



**American
Red Cross**

Scientific Advisory Council

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Advisory
Heat Related Illness**

Overall Recommendation:

Those who have taken first aid courses before will have heard the terms heat cramps, heat exhaustion and classic and exertional heat stroke. The recommended changes don't change the treatment, they change the descriptive labels of these conditions, making these more accurate and more relevant to the content in what the first aid provider will experience them.

Recommendations and Strength (using table below):

Exercise Associated Muscle Cramps

Exercise-associated muscle cramps are muscle spasms, which can be intense and debilitating and occur typically in the legs, arms, and abdomen. The traditional and popular term for this condition is heat cramps. The term exercise-associated muscle cramps reflects the understanding that these cramps, while possibly more common in hot and humid conditions, are not directly related to an elevated body temperature.

Recommendations:

Standards

None

Guidelines

- Rest. Stop the activity that is associated with the cramping muscles.
- Massage of the cramping muscle
- Gentle stretching
- Hydration with a salt and water-containing liquid by mouth if tolerated

Options

None

Exertional Heat Exhaustion

Heat exhaustion is an inability to cope with heat stress and characterized by fatigue, nausea and/or vomiting, loss of appetite, dehydration, heat cramps, dizziness with fainting possible, elevated heart and respiratory rate, and skin that is pale, cool and clammy, or slightly flushed. The patient may be weak and unable to stand but has *normal mental status*. Accurate measurement of temperature is not expected of a lay first aid provider. If temperature measurement is available heat exhaustion diagnostic criteria is a core temperature $<104^{\circ}\text{F}$ (40°C).

Recommendations:

Standards

- Begin cooling the person by
 - Removing him or her from the hot environment
 - Remove excess clothing
 - Begin cooling with cold/cool water on skin combined with fanning
- Begin oral rehydration with electrolyte-containing solutions
- If a person with suspected heat exhaustion is unable to tolerate oral rehydration or develops any change in mental status, 9-1-1 should be called immediately.

Guidelines

None

Options

None

Exertional Heat Stroke

In the spectrum of heat illness, heat stroke is the life-threatening emergency. Patients have exaggerated heat production and an inability to cool themselves. The practical and key field assessment is to recognize *altered mental status in the context of heat stress*.

Classic heat stroke is the entity typically seen in older adults during heat waves lasting several days, and is not usually an illness that will be cared for by first aid providers. Treatment is similar to/the same as exertional heat stroke with rapid cooling.

Accurate measurement of temperature is not expected of a lay first aid provider. Signs and symptoms are similar to those of heat exhaustion with a key symptom the presence of *abnormal mental status in the context of exposure to heat*. If accurate measurement of temperature is available exertional heat stroke diagnostic criteria is a core temperature <104.9°F (40.5°C).

Recommendations:

Standards

First Aid interventions include:

- Contact 9-1-1 immediately
- Begin immediate and aggressive cooling of the person
 - Remove from the hot environment
 - Remove excess clothing
 - Begin cooling with as cold as is available water immersion, or cold water on skin with fanning, or rotating towels/sheets wetted with cold water and placed on the trunk
- Transfer to hospital while continuing to cool

Guidelines

None

Options

If cold water immersion, cold water on the skin combined with fanning or rotating wet cold sheets/towels are not available, then ice packs, ideally multiple ice packs, may be applied to the trunk (axilla and groin areas) while awaiting arrival of EMS and transfer to a hospital.

Questions to be addressed:

What are the characteristics and signs and symptoms of exertional heat illness (ie., exercise associated muscle cramps, heat exhaustion, exertional heat stroke) that can be recognized by a lay first aid provider, and what are the recommended interventions by first aid providers for each of these conditions?

Introduction/Overview:

This advisory is the result of a planned review of the topic of heat illness. The literature in recent years does not argue for significant treatment changes. It does suggest we update our terminology or the words we use to label these conditions. These new descriptive labels better reflect the context in which the illness occurs – exercise or exertion.

The only treatment change is a de-emphasis on isolated ice packs as a first line treatment for exertional heat stroke. This reflects the understanding that ice/cold water immersion or ice/cold water fanning is the clear best practice.

Summary of Scientific Foundation:

1. New terminology in the literature is a more accurate description of our present understanding of this condition. Hyperthermia, heat cramps, heat exhaustion and heat stroke are not terms used in current language from the National Athletic Trainers' Association (NATA) and the American College of Sports Medicine (ACSM).
2. There is no new research to suggest a need to change the previously described characteristics, the signs and symptoms, of exertional heat illness (heat exhaustion or heat stroke).
3. There is research that suggests a change in the first aid treatment recommendations for heat stroke. Cold water immersion, cold water on skin with fanning, or rotating towels/sheets wetted with cold water and placed on the trunk are much more efficacious than isolated ice packs. Ice packs will be classified as an option rather than a standard for the treatment of heat stroke.