



Executive Summary of National Athletic Trainers' Association Position Statement on Exertional Heat Illnesses: *An update to the 2002 NATA Guidelines*

Background: This 2014 document is an executive summary update of the NATA 2002 Exertional Heat Illnesses position statement providing revised recommendations and key insights for the management of exertional heat illnesses. The 2014 position statement will be published in the *Journal of Athletic Training*, NATA's scientific publication. It covers prevention, recognition and treatment strategies of exertional heat illnesses including exercise associated muscle cramps, heat syncope, heat exhaustion and exertional heat stroke.

Key Statistics:

- Exertional heat illnesses are largely preventable when appropriate prevention strategies are implemented. These strategies include heat acclimatization, hydration, modifying exercise based on environmental conditions, etc.
- Exertional heat stroke is one of the three leading causes of sudden death in sport. The period of 2005 to 2009 had more heat stroke deaths than any other five year period in the 35 years prior. There were 18 deaths from 2005 to 2009; from 2010 to 2014 (still being tracked) there are now an estimated 20 to 22 deaths.
- Death from exertional heat stroke is 100 percent preventable when proper recognition and treatment protocols are implemented.

RECOMMENDATIONS:

Prevention of Exertional Heat Illnesses:

- A pre-season heat acclimatization policy should be implemented to allow athletes to be acclimatized to the heat gradually over a period of 7 to 14 days. This is optimal for full heat acclimatization.
- Plan rest breaks and modify the work-to-rest ratio to match environmental conditions and the intensity of the activity.
- When environmental conditions warrant, ensure that a cold water immersion tub and ice towels are available to quickly manage an athlete with a suspected heat illness.

Recognition of Exertional Heat Illnesses:

- The two main diagnostic criteria for exertional heat stroke are profound central nervous system (CNS) dysfunction and a core body temperature above 105°F.
- Rectal temperature is the only method of obtaining an immediate and accurate measurement of core body temperature in an exercising individual.

Treatment of Exertional Heat Illnesses:

- The goal for any exertional heat stroke victim is to lower core body temperature to less than 102.5°F within 30 minutes of collapse.
- Cold water immersion is the most effective way to treat a patient with exertional heat stroke. The water should be 35-59°F and continuously stirred to maximize cooling.
- An athlete suffering from exertional heat stroke should always be cooled first (via cold water immersion) before being transported by EMS to an emergency facility.
- An athlete recovering from exertional heat stroke should be closely monitored by a physician or athletic trainer and return to gradual activity.

UPDATED FINDINGS:

Specific recommendations for pre-season heat acclimatization protocol:

- Days 1-2: Single three hour practice OR single two hour practice and single one hour field session; only helmets may be worn
- Days 3-4: Single three hour practice OR single two hour practice and single one hour field session; only helmets and shoulder pads may be worn
- Day 5: Single three hour practice OR single two hour practice and single one hour field session; full equipment may be worn
- Days 1-5: Equipment guidelines for preseason participation only impact days 1-5 of the acclimatization period

Recommendation of assessing rectal temperature if exertional heat stroke is suspected:

Best practices strongly advise the use of rectal temperature for the assessment of body temperature in a suspected exertional heat stroke patient. It is discouraged to use inaccurate devices such as oral, tympanic, etc.

Specific protocol for the treatment of exertional heat stroke:

The new guidelines suggest a specific step-by-step protocol for cold water immersion for the clinician to implement with an exertional heat stroke patient. This protocol is backed by research exhibiting a 100 percent survival rate when initiated quickly and properly.

Identification of approximate cooling rates for an exertional heat stroke patient:

While cooling rates may vary, the cooling rate for cold water immersion will be approximately 0.37°F/min. or about 1°F every three minutes when considering the entire immersion period for an exertional heat stroke patient. This provides an approximate treatment time for clinicians if rectal temperature monitoring is not possible during treatment.

Recommendation of “cool first, transport second”:

The current document now states that a patient suspected of having exertional heat stroke must be cooled via cold water immersion for the full treatment time prior to being transported to a hospital. Additionally, the document states that this must be stated in the school’s emergency action plan.

Substantial revision of tables and figures to provide more of a clinically applicable demonstration including:

- Addition of common risk factors for exertional heat stroke
- Key items to include in a pre-participation physical exam to help identify an athlete who may be predisposed to exertional heat illnesses
- Specific guidelines to implement for a pre-season heat acclimatization policy
- Differential diagnoses for heat illnesses including common signs and symptoms
- Specific guidelines for implementing cold water immersion for an exertional heat stroke patient
- A detailed algorithm for recognition and treatment of exertional heat stroke

Removal of hyponatremia as an exertional heat illness:

Hyponatremia was removed from the current guidelines as this condition is not considered to be a true heat-related illness.

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