

## Preventing Heat Illness in Sport

The risk of heat illness from **vigorous** exercise or **high intensity** sport is significant. It can range from cramps, through heat exhaustion to heat stroke, coma, and death.

During competition, competitors may produce 15-20 times the heat they produce at rest. Dissipation of this excess heat is primarily achieved through sweating. If the body's ability to dissipate heat is compromised, core temperature in an average size individual may rise by one degree Celsius for every five minutes of exercise if no temperature regulating mechanism are activated (normal 37 degrees) the risk of heat injury is significant.

Factors which impair the body's ability to dissipate heat are:

- High ambient temperature
- Solar radiation
- Humidity (which compromises the efficacy of sweating)
- Dehydration

These factors significantly increase the risk of heat illness occurring.

Sports heat illness can occur with high intensity exercise in cool conditions and with well-hydrated participants.

Because sports heat stress is complex, and because individual responses to heat stress vary, it is not possible to provide overall recommendations about limiting conditions to cover all sports. Since heat stress varies with exercise intensity, potential for heat illness may be categorized according to the exercise intensity and therefore reducing levels of risk.

1. Endurance running in competition or training (distant running, soccer, outdoor basketball – higher intensity/higher risk)
2. Football (amount of clothing/equipment worn by participants)
3. Tennis, cricket (mid range risk/intensity)
4. **Baseball/softball (lower level of intensity/lower risk)**

### **Hydration**

The more athletes sweat, the more fluid they must consume to avoid dehydration. High levels of dehydration may increase the risk of heat stress. To diminish the risk of heat stress fluid should be consumed before, during and after activity.

It is recommended participants drink at least 7-8 ml of fluid of body mass (average is about 2 cups) no more than 2 hours before exercising to promote adequate hydration and allow time for excretion of excess water.

During exercise it is recommended that participants should drink fluid at regular intervals to replace water lost through sweating. Participants should aim to drink at least 3 ml per kg of body mass (about 250 ml for average athlete of around 70 kilograms every 15 to 20 minutes or 2-3 cups every hour). However, this may vary dependent on the rate of sweating. Fluid taken should be cooler than the ambient temperature.

Water is considered an adequate fluid option for activities lasting up to one hour. Participants in events or activities exceeding one hour are recommended to use carbohydrate-based sports drinks as a means of replacing fluid, carbohydrates and electrolytes lost during prolonged activity.

In high risk conditions players should be encouraged to drink fluids at scheduled drink breaks and should be provided convenient access to fluids during activity without unnecessary interruption to the game or event.

Officials and event organizers should also consider additional drink breaks for players in conditions of high risk.

In regards to post-event hydration, it needs to be remembered that this can take 24 hours or more.

### **Player rest and rotation**

In conditions of high risk participants should be provided opportunities to rest through the use of player interchange or substitution. The period of rest should be determined by the ambient temperature at the time of the event or activity. All players should be rested for at least 10% of the period they would normally participate. For example, if the activity normally runs 60 minutes, the rest period for the players should comprise of at least 6 minutes of rest during that time frame.

***The above policies are merely guidelines and it's the responsibility of the parents to make the ultimate decision as to the participation of their child in the event weather conditions pose a possible risk. Parents also have the ultimate responsibility to inform their child about the dangers of heat and need for protection, including sunscreen and proper hydration. During times of concern, due to severely hot conditions, please contact the Program Supervisor of your child's activity to find out about any possible program modifications. Typically we do not cancel baseball/softball games due to the heat. However, coaches may agree to shorten the time limit of the game if both coaches agree to do so prior to the game starting.***