California Department of Forestry and Fire Protection

CAL FIRE

Hydration, Nutrition, and Wellness

SOURCES: CAL FIRE Intranet "Safety and Health;" CAL FIRE HB 1800; Orange County Fire Authority "Safety and Performance Implications of Hydration;" Orange County Fire Authority "Firefighter Wellness and Fitness Program;" International Association of Fire Fighters "Wellness-Fitness" Initiative

Hydration, Nutrition, and Wellness create a trilogy of sorts that has direct impacts on the day to day lives of CAL FIRE employees. Those impacts, like most things in life, come with both positive and negative results depending on how one recognizes and responds to them. The many decisions we face on any given day range from simple to complex. Yet many of us would never dare make a decision that was not based on some form of information, knowledge, or experience. There are many misnomers or myths about such things as hydrating, eating "right", working out, and using supplements. What is your information basis? How are you determining what is right for you?

The intent of this component of the Focus on Safety is to provide a means from which to derive fact from fiction, truth from myth. Informed decisions come from experience and knowledge. The content of this section provides factual information, educational information, and statistics from those experienced in this subject matter. Some of this information may prove contrary to what you have ever heard or what you may currently practice. Whether you eat right, workout, and consider yourself healthy; or eat on the run, live for caffeine, and consider working out a chore, this information is provided for your personal evaluation. Only you can decide what is right for yourself and what puts you in the best physical and mental condition to perform your job safely.

From an employer's perspective, a productive and capable workforce is one comprised of healthy, fit, and able bodies. Employees are responsible for ensuring their mental and physical "state of readiness" for the job or jobs they are responsible for and tasked to complete. Several factors come into consideration when one evaluates their "state of readiness" regardless of assignment. For instance, hydration has been deemed a key factor in stamina, overall body condition, mental alertness and ability to ward off illness. Likewise, good nutrition is critical in maintaining a healthy and able body and is an essential consideration when replenishing after a physically or mentally demanding task. Carbohydrates, fats, and proteins are all necessary forms of nutrition but must be evaluated in their proper types and proportions for each individual based on their physical needs. Supplements are available in various forms and have multiple applications. The intent and use of supplements may or may not achieve the desired results depending on a number of factors. Factors such as the right supplement for the right reason, the right conditions and dosage for the supplement(s) being used, and pre-existing medical conditions that might be adversely affected, all need careful consideration.

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HYDRATION

"Hydration" is most commonly known as the provision of adequate water to body tissues. In that definition, one's attention must focus on the "providing" as well as "sufficient" amounts of water to our bodies. More often than not, employees have little to no idea as to their current hydration status. In fact, unless you have been medically evaluated or performed research on the subject matter, chances are you have no idea what the "normal" hydration state is for your particular physique. With that assumption, it is very possible that employees are unfamiliar with the effects they may be suffering while in a "de" hydrated state.

"Dehydration" is defined as an insufficient or reduced amount of water content in body tissues which often results in the loss of critical salts and minerals. Employees in dehydrated states can expect to experience effects such as lack of energy, muscle fatigue, mental fatigue, and decision making difficulty. Additionally, they often expose themselves unnecessarily to the effects of heat related illnesses which included nausea, vomiting, muscle cramps, altered levels of consciousness, and even death. Having a thorough understanding of what it means to be adequately hydrated, how to avoid dehydration, and be capable of detecting the often times subtle difference is essential for employees working in all facets of the Department.

A paramount study was recently conducted by the Orange County Fire Authority (OCFA) which resulted in the identification of several key issues relative to this subject. Specifically, the OCFA study included the voluntary participation of 126 of their professional firefighters. Each participant ingested a CorTemp capsule which monitors core body temperature via radio signals transmitted to an external data recorder. Each participant was also weighed prior to the start of the study and had a complete set vital signs taken including pulse rate and blood pressure. Every candidate also provided a small urine sample which was analyzed for "specific gravity" which is a practical and reliable way to determine current hydration level as per OCFA's research with the National Athletic Trainers' Association and the National Collegiate Athletic Association.

The results of this pre-study evaluation established a baseline from which to determine the effects of two 15-minute firefighting relating drills would have on the individuals. OCFA was able to determine that, of those 126 participants involved in the study, 91% of them were identified to already be in a dehydrated state prior to the drills commencing. This leads one to recognize the fact that we can already be in a predisposed state of dehydration without even knowing it. For firefighters, this issue is absolutely critical in how it pertains to our physical condition prior to any incident response and operations. The effects of just two 15-minute drills involving various forms of physical exertion also demonstrated that rapid fluid loss through sweating is a real potential with serious, adverse health consequences when inadequate hydration or re-hydration is in place.

Water constitutes approximately 75 percent of the human body. The lack of adequate hydration, even in a "mild" state – as little as one percent of body weight – can increase muscle fatigue and impair physical performance. Correspondingly, three-quarters of the brain is comprised of water

and inadequate hydration can also affect one's ability to think and react. Although sweating is not the only way we lose body fluid, it is the body's most effective means of cooling itself. Various factors come into consideration when evaluating fluid loss potential through sweating. Such factors as; age, genetics, hydration level, physical exertion, fitness level, clothing, and environmental conditions – such as temperature and humidity – all play a key role.

OCFA's research with the American College of Sports Medicine identified that just a one percent loss of body weight through fluid loss can result in disproportionate heart rate increase, increased cardiovascular strain, and can hamper performance. Weight losses of three to four percent body weight result in impaired physical capacity, concentration, and the ability to focus. At five percent, the body may stop sweating and the body's normal temperature regulating system may become impaired or fail altogether.

As a result of OCFA's study, 59 of their participants lost at least two percent of their body weight during the 30-minute drill. The average weight loss among the participants was just over three pounds, with one individual losing seven pounds. These drills were conducted in early August, 2007 with an average temperature of 84 degrees and an average relative humidity of 46%. Not surprising, most of those involved in the study had realized they had lost a significant amount of body fluid through their exertion. However, none of the participants were aware of the effects of their dehydration state on their bodies and few knew how much fluid would be required to re-hydrate. Stop and ask yourself, "Would I know?"

Recommendations from the OCFA study concentrate on exactly what you are doing right now; informing and educating. Employees need to be educated on the signs of dehydration, heat illness, and the effects those conditions have on our physical and mental abilities. Personnel must become prudent in their steps to maintain adequate hydration before, during, and after the various types of exertion they encounter. Fluid loss encountered through sweating should be replaced at a minimum rate of 24 ounces for every one pound of weight loss.

Additionally, careful consideration needs to be given to the nutrients lost in the process as well. Certain nutrients, such as sodium, potassium, and calcium are lost through sweating and can have adverse effects on performance and result in health risks such as muscle cramping. Exertion over long periods of time or multiple episodes of exertion without adequate rest and recovery between them can result in loss of carbohydrates. Carbohydrates are the body's most critical source of "fuel" for energy. As the fuel availability decreases, the body's performance abilities decrease. The length of time it takes an individual to become fatigued also shortens dramatically and should become a sign to be recognized that one could be facing potential risk.

Maintaining the provision of adequate hydration, nutrients, and carbohydrates at all times should be the goal of all employees. This truly is a condition to be proactive with and reactive to. A multitude of resources exists for informing and educating on these subject matters and can be obtained from CAL FIRE's Intranet Safety and Health page, local county Health Departments, and your private physician.

Special recognition and appreciation to the Orange County Fire Authority for their shared study results and committed strive to better the safety and well being of firefighters everywhere. Their full report on "Safety and Performance Implications of Hydration, Core Body Temperature, and Post-Incident Rehabilitation" can be downloaded from: http://www.ocfa.org/_uploads/pdf/hydrationstudy.pdf

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NUTRITION

Due to the physically demanding nature of their profession, firefighters are often referred to as "industrial athletes". Inadequate nutrition, which includes water consumption, can cause an athlete's performance to decline. In sporting competition poor individual performance reduces the chances for achieving victory. In the firefighting profession poor individual performance can have far more serious consequences.

NUTRITION is the provision, to cells and organisms, of the materials necessary (in the form of food) to support life. Nutrients consumed in the diet serve as the fuel and building blocks for the human body. Good nutrition is essential for maintaining mental and physical health for optimum performance. There are six major classes of nutrients you should always pay attention to:

- Protein
- Carbohydrates
- Fat
- Vitamins
- Minerals
- Water

Proteins are responsible for repair and growth and can be found in such foods as milk, poultry, fish, vegetables, and cereals. Dietary protein often comes from red meat that is high in saturated fat and cholesterol. The preferred dietary choice for protein is poultry, fish, vegetables, and cereals. Other sources of protein include meats, eggs, and dairy products such as milk and cheese

- **It is recommended that 12-20% of your total daily caloric intake come from protein.**

Carbohydrates (CHO) are classified as either simple or complex. Simple CHO are generally found in sweets where there is an abundance of calories and minimal nutritional value. They are easily converted to glucose resulting in rapid increases in blood insulin levels. Complex CHO on the other hand are long chains of sugar units that take longer to metabolize since their sugar units are processed one-by-one off the ends of the chains. Complex CHO are most often associated with fruits, vegetables, and grain products. They are chemically bonded chains of simple sugars and contain greater nutrient value than simple sugars. Complex CHO facilitate a gradual rise in blood glucose.

- **It is recommended that total dietary CHO intake be about 60% of the total daily caloric intake. Simple CHO should not exceed more than 10%.**

Fat is an essential nutrient, contrary to what some people may think; we need it. Fat provides us with essential fatty acids, supplies us with an energy source, facilitates the uptake of fat soluble vitamins, and it makes food taste better. There are two types of fat: saturated and unsaturated.

Saturated fat comes from an animal origin. It contains cholesterol and tends to be solid at room temperature. Its consumption has been linked to increases in blood cholesterol levels; elevated blood cholesterol levels are considered a risk for developing coronary artery disease. Trans fats are saturated fats which are typically created from unsaturated fat by adding the extra hydrogen atoms in a process called hydrogenation (also called hydrogenated fat).

Unsaturated fat comes from a vegetable source and is usually liquid at room temperature. It is further broken down into two types: ***polyunsaturated*** and ***monounsaturated***. The difference between these two types of unsaturated fat is how they are chemically bonded and their influence on blood cholesterol levels. Polyunsaturated fats depress serum cholesterol levels. Monounsaturated fats have the equivalent effect of polyunsaturated fats in lowering low-density lipoprotein levels, with the added advantage of not causing a decrease in the level of high-density lipoproteins.

- **It is recommended that no more than 30% of your total daily caloric intake come from fat. Furthermore, 10% or less should come from saturated fat.**

Vitamins are organic nutrients which help maintain growth and normal metabolism. Vitamins occur naturally in foods. The likelihood of consuming too much of any vitamin from food is remote, but overdosing from vitamin supplementation does occur. Due to toxicity, most common vitamins have recommended upper daily intake amounts. Vitamins are categorized as either fat soluble or water soluble.

The ***fat soluble*** vitamins are A, D, E, and K. They require the presence of fat in the diet to be absorbed. Because they are easily stored in body tissue, it is possible that they can reach toxic levels (although this is a rare occurrence).

Examples of ***water soluble*** vitamins are the B vitamins and C. They are absorbed along with water in the GI tract and dissolve in the body fluids. Excess quantities of these vitamins are excreted in the urine.

- **Intake of excessive quantities can cause vitamin poisoning, often due to overdose of Vitamin A and Vitamin D.**

Minerals are inorganic substances found in most foods. Their primary role is to regulate bodily processes. Examples of this nutrient are calcium, which is required for muscle contraction and a normal heart beat, and potassium, which helps maintain the fluid volume in cells and control pH.

- **Sometimes minerals are added to the diet separately from food, such as mineral supplements, the most famous being iodine in "iodized salt."**

Water is probably the most important nutrient as well as one of the most neglected. To function properly, the body requires between one and seven liters of water, or more per day. The precise amount depends on the level of activity, temperature, humidity, and other factors. With physical exertion and heat exposure, water loss will increase and daily fluid needs will increase as well. For those who have healthy kidneys, it is difficult (but not

impossible) to drink too much water, but it is dangerous to drink too little, especially where arduous work in hot environments is involved. Normally, about 20 percent of water intake comes from food, while the rest comes from drinking water and beverages.

- **It should be kept in mind that thirst lags behind actual body needs; it would be wise to consume water even if you are not thirsty, especially during the hotter summer months.**

OTHER IMPORTANT NUTRIENTS

Antioxidants

Cellular metabolism produces potentially damaging (e.g. mutation causing) compounds known as free radicals. For normal cellular maintenance, growth, and division, these free radicals must be sufficiently neutralized by antioxidant compounds. Some are produced by the body and those that the body cannot produce may only be obtained through the diet through direct sources (Vitamin C in humans, Vitamin A, Vitamin K) or produced by the body from other compounds (Beta-carotene converted to Vitamin A by the body, Vitamin D synthesized from cholesterol by sunlight). Some cannot be present in certain areas of free radical development (Vitamin A is fat-soluble and protects fat areas, Vitamin C is water soluble and protects those areas).

Essential Fatty Acids

Most fatty acids are non-essential, meaning the body can produce them as needed, however, at least two fatty acids are essential and must be consumed in the diet. An appropriate balance of the essential fatty acids, omega-3 and omega-6, has been discovered to be important for maintaining health, especially cardiovascular health. Some of the food sources of omega-3 and omega-6 fatty acids are fish and shellfish, flaxseed (linseed), hemp oil, soya oil, canola oil, pumpkin seeds, sunflower seeds, leafy vegetables, and walnuts.

FOOD PYRAMIDS are research-based food guidance systems developed by the United States Department of Agriculture (USDA) and supported by the Department of Health and Human Services. There are a variety of food pyramids available. Most are tailored to cultural based dietary components, but all generally emphasize the following:

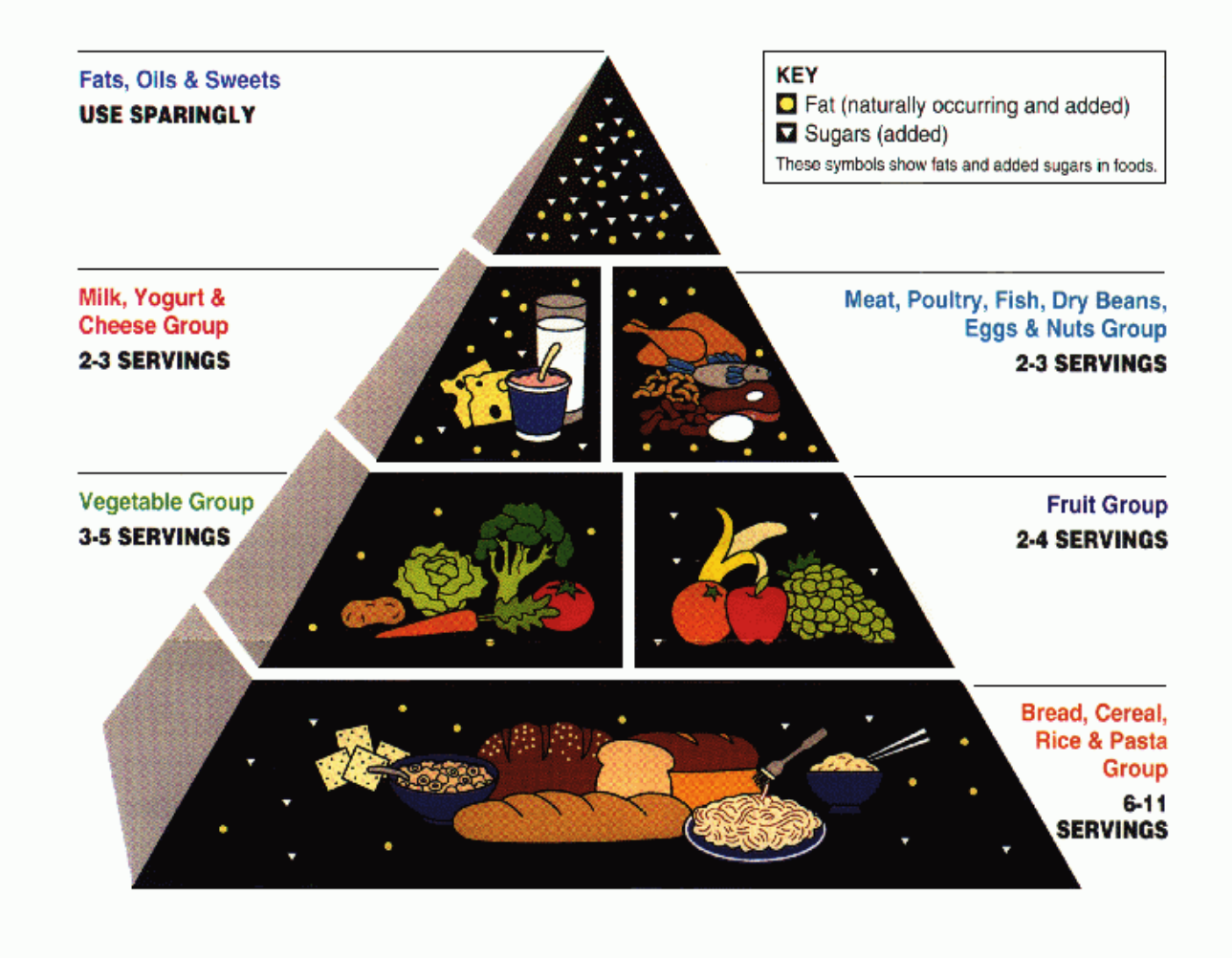
- **Eat a variety of foods** to get the energy, protein, vitamins, minerals, and fiber you need for good health.

- **Balance the food you eat with physical activity - maintain or improve your weight** to reduce your chances of having high blood pressure, heart disease, a stroke, certain cancers, and the most common kind of diabetes.

- **Choose a diet with plenty of grain products, vegetables, and fruits** which provide needed vitamins, minerals, fiber, and complex carbohydrates, and can help you lower your intake of fat. Focus on “whole grain” foods. Refined (white) flour loses 60% to 80% of the beneficial components including B vitamins, minerals, and fiber.

- **Choose a diet low in fat, saturated fat, and cholesterol** to reduce your risk of heart attack and certain types of cancer and to help you maintain a healthy weight.

- **Choose a diet moderate in sugars**. A diet with lots of sugars has too many calories and too few nutrients for most people.
- **Choose a diet moderate in salt and sodium** to help reduce your risk of high blood pressure.
- **If you drink alcoholic beverages, do so in moderation**. Alcoholic beverages supply calories, but little or no nutrients. Drinking alcohol is also the cause of many health problems and accidents and can lead to addiction.



DIETARY SUPPLEMENTS include herbal preparations, vitamin and mineral supplements, amino acids, protein powders, and various animal products. Dietary supplements fall in a special category under the general umbrella of *foods*, not drugs. This necessitates that the manufacturer, and not the government, be responsible for ensuring that its dietary supplement products are safe before they are marketed. Unlike drug products, that must explicitly be proven safe and effective for their intended use before marketing, there are often no provisions to "approve" dietary supplements for safety or effectiveness before they reach the consumer. Also unlike drug products, manufacturers and distributors of dietary supplements are not generally required to

report any claims of injuries or illnesses that may be related to the use of their products. Just because something is "natural" doesn't mean it is "safe". Many natural substances can cause harm. Always consult with your physician regarding any dietary or herbal supplementation you are considering. Do some research before taking dietary supplements. Obtain information from unbiased sources; don't rely solely on manufacturers or health food stores.

- **Keep in mind that many dietary supplements are thought to be performance enhancing or weight loss aids and actually provide little if any benefit.**

Some Commonly Used Dietary Supplements

Caffeine is the most widely consumed stimulant drug in the world, and is considered safe when used in moderate, reasonable amounts. Caffeine has differing CNS, cardiovascular, and metabolic effects based on the quantity ingested. Average doses of caffeine (85-250 mg, the equivalent of 1-3 cups of coffee) may result in feelings of alertness, decreased fatigue, and eased flow of thought. High doses (250-500 mg, 4 to 6 cups of coffee) can result in sleep deprivation, nausea, cramping, anxiety, fatigue, headaches, and gastrointestinal instability. Consult a physician, dietitian or pharmacist when considering using caffeine-containing products in combination with prescription medications or herbal supplements. Caffeine's affects vary based on the person, the amount ingested, the frequency of consumption, and individual metabolism.

- **It is important to remember that caffeine is a diuretic. For firefighters, too much caffeine can have potentially disastrous side effects including muscle tightness, muscle cramping, and dehydration.**

Medical experts generally agree that a healthy person should limit caffeine consumption to no more than 300 mg per day. Don't forget that caffeine can enter your system through many products so add them all up. The following contain about 200 mg of caffeine each:

- 1 maximum strength No Doz pill
- 3 standard Excedrin pills
- 20 ounces of regular coffee
- 12 ounces of Starbucks coffee
- 5 ounces of espresso
- 350 ounces of decaf coffee
- 20 ounces of milk chocolate
- 320 ounces of chocolate milk
- 40 ounces of Mountain Dew
- 68 ounces of Coke
- 18 ounces of black tea
- 80 ounces of green tea
- 24 ounces of Red Bull
- 3 ounces of Jolt Endurance

Creatine Monohydrate (also known as creatine) is a natural substance made in our bodies and can be found in both meat and fish. Creatine is stored in muscle cells and provides quick energy to working muscles. Studies on creatine supplementation have shown a gain in body weight due to water retention in muscle tissue. Some individuals may experience gastrointestinal symptoms, including loss of appetite, stomach discomfort, diarrhea, or nausea. Creatine may cause muscle cramps or muscle breakdown, leading to muscle tears or discomfort. Weight gain and increased body mass may occur. Heat intolerance, fever, dehydration, reduced blood volume, or electrolyte imbalance may occur.

- **There is limited systematic study of the safety, pharmacology, or toxicology of creatine. Individuals using creatine should be monitored by a healthcare professional.**

Ephedra Sulfate also known as Ephedra Sinica, Ma-huang, and Ephedrine, was commonly used as a dietary supplement for weight loss and increased energy, until it was banned by the FDA in 2004 after being linked to multiple deaths. Ephedrine is still available in the U.S. for medicinal purposes for the relief of asthma, allergies, colds, and hay fever. Side effects include headaches, insomnia, nervousness, agitation, dizziness, vomiting, difficult urination, manic episodes, kidney stones, hepatitis, high blood pressure, heart palpitations, tachycardia, heart attack, stroke and death.

- **Some people continue to obtain and use Ephedra as a dietary supplement despite the safety concerns and the highly publicized 2003 death of a U.S. major league baseball pitcher from heat stroke that was linked to Ephedra toxicity.**

SPORTS DRINKS VERSUS ENERGY DRINKS

"Sports drinks" and "energy drinks" are commonly used as dietary supplements, however there is a major difference between the two. Sports drinks are designed to help athletes rehydrate, as well as replenish electrolytes, glucose, and other nutrients, which can be depleted after strenuous training or competition. Energy drinks are stimulant containing soft drinks advertised as providing more energy than a typical drink. Sports drinks and energy drinks work against one another.

Sports Drinks have two basic qualities that one should consider:

Carbohydrate Level - The higher the carbohydrate levels in a drink the slower the rate of stomach emptying. Sports drinks with a carbohydrate level of between 6 and 8% are emptied from the stomach at a rate similar to water.

Electrolyte Level - Sodium and potassium in a drink will reduce urine output. Reduced urine output enables the fluid to empty quickly from the stomach, promotes absorption from the intestine and encourages fluid retention.

Sports Drinks can be categorized into three major types.

Isotonic sports drinks contain proportions of water and other nutrients similar to the human body, and typically contain 6% to 8% carbohydrates. Most sports drinks are isotonic.

- **Isotonic sports drinks, like water, work well for hydration.**

Hypertonic sports drinks contain a lesser proportion of water, and a greater proportion of carbohydrates, than the human body. A higher proportion of carbohydrates slows stomach emptying and delays hydration.

Hypotonic sports drinks contain a greater proportion of water, and a lesser proportion of carbohydrates, than the human body.

Energy Drinks generally contain stimulants known as methylxanthines (including caffeine), B vitamins, and herbs. The average (8 fluid ounce) energy drink has about 80 mg of caffeine which is roughly equivalent to one cup of coffee. Some energy drinks have as much as 60 mg of

caffeine per ounce. Energy drinks should be taken in moderation to avoid excessive amounts of caffeine in your system. (see page 5: Dietary Supplements – Caffeine)

- **Energy drinks <u>should not</u> be consumed during exercise or moderate physical exertion. Caffeine acts as a diuretic, promoting dehydration and increasing the rate of removal of electrolytes.**

Energy drinks also frequently contain Guarana which is a substance chemically similar to caffeine with comparable stimulant effects. Guarana content in energy drinks must be taken into account when estimating total caffeine. Another frequent ingredient in energy drinks is ginseng which medical experts believe interacts with and intensifies the side effects of caffeine including nervousness, sweating, nausea, and irregular heartbeat.

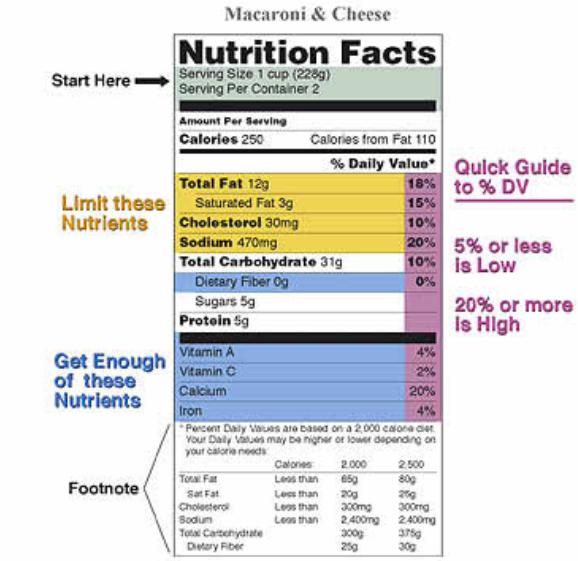
Healthy Shopping Guide

Take this guide to the grocery store on your next trip to help make sure you get the number of daily servings recommended by the USDA in each food group.

Food Group	Shopping List	Use this column to organize your shopping list by grocery store aisle.
Vegetables  **At least 3 to 5 servings a day***		
Fruit  **At least 2 to 4 servings a day***		
Protein  **2 to 3 servings a day**		
Dairy  **2 to 3 servings a day**		
Carbohydrates  **6 to 11 servings a day**		
Fats, Oils & Sweets  **Use sparingly**		

*Note: The National Cancer Institute recommends getting at least five servings of fruits and vegetables a day.

How to Read a Nutrition Facts Label



Tips:

- Nutrition Facts Labels are based on a daily diet of 2,000 calories. If you're trying to lose weight, it's likely that you'll be eating fewer calories than that.
- Note the serving size and how many servings are included in the package -- you might be surprised at how many calories you're eating!
- Some products claim to have low totals of "net carbs." However the Food and Drug Administration has not approved the calculations used to make such claims.
- Products that are "low-carb" can still be high in fat and calories.

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WELLNESS

Long hours, shift work, sporadic high intensity work, strong emotional involvement, and exposure to human suffering places fire fighting among the most stressful occupations in the world. High levels of stress, intense physical demands, and long term exposure to chemicals and infectious disease contribute to heart disease, lung disease and cancer— the three leading causes of death and occupational disease disability. Mortality studies have shown increased risk for firefighters to these diseases. These adverse conditions, over time, can and do affect the overall health of the emergency responder.

On the bright side there is mounting evidence that these effects can be substantially mitigated by making a commitment to personal "wellness" as an actively sought goal. A *holistic* approach to wellness is recommended, one that encompasses all factors that affect your physical and mental health. Wellness is a personal commitment that all uniformed personnel must make to survive and to sustain a career in the professional fire service. With each passing year, research shows that firefighters who balance physical, behavioral and emotional fitness have the best outcomes, whether one is looking at adjustment to becoming a fire fighter, ratings of career satisfaction, family well-being, or adjustment to retirement. The benefits of wellness are many and include:

- Greater strength and stamina
- Weight reduction and/or control (maintenance)
- Lower cholesterol and blood pressure levels
- Decreased risk of death, injury, or disability from disease
- Heightened job performance and enjoyment from work
- Improved performance in physical activities
- Better posture and joint functioning
- Reduction of anxiety, stress, tension, and depression
- Increased energy, general vitality, and mental sharpness
- Enhanced self-esteem and self-image
- More restful and refreshing sleep
- Enhanced capacity to recover from strenuous and exhaustive work
- Increased tolerance for heat stress and more effective body cooling
- Improved mobility, balance, and coordination

A holistic approach to wellness includes all of the following:

- Medical Fitness
- Physical Fitness
- Emotional Fitness
- Access to Rehabilitation

Medical Fitness – Comprehensive annual medical evaluations to determine physical health status and to detect changes in physical health are recommended. Medical evaluations should focus on the health risk factors associated with firefighting. The International Association of Firefighters (IAFF) working in conjunction with exercise physiologists, fitness coordinators, department physicians, behavioral health professionals, information management personnel, and major fire departments across the Nation has developed comprehensive guidelines for annual firefighter medical examinations. You can obtain a copy by downloading the document titled, "Fire Service Joint Labor Management Wellness-Fitness Initiative" at the IAFF website http://www.iaff.org/library/health.html.

Physical Fitness – Assessment of individual physical fitness level and individualized exercise programs that incorporate flexibility, strength, and aerobic conditioning are recommended. Dedicate time for exercise 3 to 5 times per week. Access to exercise equipment and technical support are important. The Health and Safety page of the CAL FIRE intranet provides information about assessing your physical fitness, and simple exercises using inexpensive equipment that are beneficial to firefighters. Units are encouraged to designate peer fitness trainers (PFT's) who have a higher level of expertise in physical fitness training. The role of the peer fitness trainer is to encourage safety and participation in fitness through guidance and supervision of uniformed personnel exercise. The purpose of the Department's workplace physical fitness program is solely for personal fitness improvement and is not to be used a standard for fitness for duty.

Rehabilitation – A medical liaison familiar with job requirements and fit for duty expectations of a firefighter is important for proper rehabilitation. Personalized exercise programs and physical therapy should be sought as indicated. Alternate duty options with periodic medical reevaluations can help the firefighter in the return to work process.

Emotional Fitness – Critical incident stress management (CISM), substance abuse programs, employee assistance programs, nutritional counseling, and behavioral modifications are key elements for maintaining emotional fitness. Behavioral health is an important but often overlooked component to wellness. The benefits of medical evaluations, physical fitness, and rehabilitation are greater when behavioral health is elevated to the same level of priority. Behavioral health encompasses all individual behaviors that are linked to personal stress, disease, and/or illness. When evaluating your behavioral health, consider your status related to the following health risk behaviors:

- Tobacco Use
- Drug and/or Alcohol Use
- Sedentary Lifestyle
- Poor Nutrition
- Risky Sexual Behavior