

## Handout 1 - Heat-Related Illnesses

<b>Heat Stroke</b>					
<b>Causes</b>	<b>Signs</b>	<b>Risks</b>	<b>Diagnosis</b>	<b>First Aid and Treatment</b>	<b>Prevention</b>
<ul style="list-style-type: none"> <li>• Extreme physical activities in a hot environment</li> <li>• Dehydration</li> <li>• Wear excessive clothing and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• High body temperature</li> <li>• Hot and dry skin or profuse sweating</li> <li>• Dysfunction of the nervous system causing altered mental status, confusion, and difficulty to speak</li> </ul>	<ul style="list-style-type: none"> <li>• Some predisposing factors are obesity, and lack of physical fitness</li> <li>• Ingestion of alcoholic beverages</li> <li>• Individual Susceptibility</li> <li>• Chronic vascular disease</li> <li>• Sleep Deprivation</li> <li>• Drug abuse</li> <li>• Concurrent illness</li> <li>• Areas with severity heat waves</li> </ul>	<ul style="list-style-type: none"> <li>• Core temperature above 40°</li> <li>• Mental confusion</li> <li>• Seizures or delirium</li> <li>• Profuse sweating (not necessarily)</li> <li>• Tachycardia</li> <li>• Hypotension</li> </ul>	<ul style="list-style-type: none"> <li>• Call 911 for emergency medical care</li> <li>• Stay with the individual until emergency medical services arrival</li> <li>• Immediate removal of clothing and removal from the heat to a shaded-cool area</li> <li>• Placement of ice or wet fabric on head, neck, armpits, and groin of the individual, if possible, cool the worker quickly with cold water or ice bath</li> <li>• Circulate the air around the individual to increase cooling</li> </ul>	<ul style="list-style-type: none"> <li>• Wear light color and lightweight clothes</li> <li>• Stay hydrated</li> <li>• Have access to shaded-cool areas throughout heat waves or during a hot day at work</li> <li>• Avoid extreme physical activity during hot and humid weather</li> <li>• Take breaks as needed</li> <li>• Maintain water and salt intake during activities</li> </ul>

# Heat Exhaustion

Causes	Signs	Risks	Diagnosis	First Aid and Treatment	Prevention
<ul style="list-style-type: none"> <li>• The water depletion form occurs in hot environment workers with insufficient water replacement</li> <li>• Salt depletion form occurs when those workers present excessive sweating with concomitant restitution of fluid losses with hypotonic solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Nausea</li> <li>• Headache</li> <li>• Fatigue</li> <li>• Weakness</li> <li>• Dizziness</li> <li>• Thirst</li> <li>• Profuse sweating</li> <li>• Irritability</li> <li>• High body temperature</li> <li>• Muscle cramps</li> <li>• Shortness of breath</li> <li>• Syncope</li> </ul>	<ul style="list-style-type: none"> <li>• Dehydration</li> <li>• High body mass index</li> <li>• Work in a hot environment</li> <li>• Elevated urine specific gravity, hematocrit, hemoglobin, or serum osmolality suggesting lack of hydration</li> <li>• Air temperature &gt; 33 °C</li> <li>• Air velocity &lt; 2m/s</li> </ul>	<ul style="list-style-type: none"> <li>• Core body temperature less than 40 °C and do not have a sign of severe central nervous system damage</li> <li>• Systemic complaints including weakness, dizziness, headache, nausea, fatigue, vomiting, muscle cramps, and present profuse sweating</li> <li>• Orthostatic syncope</li> <li>• Laboratory abnormalities as hyponatremia or hypernatremia</li> </ul>	<ul style="list-style-type: none"> <li>• Take the worker to an emergency room for medical evaluation and treatment</li> <li>• If the medical facility is not available, call 911</li> <li>• Stay with the worker until the medical assistance arrives</li> <li>• Remove the individual from the hot environment</li> <li>• Replace oral fluid and salt if needed</li> <li>• Remove unnecessary clothing as well as shoes and socks</li> <li>• Cool the individual with a cold compress or wash their head, face, and neck with cold water</li> <li>• Encourage repeated sips of cold water</li> </ul>	<ul style="list-style-type: none"> <li>• Fluid replacement with carbohydrate-electrolyte solutions</li> <li>• Overhydration should also be avoided</li> </ul>

# Heat Rash

Causes	Signs	Risks	Diagnosis	First Aid and Treatment	Prevention
<ul style="list-style-type: none"> <li>• Tropical Climates</li> <li>• Physical activity</li> <li>• Overheating</li> <li>• Prolonged bed rest</li> </ul>	<ul style="list-style-type: none"> <li>• Irritation of the skin looking like pimples</li> <li>• Small blisters</li> </ul>	<ul style="list-style-type: none"> <li>• Constant exposure to humid heat with skin continuously humid with unevaporated sweat</li> </ul>	<ul style="list-style-type: none"> <li>• The skin presents itchy and painful red pimples or blisters clusters</li> <li>• Skin Lesions</li> </ul>	<ul style="list-style-type: none"> <li>• Move to a cooler and less humid environment</li> <li>• Keep the rash area as dry as possible</li> <li>• In order to increase comfort, apply powder on the rash surface</li> <li>• Ointments and creams should not be used</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain the skin dry</li> <li>• Avoid continuous exposure to the sun that induces the sweat production</li> <li>• Avoid hot and humid environments</li> <li>• Avoid the strenuous practice of physical activities during warm days</li> </ul>

# Heat Syncope

Causes	Signs	Risks	Diagnosis	First Aid and Treatment	Prevention
<ul style="list-style-type: none"> <li>• Prolonged standing</li> <li>• Dehydration</li> <li>• Coexisting medical condition such as ischemic heart disease that weakens cardiac output</li> <li>• Lack of acclimation</li> </ul>	<ul style="list-style-type: none"> <li>• Fainting</li> <li>• Light-headedness during prolonged standing or abruptly rising from a sitting or lying position</li> <li>• Dizziness</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of fluid ingestion</li> <li>• More common to happen with elderly people and individuals with some coexisting medical circumstances</li> <li>• Poorly acclimatization environment</li> </ul>	<ul style="list-style-type: none"> <li>• Short fainting</li> <li>• The individual presents light-headedness when rises quickly from a sitting or lying position</li> <li>• Wooziness</li> </ul>	<ul style="list-style-type: none"> <li>• Lay down or sit in a cool place</li> <li>• Slowly drink water, sports drinks, or a clear juice</li> <li>• Take a rest and receive oral or intravenous rehydration</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain hydration</li> <li>• Avoid being continuously in a hot and humid environment with no cooling</li> </ul>

# Heat Cramps

Causes	Signs	Risks	Diagnosis	First Aid and Treatment	Prevention
<ul style="list-style-type: none"> <li>• It is caused by a loss of electrolytes in sweat</li> <li>• When individuals replace evaporative losses with free water but do not ingest sodium</li> </ul>	<ul style="list-style-type: none"> <li>• Most often, it is experienced in the lower part of the body</li> <li>• Normal body temperature</li> <li>• Harsh leg cramps</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy sweating while performing activities under heat</li> <li>• Drink a large volume of water without replacing salt loss</li> </ul>	<ul style="list-style-type: none"> <li>• Painful muscle seizures, generally in the calves, thighs, and shoulders</li> <li>• Can manifest fever or not</li> </ul>	<ul style="list-style-type: none"> <li>• Stop activities and rest</li> <li>• Drink water and have a snack or take a carbohydrate-electrolyte replacement liquid such as sports drink every 15 to 20 minutes</li> <li>• Avoid salt tablets</li> <li>• It is important to get medical help if the worker has heart complications, is on a low sodium diet, or if cramps do not stop within more than sixty minutes</li> </ul>	<ul style="list-style-type: none"> <li>• Always replace the fluid losses with a solution that contains a balanced electrolyte concentration, not just free water</li> </ul>