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California Interscholastic Federation

SPORTS MEDICINE BULLETIN

FACTS ABOUT HEAT STRESS AND ATHLETIC PARTICIPATION

HEAT RELATED ILLNESSES ARE ALL PREVENTABLE. Heat stress should be considered when planning and preparing for any sports activity. Football, cross-country, tennis, soccer and field hockey practices are conducted in very hot and humid weather in many parts of the United States. Many of the heat problems have been associated with football, due to added equipment which acts as a barrier to heat dissipation. Several heatstroke deaths in football continue to occur each season. There is no excuse for heatstroke deaths to increase if the proper precautions are taken.

The following practice guidelines are recommended for programs of all sports to reduce the risk of heat illnesses:

- Each athlete should have a physical exam with a medical history when first entering a program and an annual health history update. History of previous heat illness, cardiac disease, sickle cell trait, medication and supplement use, and type of training activities before organized practice begins should be included. State high school association's recommendations should be followed.
- For gradual acclimatization, the first week of practices should have no two-a-day practices (a second no intensity walk-through session is ok), should limit conditioning activities to 60-90 minutes, and should limit total practice time to 3 hours. Also during this first week, protective gear should be gradually introduced in stages.
- When two-a-day sessions begin, they should not be held on consecutive days. An adequate rest time of at least 3 hours should be scheduled between sessions.
- There should not be more than 6 consecutive days of practice.
- Practices should include adequate water/rest breaks of sufficient length to allow unlimited fluid consumption. Water breaks should be given at least every 30-45 minutes or more frequently in extreme temperatures. Athletes should be allowed to rest in the shade with protective equipment removed to allow more heat loss.
- Athletes should be instructed to continue hydration and to eat balanced meals outside of practice to ensure fluid and electrolyte replacement. Drinks with stimulants such as ephedrine and high doses of caffeine should be avoided.
- Athletes should be weighed before and after practice, ideally in dry undergarments. If there is more than a 2% weight loss, the athlete is at increased risk for heat illness. For each kilogram lost the athlete should drink 16 oz. of fluid to replace what was lost.

- Practices should be scheduled to avoid the hottest part of the day and should be cancelled or moved indoors to air conditioning in very hot or humid weather.

Coaches should be aware of both the TEMPERATURE and HUMIDITY. The greater the humidity, the more difficult it is for the body to cool itself. Test the air prior to practice or game using a wet bulb, globe, temperature index (WBGT Index) which is based on the combined effects of air temperature, relative humidity, radiant heat and air movement. The following precautions are recommended when using the WBGT Index (ACSM's Guidelines prevention of heat illness during distance running, 1996):

Below 65 Low risk
65-73 Moderate risk
73-82 High risk
82 -90 Very high risk
Above 90 Dangerous

Heat index is one factor in assessing the risk of heat related illness and is NOT a substitute for local judgment. Other factors such as local climate norms, significant changes in the normal weather patterns and acclimation must also be considered.

A Heat Stress Advisor tool to estimate the WBGT from the local measured temperature and humidity is available online http://www.zunis.org/sports_p.htm

. This program can be used on the computer or downloaded to a handheld device.

- Athletes should be closely monitored in extreme environmental conditions. If heat illnesses are suspected, activity should stop immediately and medical personnel notified.
- Be aware of emergency procedures and always be ready practice them.