

## Appendix A

# Mountain Illnesses and Injuries

**Table A-1. Chronic Fatigue and Its Effects**

<b>CHRONIC FATIGUE (ENERGY DEPLETION)</b>			
<b>CAUSE</b>	<b>PREVENTION</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
<p>Low blood sugar.</p> <p>Sources of energy are depleted.</p> <p>Insufficient caloric intake.</p>	<p>Provide adequate food (type and quantities).</p> <p>Monitor food intake and ensure soldiers eat 4,500 calories or more per day.</p> <p>Eat small, frequent meals rather than large, infrequent meals.</p> <p>Snack lightly and often.</p> <p>Increase amounts of fat in diet.</p>	<p>Difficulty sleeping.</p> <p>Fatigue, irritability, and headache.</p> <p>Difficulty thinking and acting coherently -- impaired judgement.</p> <p>Victims begin to stumble and become clumsy and careless.</p> <p>Energy depletion resembles and aggravates hypothermia. The body does not have enough fuel to maintain proper body temperature. As a result inadequate sources of energy, coupled with cold, create a compound or synergistic effect.</p>	<p>Proper diet and rest.</p> <p>Treat synergistic effects if required.</p>

**Table A-2. Dehydration and Its Effects**

<b>DEHYDRATION</b>			
<b>CAUSE</b>	<b>PREVENTION</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
<p>Loss of too much fluid, salt, and minerals due to poor hydration.</p> <p><u>Contributing Factors:</u> Water loss occurs through sweating, breathing, and urine output. In cold climates, sweat evaporates so rapidly or is absorbed so thoroughly by clothing layers that it is not readily apparent.</p> <p>In cold weather, drinking is inconvenient. Water is hard to resupply, heavy to carry, and freezes in colder climates.</p> <p>Lack of humidity in the dry mountain air.</p> <p>Diminished thirst sensation induced by hypoxia.</p>	<p>Drink 3 to 4 quarts of water per day when static and up to 8 quarts during increased activity.</p> <p>Adequate rest.</p> <p>Avoid caffeine (coffee, tea, soda) and alcohol, as they compound dehydration.</p> <p>Increase command supervision.</p> <p>Keep canteens full.</p> <p>Use flavored powdered drink mixes to encourage water consumption.</p>	<p>Generally tired and weak.</p> <p>Mouth, tongue, and throat become parched and dry, and swallowing becomes difficult.</p> <p>Darkening of urine.</p> <p>Constipation and painful urination.</p> <p>Loss of appetite.</p> <p>Rapid heartbeat.</p> <p>Headache, dizziness, and nausea with or without vomiting.</p> <p>Difficulty focusing eyes.</p> <p>Dehydration compounds the effects of cold and altitude.</p>	<p>Sufficient hydration to offset water loss.</p> <p>Rest.</p> <p>Severe cases may require an IV.</p> <p>Insulate as required and evacuate.</p>

**Table A-3. Giardiasis and Its Effects**

<b>GIARDIASIS (PARASITICAL ILLNESS)</b>			
<b>CAUSE</b>	<b>PREVENTION</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
<p>Parasitical illness contracted from drinking unpurified water.</p>	<p>Drink only potable water.</p> <p>Boil water for 3 to 5 minutes.</p> <p>Use approved water purification tablets or filters.</p> <p>Keep water containers clean.</p>	<p>Abdominal pain.</p> <p>Weakness and nausea.</p> <p>Frequent diarrhea and intestinal gas.</p> <p>Loss of appetite.</p>	<p>Proper hydration with potable water.</p> <p>Evacuation and prescribed medications.</p>

Table A-4. Hypoxia and Its Effects

<b>HYPOXIA</b>			
<b>CAUSE</b>	<b>PREVENTION</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
Rapid ascent to high altitudes (above 3,000 to 4,000 meters or 10,000 to 13,000 feet).	Acclimatization. Slow ascent. Limited activities. Long rest periods.	Impaired judgment, perception, and higher mental functions increasing with altitude.	Evacuation to lower altitude.

Table A-5. Acute Mountain Sickness (AMS) and Its Effects

<b>ACUTE MOUNTAIN SICKNESS (AMS)</b>			
<b>CAUSE</b>	<b>PREVENTION</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
Rapid ascent to high altitudes (2,400 meters or 8,000 feet).	Acclimatization. Staged and/or graded ascent. During stops, no strenuous activity and only mild activity with frequent rest periods. Increased carbohydrate intake (whole grains, vegetables, peas and beans, potatoes, fruits, honey, and refined sugar). Acetazolamide prescribed by a physician.	Headache and fatigue. Insomnia, irritability, and depression. Coughing and shortness of breath. Loss of appetite, nausea, and vomiting. Dizziness. Swelling of the eyes and face.	Stop and rest. Symptoms will normally subside in 3-7 days if soldiers do not continue to ascend. Observe for the development of HAPE or HACE. If symptoms do not disappear, a rapid descent of 150 to 300 meters (500 to 1,000 feet) or greater is necessary. Re-ascent should take place only after symptoms are resolved.

**Table A-6. High Altitude Pulmonary Edema (HAPE) and Its Effects**

<b>HIGH ALTITUDE PULMONARY EDEMA (HAPE)</b>			
<b>CAUSE</b>	<b>PREVENTION</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
<p>Unacclimatized soldiers rapidly ascending to high altitudes (2,400 meters or 8,000 feet)*.</p> <p>Acclimatized soldiers ascending rapidly from a high to a higher altitude.</p> <p>Usually begins within the first 2-4 days after rapid ascent and generally appears during the second night of sleep at high or higher altitudes.</p> <p>Fluid accumulation in the lungs.</p>	<p>Acclimatization.</p> <p>Staged and/or graded ascent.</p> <p>Sleeping at the lowest altitude possible.</p> <p>Slow assumption of physical activity.</p> <p>Protection from the cold.</p>	<p>Wheezing and coughing (possibly with pink sputum).</p> <p>Gurgling sound in chest.</p> <p>Difficulty breathing.</p> <p>Coma.</p> <p>Death may occur if rapid descent is not initiated.</p>	<p>Rapid evacuation recommended.</p> <p>Observe for the development of HACE.</p> <p>Seek qualified medical assistance.</p>
<p>*HAPE <b>most often</b> does not occur until above 3,500 meters (12,000 feet).</p>			

**Table A-7. High Altitude Cerebral Edema (HACE) and Its Effects**

<b>HIGH ALTITUDE CEREBRAL EDEMA (HACE)</b>			
<b>CAUSE</b>	<b>PREVENTION</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
<p>Unacclimatized soldiers rapidly ascending to high altitudes (2,400 meters or 8,000 feet)*.</p> <p>Acclimatized soldiers ascending rapidly from a high to a higher altitude.</p> <p>Excessive accumulation of fluid in the brain.</p>	<p>Acclimatization.</p> <p>Staged and/or graded ascent.</p> <p>Slow assumption of physical activity.</p> <p>Protection from the cold.</p>	<p>Most severe high altitude illness.</p> <p>Severe headache, nausea, and vomiting.</p> <p>Staggering walk/sway.</p> <p>Confusion, disorientation, and drowsiness.</p> <p>Coma, usually followed by death.</p>	<p>Immediate evacuation; preferably by air evacuation.</p> <p>Seek qualified medical assistance.</p>
<p>*HACE, like HAPE, <b>most often</b> does not occur until above 3,500 meters (12,000 feet).</p>			