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KNOWING RISK FACTORS AND PLANNING AHEAD ARE KEYS TO AVOIDING HEAT INJURIES AND ILLNESSES

Europe Regional Medical Command release

Heidelberg, Germany -- Get ready for the heat. Last summer Europe experienced one of the hottest temperature spells ever. Thousands of Europeans became ill. Some 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 expected to be another hot one, and that means more challenges for staying healthy and preventing heat injuries and illnesses.

Col. Kent Bradley, preventive medicine consultant, Europe Regional Medical Command, said residents in Germany can expect another hot summer with temperatures above the seasonal average and slightly dryer than normal. 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 most heat injuries and illnesses can be avoided by knowing the risk factors associated with hot weather and planning appropriately.

Bradley said people should be knowledgeable of the environmental conditions; plan carefully for any event involving sequential days of high-performance training; drink plenty of water, and dress in appropriate warm-weather clothing that allows air to circulate.

Becoming acclimatized to the area or region is also important. Ideally, if the situation permits, outdoor activities should be avoided 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 their severity.

"While it's also important not to overexert 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."

Products containing Ephedra or Ma-Huang also 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, and should be identified so additional preventive measures can be taken to reduce their risks.

Other individuals who are at an increased risk for heat illness include those who:

- are overweight
- are not physically fit
- are not properly acclimated to a new environment
- are suffering from an acute or chronic infection
- have a febrile condition
- have recently had an immunization
- are experiencing diarrhea
- have conditions affecting sweat secretions such as a sunburn, chronic use of diuretics or medications that inhibit sweating (atropine, antihistamines, some tranquilizers, cold medicines, and some antidiarrheal medications)

There are actions leaders can take to help limit the possibility of heat injuries or illnesses. "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. 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. 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 2-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. Soldiers performing tasks requiring sustained attention such as watching radar scopes and sentry duty are at greater risk for heat injury or illness. Other tasks which are monotonous, repetitive, or boring; which require attention to detail and short-term memory such as calculations, map plotting, and coding messages; which must be done quickly or according to a fixed schedule; 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."

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.

The signs and symptoms of **heat exhaustion** 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 be indicated by 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.

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

First aid for heat injuries

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

A heat-stricken Soldier should immediately be moved into shade and any heavy clothing and equipment should be removed. If the victim is alert and not vomiting, have him drink water slowly. If enough water is available, wet his T-shirt and fan him 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.

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

