

Prepare to Succeed on the Beach

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With summer approaching, it is important to remember that personal safety goes beyond regulations and PPE (personal protective equipment). Lifeguarding requires that employees deal with many factors that affect their health and ability to perform at high levels. A lifeguard's physical and emotional readiness may be taxed as factors such as heat, humidity, UV exposure, dehydration, poor nutrition and fatigue adversely affect performance. To stay alert in the tower, make snap decisions and rapidly respond to emergency situations, lifeguards must know how significantly these factors influence their work and realize personal safety in the field and quality work performance require preparation long before the workday begins.

Heat Related Stress: Your potential for heat stress may increase with illness, pre-existing medical conditions, or prescribed medications. You should be aware of the signs and symptoms of heat-related emergencies, understand that you and your co-workers are more susceptible on hot, humid days and know that the following conditions may require immediate medical intervention:

- 1. Cramps:** Muscle twitching, and painful spasms in the arms, legs, calves, and abdomen. Often occurs as a result of an excessive loss of sodium.*
- 2. Heat Exhaustion:** Swelling of extremities, moist, cool skin, pale, dilated pupils, headache, dizziness, nausea, vomiting, chills, and a core temperature of less than 104 degrees F. *
- 3. Heat Stroke:** Hot reddish skin (may be dry or moist), rapid heart rate while at rest, which may weaken as an individual's vital signs deteriorate), hypotension, constricted pupils, altered LOC, and a core temperature of more than 104 degrees F.

*** Not all signs and/or symptoms may be present**

Fatigue: The quality, timing, and duration of rest allowed at emergency incidents may affect employee production rates and the risk of accident or injury. Supervisors should follow local protocol and department guidelines to ensure appropriate rest is provided:

- 1. Rest Breaks:** During periods of intense work, frequent 10-30 second rest breaks may significantly delay the onset of fatigue. During moderate, but prolonged work, less frequent breaks of 10 minutes or more may keep performance from declining. The number and length of breaks should increase after 8 hours, due to fatigue build-up.
- 2. Sleep:** Sleep is a prime factor in controlling fatigue. For lifeguards to perform well during a big swell with multiple rescues over many days, you should modify off-duty activities to provide for enough sleep to allow

the body adequate recovery for the following day's rescue activity. Supervisors should attempt to minimize employee fatigue when establishing work schedules (Avoid assigning early morning shifts the day after late shifts when possible.)

Physical Fitness: Aerobic fitness is an important factor in controlling heat stress. An individual with a high weight to body surface ratio has an increased risk of heat illness during heavy work, due to a decreased ability to dissipate metabolic heat. Conversely, those who enjoy a high level of aerobic fitness normally possess an increased cardiac output with an improved blood flow. This higher level of fitness results in an individual's ability to dissipate metabolic heat, thereby supporting a heavier workload. Aerobic fitness significantly improves the body's tolerance when working in an elevated heat environment - hot, sunny days with high humidity. Consequently, aerobic conditioning is strongly recommended for all lifeguard personnel.

Hydration: Regardless of an individual's physical fitness, acclimation, pacing, or individual differences, drinking adequate fluids is essential for lifeguarding performance and safety. During prolonged strenuous work in the heat, it is common to lose one to two quarts of perspiration per hour, and 3 gallons or more per day. Remember that beverages containing caffeine, such as many soft drinks, coffees, and teas may actually act as a diuretic and increase the potential for dehydration. Lost fluids must be replaced. Drinking an adequate quantity of water before and during work is the best way to prevent dehydration and replenish fluids.

Nutrition: Reduced performance, particularly during extended work periods, may sometimes be traced to poor nutrition. Eating adequate amounts of carbohydrates and water-containing foods may help prevent heat illness and enhance performance. A high-carbohydrate diet is recommended for lifeguards and aquatic athletes to recover and maintain energy stores. Breads, cereals, and grains are examples of carbohydrate foods. The carbohydrate and water contents of any diet top the list of important factors in preventing heat stress related illness.

UV Exposure: Any time the sun's ultraviolet (UV) rays are able to reach the earth there is risk for excessive sun exposure. The UV portion of sunlight is an invisible form of radiation that can penetrate and change the structure of skin cells. Exposure to UV rays appears to be the most important environmental factor in the development of skin cancer and has also been associated with various forms of eye damage, such as cataracts (eye disease where the lens becomes opaque, causing partial or total blindness) and pterygiums (abnormal mass of mucous membrane growing over the cornea from the inner corner of the eye). There are three types of UV rays: UVA, UVB, and UVC.

1. **UVA**, the most abundant type of solar radiation at the earth's surface, penetrates beyond the top layer of human skin. Scientists now believe that UVA radiation can cause damage to connective tissue and increase a person's risk of developing skin cancer.
2. **UVB** is less abundant at the earth's surface than UVA because a significant portion of UVB is absorbed by the ozone layer. UVB does not penetrate as deep into the skin as UVA, but is damaging nonetheless, and has been associated with the development of skin cancer.

- 3. UVC** radiation is extremely hazardous to skin, but it is completely absorbed by the stratospheric ozone layer and does not reach the surface of the earth.

Sunscreens protect your skin from UV rays and are classified according to the Sun Protection Factor (SPF). An SPF 4 blocks out 75% of the burning UV rays, while an SPF 15 blocks out 93% of the burning UV rays; and an SPF 30 blocks out 97% of the burning UV rays. Always use sunscreen with an SPF of 15 or greater. For best results, apply sunscreen about 30 minutes before going outside to allow it time to bond with your skin. In addition to protecting you from overexposure to sunlight, sunscreens also help prevent other problems related to sun exposure, including aging skin and pre-cancerous growths. How well the sunscreen stays on the skin after swimming, bathing or perspiring is just as important as the SPF level. The FDA considers a product "water-resistant" if it maintains its SPF level after 40 minutes of water exposure. A product is considered "waterproof" if it maintains its SPF level following 80 minutes of exposure to water. Select waterproof sunscreens if you will be in and out of the water during the day and reapply sunscreen after you have toweled off, much of the sunscreen is probably now on the towel.

Many health and environmental factors influence a lifeguard's well being during the workday, but knowing how these factors affect performance and taking steps to reduce their impact on you are great ways to maintain your job performance throughout your shift. It is important to prepare for the workday to maintain optimal alertness and reaction skills while on-duty. Your watchful eyes, quick recognition of, and rapid response to emergency situations save lives every day.

Remember the Five P's: **Proper Preparation Prevents Poor Performance.**

(This article was adapted from a 2002 California Department of Forestry Safety Bulletin.)