



Hot Weather Hints

HEAT STRESS AND ATHLETIC PARTICIPATION Fredrick O. Mueller, PH.D.

There are several sports that the practices are conducted in very hot and humid weather in many parts of the United States. Due to the equipment and uniform needed in football, most of the heat problems have been associated with football. Under such conditions the athlete is subject to:

- **Heat Cramps.** Painful cramps and spasms of active muscles – most common of the calf muscle – cause intense, prolonged exercise in the heat and depletions of water and salt due to sweating.
- **Heat Fatigue.** Feeling of weakness and tiredness caused by depletions of water and salt due to sweating and exercise in the heat.
- **Heat Exhaustion.** Characterized by extreme weakness, exhaustion, headache, dizziness, profuse sweating and sometimes unconsciousness caused by extreme depletion of water.
- **Heat Stroke.** An acute medical emergency caused by overheating from a breakdown of the thermoregulatory mechanism. Associated with high rectal temperature, lack of sweating, disorientation, seizures and possible unconsciousness or coma. It may also occur suddenly without being preceded by any of the other clinical signs. The individual is usually unconscious with a hot, dry skin and a rising rectal temperature.

It is felt that the above heat stress problems can be controlled provided certain precautions are taken. The following practices and precautions are recommended.

- Each athlete should have a physical examination with a medical history when first entering a program and an annual health history update. History of previous heat illness and type of training activities before organized practice begins should be included. State high school associations' recommendations should be followed.
- It is clear that top physical performance can only be achieved by an athlete who's in top physical condition. Lack of physical fitness impairs the performance of an athlete who participates in high temperatures. Coaches should know the Physical Condition of their athletes and set practice schedules accordingly.
- Along with physical conditioning the factor of acclimation to heat is important. Acclimation is the process of being adjusted to heat and it is essential to provide for **GRADUAL ACCLIMATION TO HOT WEATHER ACTIVITIES**. It is necessary for an athlete to exercise in the heat if he is to become acclimated to it. It is suggested that a graduated physical conditioning program be used and that 80% acclimation can be expected to occur after the first 7-10 days. Final stages of acclimation to heat are marked by increased sweating and reduced salt concentration in the sweat.
- The old idea that water should be withheld from athletes during workouts has **NO SCIENTIFIC FOUNDATION**. The most important safeguard to the health of the athlete is the replacement of water. Water must be on the field and readily available to the athlete at all times. It is recommended that a minimum 10 minute water break be scheduled for every half hour of heavy exercise in the heat.
- Salt should be replaced daily. Modest salting of foods after practice or games will accomplish this purpose. Salt tablets and glucose-electrolyte solution are not recommended. **ATTENTION MUST BE DIRECTED TO REPLACING WATER-FLUID REPLACEMENT IS ESSENTIAL.**
- Know both the **TEMPERATURE** and **HUMIDITY**. The greater the humidity the more difficult it is for the body to cool itself. Use of a sling psychrometer is recommended to measure the relative humidity.
- Cooling by evaporation is proportional to the area of skin exposed. In extremely hot and humid weather reduce the amount of clothing covering the body as much as possible. **NEVER USE RUBBERIZED CLOTHING.**
- Athletes should weigh each day before and after practice and **WEIGHT CHARTS CHECKED**. Generally a 3-percent weight loss through sweating is safe and over a 3-percent weight loss is in the danger zone. Over a 3-percent weight

loss the athlete should not be allowed to practice in hot and humid conditions. Observe them closely under all conditions.

- Watch athletes carefully for signs of trouble, particularly athletes who lose much weight, overweight athletes, and the eager athletes who constantly competes at his/her capacity. Some trouble signs are nausea, incoherence, fatigue, weakness, vomiting, cramps, weak rapid pulse, visual disturbance and unsteadiness.
- Teams that encounter hot weather during the season, through travel or following an unseasonably cool period, should be physically fit but will not be environmentally fit. Coaches in this situation should follow the above recommendations and substitute more frequently during games.
- Know what to do in case of such an emergency. Be familiar with immediate first aid practice and prearranged procedures for obtaining medical care including ambulance service.

Heat Stroke: This Is A Medical Emergency – Delay could be fatal.

Immediately cool the body while waiting transfer to a hospital. Remove clothing and use cool water. An increasing number of medical personnel are now using a treatment for heat illness that involves applying either alcohol or cool water to the victim's skin and vigorously fanning the body. The fanning causes evaporation and cooling. (Source – The First Aider – September 1987)

Heat Exhaustion: Obtain Medical Care At Once.

Cool body as you would for heat stroke while waiting for transfer to a hospital. Give fluids if athlete is able to swallow and is conscious.

Summary:

The main problem associated with exercising in hot weather is water loss through sweating. Water loss is best replaced by allowing the athlete to drink as much water as he likes, whenever he wishes. The small amount of salt lost in sweat is adequately replaced by salting food to individual taste at mealtime.

**REDUCING HEAD AND NECK INJURIES IN FOOTBALL
Frederick O. Mueller, PH.D.**

Head and neck injuries in football have been dramatically reduced since the late 1960's. Several suggestions for continued reduction are as follows:

- Preseason physical exams for all participants. Identify during the physical exam those athletes with a history of previous head or neck injuries. If the physician has any questions about the athlete's readiness to participate the athlete should not be allowed to play.
- A physician should be present at all games. If it is not possible for a physician to be present at all games and practice sessions, emergency measures must be provided. The total staff should be organized in that each person will know what to do in case of a head or neck injury in a game or practice. Have a plan ready and have your staff prepared to implement that plan. Prevention of further injury is the main objective.
- Athletes must be given proper conditioning exercises, which will strengthen their necks so that participants will be able to hold their heads firmly erect when making contact.
- Coaches should drill the athletes in the proper execution of the fundamentals of football skills, particularly blocking and tackling. **KEEP THE HEAD OUT OF FOOTBALL.**
- Coaches and officials should discourage the players from using their heads as battering rams. The rules prohibiting spearing should be enforced in practice and in games. The players should be taught to respect the helmet as a protective device and that the helmet should not be used as a weapon.
- All coaches, physicians and trainers should take special care to see that the player's equipment is properly fitted, particularly the helmet.
- Strict enforcement of the rules of the game by both coaches and officials will help reduce serious injuries.
- When a player has experienced or shown signs of head trauma (loss of consciousness, visual disturbances, headache, inability to walk correctly, obvious disorientation, memory loss) he should receive immediate medical attention and should not be allowed to return to practice or a game without permission from the proper medical authorities.