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Staying healthy in the heat

Heidelberg, Germany -- Get ready for the heat. Last summer Europe experienced one of the hottest temperature spells in recorded history. Thousands of Europeans became ill and even died due to the heat. Fortunately through strong leadership and preventive measures the U.S. Military in Europe did not see any serious increase in heat-related casualties. This summer is forecasted to be another hot one and so while summer months bring to mind vacations, school breaks, and warmer temperatures, summer months also mean new challenges for staying healthy and preventing heat injuries and illnesses.

According to Col. Kent Bradley, Preventive Medicine Consultant, Europe Regional Medical Command, we can expect another hot summer with temperatures above the seasonal average and slightly dryer than normal in Germany. Individuals who are not adequately hydrated and acclimated to their environment or in poor physical condition are most at risk for heat injuries or illnesses. The good news is that heat injuries and illnesses can be avoided in most circumstances by being knowledgeable about risk factors and planning appropriately for activities in hot weather environments.

Bradley said people need to be knowledgeable of the environmental conditions; should plan carefully for any event involving sequential days of high performance training; remain hydrated (drink plenty of water); and dress in appropriate warm weather clothing permitting air circulation between the skin and material of the clothing article. Becoming acclimatized to the area or region, especially for people new to the location, is important. Ideally, if the situation permits, people should avoid outdoor activities during the hottest part of the day, usually between noon and 3 p.m. Proper planning also includes being alert to the signs and symptoms of heat illnesses, so appropriate control measures or medical care can be initiated promptly to limit the severity of any heat illness.

"While it's also important not to over exert yourself and gradually work the body up to a level of fitness over time," Bradley said, "it is just as important to avoid the use of supplements such as Ephedra or Ma-Huang, commonly found in fat burners which may adversely affect the body's cooling mechanism during strenuous physical training. Select beverages free of caffeine and alcohol, and remember, if you are on antihistamines or other medications, your risk for heat illness increases."

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Not only do products containing Ephedra or Ma-Huang increase the risk of a heat illness, individuals who have experienced a previous heat injury or illness tend to be at an increased risk for subsequent injuries or illnesses as well. Soldiers or family members who have had a previous heat injury need to be identified so additional preventive measures can be taken to reduce the risk of a subsequent heat injury or illness.

Individuals who are overweight, not physically fit, suffering from an acute or chronic infection, febrile condition, recently had an immunization, experiencing diarrhea, conditions affecting sweat secretions such as a sunburn, chronic use of diuretics, or are on medications that inhibit sweating (atropine, antihistamines, some tranquilizers, cold medicines, and some antidiarrheal medications) are all at an increased risk for heat illnesses.

There are actions commanders can do to help soldiers stay healthy as the weather warms up and the heat index rises. "During deployments," Bradley said, "commanders need to ensure soldiers stay hydrated, eat all meals, wear uniforms properly, use sunscreen, and stay alert to the signs and symptoms of heat illness. They should also implement the work/rest cycle if the tactical situation permits and consider delaying heavy work such as foxhole construction until the cooler hours of the day – mornings or evenings. "

Bradley cautions that leaders need to remember that not all soldiers are at the same level of fitness or conditioning level. It is important to know which soldiers are new to the unit so proper levels of exercise can be identified for these troops to facilitate acclimation. Troops not properly acclimated to their new environment are at an increased risk for heat injuries and illnesses. During the first two days of heat exposure, light activities such as softball or a slow jog would be appropriate. By the third day of heat exposure, a two-mile unit run at the pace of the slowest participant is feasible. Leaders should gradually increase the intensity of the exercise each day, working up to an appropriate physical training schedule adapted for the environment. Maintenance-level PT programs should be conducted in the evening or night.

He also cautions that people who are not physically exerting themselves may also be at risk. According to Bradley, rested, well-trained soldiers working on sedentary tasks should be able to work normally in the heat for up to four hours under hot conditions. However, after this amount of time intellectual performance may steadily deteriorate. Tasks requiring sustained attention such as watching radarscopes and sentry duty are at greater risk for heat injury or illness. Other tasks which are monotonous, repetitive, or boring; tasks which require attention to detail and short-term memory such as calculations, map plotting, and coding messages; tasks which must be done quickly or according to a fixed schedule; tasks which require arm-hand steadiness; and command and control tasks where confusion and misinformation are common may be impacted negatively in hot environments. Simply put, reaction and decision times are slower in the heat.

"There are three fairly distinct clinical syndromes associated with heat," said Bradley, "heat cramps; heat exhaustion; and heat stroke. Typically, the body is able to regulate internal temperatures within a narrow range quite well. However, as we become more active, such as an increase in physical activity, the heat stress load increases requiring the body to lose heat in order to maintain this optimal internal temperature range."

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Heat Injuries/illnesses

Heat cramps are muscle cramps, primarily in the abdomen, legs, and arms. This condition is due to excessive salt and water losses. Heat cramps most often occur in soldiers who are not acclimatized to the heat and can generally be avoided by maintaining proper nutrition and hydration.

Heat exhaustion signs & symptoms may include fatigue, nausea, dizziness, fainting, vomiting, mild changes in mental function such as disorientation or irritability, and an elevated temperature. Heat exhaustion can be avoided by employing appropriate work-rest cycles, maintaining full hydration and ensuring individuals are properly acclimated to their environment.

Heat stroke may include some or all of the above mentioned signs and symptoms, but is more severe and can be fatal. The victim will be hot and disoriented or unconscious. Heat stroke can be avoided by employing work-rest cycles and maintaining full hydration.

According to Bradley, people should watch for signs of overheating including inability to work, red or flushed face, confusion or disorientation, fainting or collapse.

First Aid

If a soldier is incoherent or unconscious and hot, this is a medical emergency and is of the highest priority for medical evacuation. The determination of heat exhaustion or heat stroke should not delay the medical evacuation.

Heat stricken soldiers should immediately be moved into shade and any heavy clothing and equipment should be removed. If the victim is alert and not vomiting, have them drink water slowly. If enough water is available, wet the T-shirt and fan them for cooling.

Immersion in cool or iced water is the quickest way of lowering the body's temperature. A field immersion device can be built from tent canvas mounted in a frame off the ground. The water can then evaporate from the canvas helping to cool the individual. If an above ground frame cannot be constructed, a shallow pit lined with canvas can be used.

For heat cramps, rehydration should be done with liquids such as Gatorade containing electrolytes. If the victim can drink, he or she should be given up to 1.5 quarts per hour using an oral rehydration solution or water. Sports drinks containing glucose/electrolytes are best.

For more information about how to prevent heat injuries or illnesses contact your unit Field Sanitation Team, the unit's supporting preventive medicine section (preventive medicine detachment, division preventive medicine/surgeon's office, the preventive medicine staffs at your supporting medical treatment facility, or the U.S. Army Center for Preventive Medicine and Health Promotion –Europe (USACHPPMEUR).