  - Coronary heart disease – 2 times more likely
  - Stroke – 2 times more likely
- ✓ Smoking increases the level of carbon monoxide in the blood and elevates blood pressure, thereby increasing the risk of heart attack and stroke.
- ✓ A report from 1995 stated that experts believe that more firefighters smoke than the general population.
- ✓ Firefighters are at increased risk of chronic lung disease and loss of lung function because of their chronic exposure to irritant gases, vapors, and particulates in smoke. Cigarette smoking greatly increases these hazards, as well as reduces firefighter's sense of smell, diminishing sensitivity to dangerous smoke and toxic gas.
- ✓ Chewing tobacco is just as harmful as smoking – it contains nicotine along with many other cancer-causing chemicals – and accounts for approximately 50% of oral cancers.
- ✓ Chewing tobacco is associated with:
  - Oral hygiene problems
  - Cancer of the cheek, inner lip, pharynx, tongue, esophagus, palate, and larynx
  - Inflammation of the gums
  - Tooth decay and loss
  - Slowing of healing of mouth wounds
  - Lowered sense of taste and smell



### The Effects on the Brain

- ✓ Cigarettes contain at least 43 cancer-causing chemicals, including the highly addictive chemical nicotine, carbon monoxide, and tar.
- ✓ Nicotine is a fast-acting drug that causes a discharge of epinephrine from the adrenal cortex, stimulating the central nervous system and other glands. Stimulation is then followed by depression and fatigue, leading the smoker to seek another "fix".

- ✓ Studies have shown that nicotine increases the level of dopamine, affecting the part of the brain that controls reward and pleasure, just like cocaine, heroin, and marijuana.
- ✓ The withdrawal effects from regular nicotine use include anger, hostility, aggression, loss of social cooperation, and loss of psychomotor and cognitive functions, among others.
- ✓ The withdrawal effects are comparable in magnitude and duration to the withdrawal of other drugs such as cocaine, opiates, amphetamines, and alcohol.

## Quitting

- ✓ Rates of relapse are highest in the first few weeks and months, and decrease significantly after around 3 months.
- ✓ Studies have shown that the best approach to quitting is a combination of pharmacological and behavioral treatments, including a reward and reinforcements plan of action.
- ✓ For more information on quitting smoking, you can visit the following web pages:
  - [www.trytostop.org](http://www.trytostop.org)
  - [www.lungusa.org](http://www.lungusa.org)
  - [www.cdc.gov/tobacco](http://www.cdc.gov/tobacco)

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### **Caffeine Effects – Fast Facts**

Caffeine stimulates the nervous system.

In moderate amounts caffeine can:

- ✓ Increase wakefulness or decrease fatigue
- ✓ Postpone the onset of sleep
- ✓ Increase mental activity
- ✓ Raise stomach acidity, which leads to stomach ulcers

At higher doses caffeine can:

- ✓ Stimulate heart muscles
- ✓ Narrow blood vessels in brain (relieving some types of headaches)
- ✓ Draw more air into lungs
- ✓ Increase the excretion of urine, since caffeine is a weak diuretic

More than one gram of caffeine taken at one time can result in:

- ✓ Disturbances of the senses, such as ringing in the ears
- ✓ Insomnia
- ✓ Tremors
- ✓ Increase heartbeat
- ✓ Gastric irritation
- ✓ Restlessness and excitement, which may lead to delirium

Seven or more cups of strong coffee a day lead to:

- ✓ A feeling of anxiousness and irritability
- ✓ Muscle tremors
- ✓ Headaches
- ✓ Chronic insomnia

(All these disturbances will clear up once caffeine intake is reduced.)

### **Caffeine Tolerance and Dependence**

Tolerance to the effects of caffeine develops and a caffeine withdrawal syndrome develops.

This well-established syndrome develops after regular use of 300 mgs of caffeine (two cups strong brewed coffee, or six cups of tea).

After stopping caffeine intake the long-term user feels less alert and relaxed, more irritable and drowsy, and suffers from headaches which can be severe.

Tiredness and irritability can even be experienced when people miss their morning coffee.

Psychological dependence can develop so that people find it hard to stop drinking their coffee, even for medical reasons.

**Serious Health Risks**

Caffeine consumption can contribute to increased levels of heart disease.

# COMMONLY ABUSED DRUGS

Visit NIDA at [www.drugabuse.gov](http://www.drugabuse.gov)



| Substances:<br>Category and Name           | Examples of Commercial and Street Names                                                                                                                                                | DEA Schedule*/<br>How Administered**         | Intoxication Effects/Potential Health Consequences                                                                                                                                                                                                          |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cannabinoids</b>                        |                                                                                                                                                                                        |                                              |                                                                                                                                                                                                                                                             |
| hashish                                    | boom, chronic, gangster, hash, hash oil, hemp                                                                                                                                          | I/ swallowed, smoked                         | <i>euphoria, slowed thinking and reaction time, confusion, impaired balance and coordination/cough, frequent respiratory infections; impaired memory and learning; increased heart rate, anxiety, panic attacks; tolerance, addiction</i>                   |
| marijuana                                  | blunt, dope, ganja, grass, herb, joints, Mary Jane, pot, reefer, sinsemilla, skunk, weed                                                                                               | I/ swallowed, smoked                         |                                                                                                                                                                                                                                                             |
| <b>Depressants</b>                         |                                                                                                                                                                                        |                                              |                                                                                                                                                                                                                                                             |
| barbiturates                               | <i>Amytal, Nembutal, Seconal, Phenobarbital</i> : barbs, reds, red birds, phennies, tootes, yellows, yellow jackets                                                                    | II, III, V/injected, swallowed               | <i>reduced anxiety; feeling of well-being; lowered inhibitions; slowed pulse and breathing, lowered blood pressure, poor concentration/fatigue, confusion, impaired coordination, memory, judgment; addiction; respiratory depression and arrest; death</i> |
| benzodiazepines (other than flunitrazepam) | <i>Ativan, Halcion, Librium, Valium, Xanax</i> : candy, downers, sleeping pills, tranks                                                                                                | IV/ swallowed, injected                      | <i>Also, for barbiturates—sedation, drowsiness/depression, unusual excitement, fever, irritability, poor judgment, slurred speech, dizziness, life-threatening withdrawal</i>                                                                               |
| flunitrazepam***                           | <i>Rohypnol</i> : forget-me pill, Mexican Valium, R2, Roche, roofies, roofinol, rope, rophies                                                                                          | IV/ swallowed, snorted                       | <i>for benzodiazepines—sedation, drowsiness/dizziness</i>                                                                                                                                                                                                   |
| GHB***                                     | <i>gamma-hydroxybutyrate</i> : G, Georgia home boy, grievous bodily harm, liquid ecstasy                                                                                               | I/ swallowed                                 | <i>for flunitrazepam—visual and gastrointestinal disturbances, urinary retention, memory loss for the time under the drug's effects</i>                                                                                                                     |
| methaqualone                               | <i>Quaalude, Sopor, Parest</i> : ludes, mandrex, quad, quay                                                                                                                            | I/ injected, swallowed                       | <i>for GHB—drowsiness, nausea/vomiting, headache, loss of consciousness, loss of reflexes, seizures, coma, death</i>                                                                                                                                        |
|                                            |                                                                                                                                                                                        |                                              | <i>for methaqualone—euphoria/depression, poor reflexes, slurred speech, coma</i>                                                                                                                                                                            |
| <b>Dissociative Anesthetics</b>            |                                                                                                                                                                                        |                                              |                                                                                                                                                                                                                                                             |
| ketamine                                   | <i>Ketalar SV</i> : cat Valiums, K, Special K, vitamin K                                                                                                                               | III/ injected, snorted, smoked               | <i>increased heart rate and blood pressure, impaired motor function/memory loss; numbness; nausea/vomiting</i>                                                                                                                                              |
| PCP and analogs                            | <i>phencyclidine</i> : angel dust, boat, hog, love boat, peace pill                                                                                                                    | I, II/ injected, swallowed, smoked           | <i>Also, for ketamine—at high doses, delirium, depression, respiratory depression and arrest</i>                                                                                                                                                            |
|                                            |                                                                                                                                                                                        |                                              | <i>for PCP and analogs—possible decrease in blood pressure and heart rate, panic, aggression, violence/loss of appetite, depression</i>                                                                                                                     |
| <b>Hallucinogens</b>                       |                                                                                                                                                                                        |                                              |                                                                                                                                                                                                                                                             |
| LSD                                        | <i>lysergic acid diethylamide</i> : acid, blotter, boomers, cubes, microdot, yellow sunshines                                                                                          | I/ swallowed, absorbed through mouth tissues | <i>altered states of perception and feeling; nausea; persisting perception disorder (flashbacks)</i>                                                                                                                                                        |
| mescaline                                  | buttons, cactus, mesc, peyote                                                                                                                                                          | I/ swallowed, smoked                         | <i>Also, for LSD and mescaline—increased body temperature, heart rate, blood pressure; loss of appetite, sleeplessness, numbness, weakness, tremors</i>                                                                                                     |
| psilocybin                                 | magic mushroom, purple passion, shrooms                                                                                                                                                | I/ swallowed                                 | <i>for LSD—persistent mental disorders</i>                                                                                                                                                                                                                  |
|                                            |                                                                                                                                                                                        |                                              | <i>for psilocybin—nervousness, paranoia</i>                                                                                                                                                                                                                 |
| <b>Opioids and Morphine Derivatives</b>    |                                                                                                                                                                                        |                                              |                                                                                                                                                                                                                                                             |
| codeine                                    | <i>Empirin with Codeine, Fiorinal with Codeine, Robitussin A-C, Tylenol with Codeine</i> : Captain Cody, Cody, schoolboy; (with glutethimide) doors & fours, loads, pancakes and syrup | II, III, IV, V/injected, swallowed           | <i>pain relief, euphoria, drowsiness/nausea, constipation, confusion, sedation, respiratory depression and arrest, tolerance, addiction, unconsciousness, coma, death</i>                                                                                   |
| fentanyl and fentanyl analogs              | <i>Actiq, Duragesic, Sublimaze</i> : Apache, China girl, China white, dance fever, friend, goodfella, jackpot, murder 8, TNT, Tango and Cash                                           | I, II/injected, smoked, snorted              | <i>Also, for codeine—less analgesia, sedation, and respiratory depression than morphine</i>                                                                                                                                                                 |
| heroin                                     | <i>diacetylmorphine</i> : brown sugar, dope, H, horse, junk, skag, skunk, smack, white horse                                                                                           | I/injected, smoked, snorted                  | <i>for heroin—staggering gait</i>                                                                                                                                                                                                                           |
| morphine                                   | <i>Roxanol, Duramorph</i> : M, Miss Emma, monkey, white stuff                                                                                                                          | II, III/injected, swallowed, smoked          |                                                                                                                                                                                                                                                             |
| opium                                      | <i>laudanum, paregoric</i> : big O, black stuff, block, gum, hop                                                                                                                       | II, III, V/ swallowed, smoked                |                                                                                                                                                                                                                                                             |
| oxycodone HCL                              | <i>OxyContin</i> : Oxy, O.C., killer                                                                                                                                                   | I/ swallowed, snorted, injected              |                                                                                                                                                                                                                                                             |
| hydrocodone bitartrate, acetaminophen      | <i>Vicodin</i> : vike, Watson-387                                                                                                                                                      | II/ swallowed                                |                                                                                                                                                                                                                                                             |
| <b>Stimulants</b>                          |                                                                                                                                                                                        |                                              |                                                                                                                                                                                                                                                             |
| amphetamines                               | <i>Biphetamine, Dexedrine</i> : bennies, black beauties, crosses, hearts, LA turnaround, speed, truck drivers, uppers                                                                  | II/injected, swallowed, smoked, snorted      | <i>increased heart rate, blood pressure, metabolism; feelings of exhilaration, energy, increased mental alertness/rapid or irregular heart beat, reduced appetite, weight loss, heart failure, nervousness, insomnia</i>                                    |
| cocaine                                    | <i>Cocaine hydrochloride</i> : blow, bump, C, candy, Charlie, coke, crack, flake, rock, snow, toot                                                                                     | II/injected, smoked, snorted                 | <i>Also, for amphetamine—rapid breathing/tremor, loss of coordination; irritability, anxiousness, restlessness, delirium, panic, paranoia, impulsive behavior, aggressiveness, tolerance, addiction, psychosis</i>                                          |
|                                            |                                                                                                                                                                                        |                                              | <i>for cocaine—increased temperature/chest pain, respiratory failure, nausea, abdominal pain, strokes, seizures, headaches, malnutrition, panic attacks</i>                                                                                                 |

\*Schedule I and II drugs have a high potential for abuse. They require greater storage security and have a quota on manufacturing, among other restrictions. Schedule I drugs are available for research only and have no approved medical use; Schedule II drugs are available only by prescription (unrefillable) and require a form for ordering. Schedule III and IV drugs are available by prescription, may have five refills in 6 months, and may be ordered orally. Most Schedule V drugs are available over the counter.

\*\*\*Taking drugs by injection can increase the risk of infection through needle contamination with staphylococci, HIV, hepatitis, and other organisms.

\*\*\*Associated with sexual assaults.



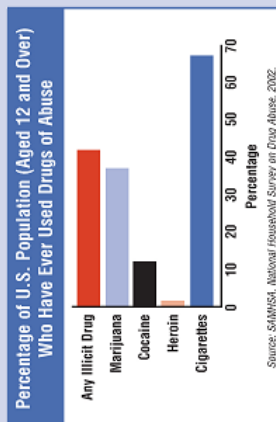
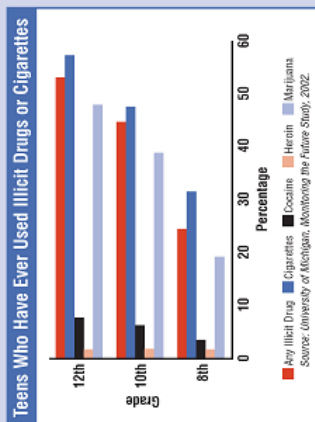
| Substances:<br>Category and Name                               | Examples of <i>Commercial</i> and Street Names                                                                                                                                                | DEA Schedule*/<br>How Administered **                             | Intoxication Effects/Potential Health Consequences                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stimulants (continued)</b>                                  |                                                                                                                                                                                               |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                |
| MDMA (methyl-<br>enedioxymeth-<br>amphetamine)                 | Adam, clarity, ecstasy, Eve, lover's speed, peace, STP, X, XTC                                                                                                                                | I/swallowed                                                       | for MDMA—mild hallucinogenic effects, increased tactile sensitivity, empathic feelings/impaired memory and learning, hyperthermia, cardiac toxicity, renal failure, liver toxicity                                                                                                                                                                                                             |
| methamphetamine                                                | Desoxyn: chalk, crank, crystal, fire, glass, go fast, ice, meth, speed                                                                                                                        | II/injected, swallowed, smoked, snorted                           | for methamphetamine—aggression, violence, psychotic behavior/memory loss, cardiac and neurological damage; impaired memory and learning, tolerance, addiction                                                                                                                                                                                                                                  |
| methylenedate<br>(safe and effective for<br>treatment of ADHD) | Ritalin: Jif, MPH, R-ball, Skippy, the smart drug, vitamin R                                                                                                                                  | II/injected, swallowed, snorted                                   | for nicotine—additional effects attributable to tobacco exposure: adverse pregnancy outcomes; chronic lung disease, cardiovascular disease, stroke, cancer; tolerance, addiction                                                                                                                                                                                                               |
| nicotine                                                       | cigarettes, cigars, smokeless tobacco, snuff, spit tobacco, bidis, chew                                                                                                                       | not scheduled/smoked, snorted,<br>taken in snuff and spit tobacco |                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Other Compounds</b>                                         |                                                                                                                                                                                               |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                |
| anabolic steroids                                              | Anadrol, Oxandrin, Durabolin, Depo-testosterone, Equipoise: roids, juice                                                                                                                      | III/injected, swallowed, applied<br>to skin                       | no intoxication effects/hypertension, blood clotting and cholesterol changes, liver cysts and cancer, kidney cancer, hostility and aggression, acne; in adolescents, premature stoppage of growth, in males, prostate cancer, reduced sperm production, shrunken testicles, breast enlargement; in females, menstrual irregularities, development of beard and other masculine characteristics |
| inhalants                                                      | Solvents (paint thinners, gasoline, glues), gases (butane, propane, aerosol propellants, nitrous oxide), nitrites (isocamyl, isobutyl, cyclohexyl): laughing gas, poppers, snappers, whippets | not scheduled/inhaled through<br>nose or mouth                    | stimulation, loss of inhibition; headache; nausea or vomiting; slurred speech, loss of motor coordination; wheezing/unconsciousness, cramps, weight loss, muscle weakness, depression, memory impairment, damage to cardiovascular and nervous systems, sudden death                                                                                                                           |

## Principles of Drug Addiction Treatment

Nearly three decades of scientific research have yielded 13 fundamental principles that characterize effective drug abuse treatment.

These principles are detailed in NIDA's *Principles of Drug Addiction Treatment: A Research-Based Guide*.

1. **No single treatment is appropriate for all individuals.** Matching treatment settings, interventions, and services to each patient's problems and needs is critical.
2. **Treatment needs to be readily available.** Treatment applicants can be lost if treatment is not immediately available or readily accessible.
3. **Effective treatment attends to multiple needs of the individual, not just his or her drug use.** Treatment must address the individual's drug use and associated medical, psychological, social, vocational, and legal problems.
4. **At different times during treatment, a patient may develop a need for medical services, family therapy, vocational rehabilitation, and social and legal services.**
5. **Remaining in treatment for an adequate period of time is critical for treatment effectiveness.** The time depends on an individual's needs. For most patients, the threshold of significant improvement is reached at about 3 months in treatment. Additional treatment can produce further progress. Programs should include strategies to prevent patients from leaving treatment prematurely.
6. **Individual and/or group counseling and other behavioral therapies are critical components of effective treatment for addiction.** In therapy, patients address motivation, build skills to resist drug use, replace drug-using activities with constructive and rewarding nondrug-using activities, and improve problem-solving abilities. Behavioral therapy also facilitates interpersonal relationships.
7. **Medications are an important element of treatment for many patients, especially when combined with counseling and other behavioral therapies.** Buprenorphine, methadone, and levo-alpha-acetyl/methadol (LAAM) help patients addicted to opiates stabilize their lives and reduce their drug use. Naltrexone is effective for some opiate addicts and some patients with co-occurring
8. **Addicted or drug-abusing individuals with coexisting mental disorders should have both disorders treated in an integrated way.**
9. **Medical detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug use.** Medical detoxification manages the acute physical symptoms of withdrawal. For some individuals it is a precursor to effective drug addiction treatment.
10. **Treatment does not need to be voluntary to be effective.** Sanctions or enticements in the family, employment setting, or criminal justice system can significantly increase treatment entry, retention, and success.
11. **Possible drug use during treatment must be monitored continuously.** Monitoring a patient's drug and alcohol use during treatment, such as through urinalysis, can help the patient withstand urges to use drugs. Such monitoring also can provide early evidence of drug use so that treatment can be adjusted.
12. **Treatment programs should provide assessment for HIV/AIDS, hepatitis B and C, tuberculosis and other infectious diseases, and counseling to help patients modify or change behaviors that place them or others at risk of infection.** Counseling can help patients avoid high-risk behavior and help people who are already infected manage their illness.
13. **Recovery from drug addiction can be a long-term process and frequently requires multiple episodes of treatment.** As with other chronic illnesses, relapses to drug use can occur during or after successful treatment episodes. Participation in self-help support programs during and following treatment often helps maintain abstinence.



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## Massage Therapy for Health and Fitness

by Elliot Greene

Massage affects the body as a whole. To understand how massage therapy works, some of the physiological effects of massage need to be briefly examined.

Massage is known to increase the circulation of blood and flow of lymph. The direct mechanical effect of rhythmically applied manual pressure and movement used in massage can dramatically increase the rate of blood flow. Also, the stimulation of nerve receptors causes the blood vessels (by reflex action) to dilate, which also facilitates blood flow.

A milky white fluid called lymph carries impurities and waste away from the tissues and passes through gland-like structures spaced throughout the lymphatic system that act as filtering valves. The lymph does not circulate as the blood does, so its movement depends largely on the squeezing effect of muscle contractions. Consequently, inactive people fail to stimulate lymph flow. On the other hand, the stimulation caused by vigorous activity can be outstripped by the increased waste produced by that activity. Massage can dramatically aid the movement of lymph in either case.

For the whole body to be healthy, the sum of its parts -- the cells -- must be healthy. The individual cells of the body are dependent on an abundant supply of blood and lymph because these fluids supply nutrients and oxygen and carry away wastes and toxins. So, it is easy to understand why good circulation is so important to our health and why massage can be so beneficial for the entire body due to its effect on circulation alone.

Massage is also known to:

- Cause changes in the blood. The oxygen capacity of the blood can increase 10-15% after massage.
- Affect muscles throughout the body. Massage can help loosen contracted, shortened muscles and can stimulate weak, flaccid muscles. This muscle "balancing" can help posture and promote more efficient movement. Massage does not directly increase muscle strength, but it can speed recovery from the fatigue that occurs after exercise. In this way, it can be possible to do more exercise and training, which in the long run strengthens muscles and improves conditioning. Massage also provides a gentle stretching action to both the muscles and connective tissues that surround and support the muscles and many other parts of the body, which helps keep these tissues elastic.
- Increase the body's secretions and excretions. There is a proven increase in the production of gastric juices, saliva, and urine. There is also increased excretion of nitrogen, inorganic phosphorus, and sodium chloride (salt). This suggests that the metabolic rate (the utilization of absorbed material by the body's cells) increases.
- Affect the nervous system. Massage balances the nervous system by soothing or stimulating it, depending on which effect is needed by the individual at the time of the massage.
- Enhance skin condition. Massage directly improves the function of the sebaceous (oil) and sweat glands that keep the skin lubricated, clean, and cooled. Tough, inflexible skin can become softer and more supple.
- Affect internal organs. By indirectly or directly stimulating nerves that supply internal organs, blood vessels of these organs dilate and allow greater blood supply to them.

Knowing about the physiological effects of massage makes it possible to better understand the health and fitness benefits of massage. What takes place under a massage therapist's hands has profound importance for those interested in health and fitness -- in "tuning up" their bodies. In every sport or form of exercise, massage can help. By helping to reduce physiological fatigue and aid recovery from the exertion of working out or playing, massage enables training better, with longer, more effective workouts, thus facilitating better performance and preventing injury.

The people of ancient Mediterranean civilizations knew this. After bathing and exercise, they included a full body massage. The ancients understood that education involves equal development of mind and body. The modern public's interest in physical fitness, holistic health, wellness and human potential represents a bid to revive a time-honored philosophy.

For most people embarking on a fitness program, often the spirit is willing but the flesh is not. When regular exercise is begun almost every part of the body changes. Of interest to massage therapists is the way blood vessels become more intricate in order to meet the body's demand for more oxygen, to supply more nutrients, to permit more elimination. This takes time. While the muscles are getting into shape, they have trouble getting enough oxygen and nutrients, and wastes back up and stagnate. Unfortunately, many exercise programs regard aches and pains as the inevitable price to be paid. This is simply not true because massage can be used as the Greeks and Romans used it -- to increase endurance, control fatigue, and feel better as part of a regular health program.

Massage acts to disperse the accumulated by-products of muscle action that irritate muscles and nerve endings. Lactic and carbonic acids build up in muscle tissue shortly after exercise begins. These acids are waste products that contribute to causation of the pain and occasional cramping that exercisers, athletes, dancers, etc. suffer during and/or after workouts or performing. These acids are formed when the glycogen stored in the liver and muscles is burned to produce the energy expended during exercise. The acids must eventually be reconverted to glycogen and stored again, or drained out via the lymph and circulatory systems. Pain and fatigue persists until this process of reconverting or excreting is completed. Massage can help eliminate the irritation caused by these wastes, thus increasing muscle recovery rates. When massage has been substituted for rest, an increase from 20-75%, even 100% muscle recovery has been recorded. For example, this is why boxers are massaged rather than rested between rounds.

Joints are critical to exercise because joints are moved by the muscles to produce movement. All joints are complicated, and their parts have a way of settling and stiffening when not used. A sluggish, numbed feeling in the joints discourages exercise. A massage therapist counteracts this by using massage strokes and passive movement to release the muscle tension and free the connective tissue found around the joints that can bind the joints.

Massage also aids recovery from soft tissue injuries such as sprains and strains. This is possible because the growth and repair of tissue are accelerated by efficient circulation in the injured areas and appropriate stimulation of the healing tissues. Many soft tissue injuries are not serious enough to cause one to visit a doctor or hospital for treatment, or are only treated with some first-aid, but still cause some discomfort and disability. Massage therapy can often help speed and improve recovery and reduce discomfort from such mishaps. In this way, massage helps bridge the gap between common neglect of injury and major medical intervention.

Increased health awareness has also increased nutrition awareness. The most carefully planned diet is partly wasted if blood vessels are not developed and open so that nutrition can reach the cells. Massage can aid internal nutrition rates by improving circulation.

The relationship of stress and illness is of interest to anyone maintaining their health. We all have stress in our daily lives relating to work, family, environment, and society. Mental tensions, frustrations, and insecurity are among the most damaging. Stress causes the release of hormones that create vasoconstriction -- vessel shrinking -- and reduced circulation. Affected by stress, the heart works harder, breathing becomes rapid and shallow, and digestion slows. Nearly every body process is degraded. Psychosomatic studies show how stress factors can cause migraines, hypertension, depression, some peptic ulcers, etc. Researchers have estimated that 80% of disease is stress related. Soothing and relaxing massage therapy can help by counteracting stress effects.

Massage has a definite psychological effect. Since massage animates the tactile sense, the body's primary sense, it brings people into the here and now and away from tension generated by constant preoccupation with problems. Also, loosening of muscle tension or "armoring" -- the physical counterpart to how we defend and protect ourselves from psychological pain -- can lead to freeing of repressed emotions.

Users of massage therapy as a healing tool quickly realize that they have found a form of drugless therapy. Headaches, insomnia, digestive disorders including constipation and spastic colon, arthritis, asthma, carpal tunnel syndrome, sinusitis, and minor aches and pains are some of the problems that can respond to massage therapy. Massage can have an excellent effect on nervous people who have been dependent on their pharmacy for rest and relaxation.

Simply stated, the foundation stone of the therapeutic effect of massage is what Hippocrates, the Father of Medicine and an advocate of massage, defined as *vis medicatrix naturae*, or the body's natural recuperative powers, the life force. Massage therapy essentially promotes health by boosting the body's own processes.

While this article has focused on how massage can help tune the body, and on its concrete scientific effects, it should also be mentioned that massage can be seen as a healing art as well as a science. The theories of therapeutic massage are scientific in character, but the actual application of these theories is an art, for it involves the healing sense, sensitivity of touch, insight, and intuition. It is a unique way of communicating without words, sharing energy, enjoying pleasurable relaxation, and experiencing peace of mind. Massage is often attributed to have ethereal spiritual effects akin to those of meditation.

The past ten years or so have seen a proliferation of different terms, titles, and systems of massage such as: Therapeutic, Holistic, Swedish, Sports, Neuromuscular, Bodywork, Oriental, Shiatsu, Acupressure, Esalen, Reichian, Polarity, Reflexology, etc. For the sake of clarity, the term massage or massage therapy as used in this article refers to the scientific manipulation of the soft tissues. The thing to keep in mind is that every healing art that employs massage therapy should include some form of kneading, pressing, or stroking with the use of pressure and movement, no matter how slight the touch or how often it is used.

The best ways to find a massage therapist is to get a referral from a friend who gets massage therapy, a health professional who is knowledgeable about massage therapy, or contact the American Massage Therapy Association for names of qualified massage therapists in your area. You can call AMTA toll-free at 888-843-2682, write to AMTA: 500 Davis Street, Evanston, IL 60201, or check out the AMTA web site at <http://www.amtamassage.org> to locate a qualified massage therapist near you or for more information about massage therapy. Another source to find a qualified massage therapist is the National Certification Board for Therapeutic Massage and Bodywork web site at <http://www.ncbtmb.com> (click on "Practitioners in Your Area"). Since there are many styles of massage, you may want to shop around to find someone who practices the style of

massage most suited to your needs. You should be able to find a massage therapist who is right for you, though you may or may not need to try a few massage therapists to do so.

Whenever interviewing a massage therapist you should always feel comfortable asking if they have graduated from a school that is accredited by a credible accrediting agency such as the Commission for Massage Therapy Accreditation (COMTA), are licensed if licensing is required in your area (currently 35 states and D.C. regulate massage therapists), are nationally certified by the National Certification Board for Therapeutic Massage and Bodywork (this is the only professional certification program for massage therapists that has been recognized by an independent, outside agency), belong to a credible professional association such as the AMTA, and also the amount of experience and styles of massage used.

In terms of what to expect during a massage therapy session, they generally are an hour in length. Clients are usually asked to remove as much clothing as one is comfortable with and rest on a padded massage table. To respect personal privacy and provide adequate warmth, the client is covered or draped with a sheet or towel so that only the part of the body being worked on is exposed at any given time.

Whether or not you would expect to talk during a session depends on your need at the time. Some clients need to talk. Some need silence. Massage therapists will usually try to accommodate what the client needs. However, sometimes talking detracts from entering a state of relaxation or experiencing the physical or nonverbal dimensions of the massage. In any case, feel comfortable giving feedback about your needs and what you like or do not like during the session. Good communication enhances the massage session.

The massage therapist will likely use a high quality oil or lotion, but if you have an allergic response you should let the massage therapist know. Some massage therapists offer to play music during a session, others may feel it is distracting. It is best not to have eaten just before a session. Your massage therapist can answer many other questions you may have. If for any reason you must miss a massage appointment, your massage therapist will surely appreciate being notified as soon as possible.

To enjoy the benefits of massage which have been discussed, it is best to receive a therapeutic massage from a practitioner who has blended a thorough knowledge of anatomy, physiology, kinesiology, and massage technique with a sensitive, powerful touch and the healing sense. To your health!

Elliot Greene, M.A., NCTMB, is the co-author of the book, *The Psychology of the Body*, published by Lippincott Williams & Wilkins, which explores the links between the body and mind and the psychological issues involved in massage therapy. He has more than 32 years experience as a massage therapist and workshop instructor and served from 1990-1994 as national president of the American Massage Therapy Association. He was a major contributor for the NIH publication *Alternative Medicine: Expanding Medical Horizons*, has been an expert advisor on massage therapy for publications by Time-Life Books, Rodale Press, Warner Books, Consumer Reports and other publishers. He has a private practice in Silver Spring, MD, and his e-mail address is [elgreene@aol.com](mailto:elgreene@aol.com).

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