

QUESTIONS ABOUT THE HEAT STROKE

World Triathlon Sport Department - 30/01/2014

1. What is the heat stroke?

Heat related disorders occur when thermoregulatory mechanisms fail to compensate for elevations in core temperature caused by environmental or metabolic heat load. We can have a spectrum of symptoms of varying severity, ranging from heat cramps and dehydration to heat exhaustion and heat stroke: this is a life threatening heat-related disorder and a medical emergency. Heat stroke represents thermoregulatory failure, with core temperature elevated, 40°C or higher, reduction or cessation of sweating, rapid pulse, rapid respiration, hypotension, and CNS symptoms predominate: unsteady gait, confusion, reduced consciousness, convulsion and coma. Heat stroke is currently the third leading cause of death in athletes behind cardiac disorders and head neck trauma.

2. Which are the conditions that are maximizing the possibility of a heat stroke?

When heat production exceeds the body's heat loss, body temperature rises. Evaporation is the most important heat dissipation mechanism in warm environments. High humidity limits sweat evaporation and therefore, heat loss during exercise. Each liter of effective evaporated sweat removes 580 Kcal from the body. The heat stroke is more frequent with high temperature and high humidity, but hyperthermia can occur even on cool day.

3. When the risk of heat stroke is greatest during the triathlon season?

The risk of heat related illness is greatest when high-environmental temperatures occur early in the competitive season when participants may be inadequately prepared and have not acquired natural acclimatization to the heat.

4. How often a heat stroke can be seen in a triathlon event?

Dehydration and exhaustion (58%-72% of treated problems) are reportedly much higher in long distance triathlon but the prevalence of exertional heat illness may be greater in standard distance triathlon where elite triathletes run 5-10 km at high speed of up to 3 min/km because these athletes run at up to 90% of their VO₂ max the rate of metabolic heat production is high.

5. What are the diagnostic or therapeutic tools that should be available on site?

A rectal (core) temperature must be recorded on any sick or confused athletes whatever is going on. In the medical tent must be available water, sport drink beverage, ice, IV fluids.

6. How heat stroke is treated?

Heat stroke is serious and is associated with high mortality if treatment is delayed : a) move the athlete to a cool, shaded area b) lay down with feet elevated c) loosen or remove clothing d) fanning and cooling the axillae, neck and groin with towels immersed in ice water e) rectal temperature must be taken every 15 minutes until below 38°C f) If treatment as listed does not produce a rapid fall in temperature or mental state does not improve, consider evacuation to hospital.

7. What is mandatory to be provided by an LOC in an World Triathlon Event?

In the medical tent must be available water, sport drink beverage, ice, towels, bucket, fan, IV fluids. Also in every ambulance and during the run course must be available ice and water.

8. How an assigned technical delegate can help in the provision of a heat stroke?

It's mandatory to check if in the medical tent there are all the facilities that the doctors need to treat the heat disorders. Knowledge of the signs and symptoms of heat illness is important also for athletes, parents and coaches. If ambient-water temperature and humidity are high, it's important a communicative and effective partnership between coaches, athletes, technical delegate and medical staff to ensure safety race.