

ENVIRONMENTAL STRESS DURING COLD WEATHER OPERATIONS

Cold Weather Training Guidelines

Wind Chill Chart

History is filled with examples of the significant impact of cold on military operations. Among U.S. Army and Army Air Corps troops, there were over 90,000 cold injuries requiring medical treatment during World War II, and another 10,000 during the Korean War, accounting for 10% of all casualties experienced during these conflicts. Given that the average air temperature recorded when cold injuries were experienced during World War II was 30°F (-1°C), and that temperatures this low are experienced over about 60% of the earth's surface, leaders must appreciate cold weather effects on soldier health and performance. Prevention of cold injuries is the responsibility of commanders at all levels.

During cold weather, the environment can directly affect an individual's health and performance. **Cold** can lower body temperature, resulting in cold injuries and impaired performance. Moreover, cold weather is often accompanied by **wind, rain, snow and ice**, which can worsen the effects of cold, as well as contribute to injury and performance impairments in and of themselves. Cold weather can, in turn, influence soldier health and performance. **Food and water problems** are common during cold weather, since requirements are high and supply is difficult. Cold weather contributes to increased **disease and non-battle** injury, since maintaining proper field sanitation and personal hygiene is difficult: sick and injured individuals are susceptible to cold injuries: and the use of indoor stoves may lead to burns or suffocation. **Operational problems** often arise in cold weather. Heavy clothing restricts movements, equipment often malfunctions, travel can be difficult, cold weather clothing and NBC protective clothing and equipment are difficult to integrate, and fogging and freezing of eyepieces and windows occur.

While cold make military tasks more difficult, it does not make them impossible. **Viewing cold as a challenge to be overcome is the key to the positive attitude required to successfully complete the mission.**

SUSTAINING HEALTH DURING COLD WEATHER

Cold

Heat flows from places with high temperatures to those with lower temperatures. When a person is surrounded by air or water having a lower temperature the body will lose heat. If heat escapes faster than the body produces heat, body temperature will fall. Normal body temperature is 98.6°F (37°C), and if body temperature falls much below this, performance decrements and cold injuries can result.

[How Cold Affects the Body:](#)

[Minimizing Effects of Cold on the Body:](#)

[Understanding the Problems:](#)

[Coping with the Problems:](#)

[Food and Water During Cold Weather Operations](#)

[Coping with Food and Water Problems](#)

[Wounds, Disease and Non-battle Injuries](#)

[Sustaining Performance During Cold Weather](#)

[NBC Operations](#)

[Leadership](#)

PREPARATION FOR COLD WEATHER OPERATIONS

1. Units preparing for deployment to cold weather regions must anticipate the effects of the environment on the functioning of the individual as well as the unit.
2. Units deploying to cold weather regions should conduct training for their soldiers on basic winter skills and cold-weather survival.
 - a. It is especially important that soldiers practice wearing the cold weather clothing to ensure that the fit is correct and the individual knows how to wear the gear.

b. Soldiers should practice performing their duties while wearing cold weather clothing, since this gear restricts movement considerably. It is also important that soldiers practice donning individual NBC protective gear while wearing cold weather clothing.

3. Winter operations are physically demanding, and troops must be in peak physical condition.

a. Units identified for future deployment, should immediately optimize their physical training program, and spend more time training outdoors to accustom individuals to the effects of cold.

b. Outdoor training should not be halted when temperatures are cold. Rather than restrict outdoor activities at certain preselected temperatures, commanders should establish programs in which increasingly protective countermeasures (clothing, surveillance) are initiated as conditions become colder. Such programs build soldiers' confidence in their ability to complete their missions, regardless of weather. Appendix B shows recommended guidance for conducting, modifying, restricting or canceling training according to wind chill conditions.

4. Each soldier must have an individual cold weather survival kit (Appendix C) and all required cold weather clothing in proper working condition.

5. In addition to conducting training to help soldiers prepare to operate and survive under cold weather conditions, unit leaders should anticipate how the disruption of normal unit procedures due to weather conditions will affect unit operations.

a. Identify unit members who have previously experienced cold injuries. These soldiers should receive intensive retraining in cold injury prevention, and should be monitored closely while deployed.

b. Establish a buddy system within the unit to increase unit cohesion and minimize the sense of isolation. A buddy system will also help to monitor for signs of cold injury among unit members.

c. Field sanitation procedures should be reviewed and modified as necessary if weather conditions are extreme. Aspects requiring particular re-emphasis include placement and maintenance of latrines, water purification and sanitary food handling.

d. Anticipate supply difficulties, and stockpile emergency stores of critical items. During cold-weather operations, units will need more of the larger sizes of NBC protective clothing, since soldiers wear NBC clothing over multiple layers of bulky cold weather clothing. Develop storage and transportation procedures for food and water, which prevent freezing, and establish measures for thawing frozen supplies. Set up procedures for keeping rations hot until received by individual soldiers in the field.

e. Establish safety SOPs for personnel traveling by vehicle away from the unit's bivouac site. At a minimum, these SOPs should require all vehicle occupants to have their sleeping bag, extra clothing and individual survival kit with them whenever they leave the unit area. The SOPs should also designate what actions are to be taken in case the vehicle is disabled or the driver becomes lost.

FURTHER INFORMATION

For further reading on cold weather injuries and their prevention, review appendix D. In addition, for classes, training aids or information on cold weather injury prevention, contact Preventive Medicine at 2-3175/2820.

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