

DEHYDRATION

- High temperatures, busy days and inadequate liquid intake all combine to make dehydration a very real problem for many athletes
 - For some, dehydration becomes chronic and can lead to
 - fatigue
 - headaches
 - muscle cramps
- Rather than throwing pain relievers and muscle balms at these maladies, you need to get at what's causing them, which, of course, is dehydration (even if you aren't having any of these symptoms, you still need to be sure you're getting enough fluids)
- Guidelines from the American College of Sports Medicine (ACSM):
 - the day before a big workout, eat well and be sure you drink plenty of fluids
 - keep your fluid "tank" full all day, then start in again first thing on event morning
 - remember the old rule: pale or clear urine -- not dark yellow -- is a good indication that you're adequately hydrated
 - two hours before a big workout
 - drink around 16 ounces of fluid
 - this ensures you have "topped off" your body's water level
 - gives you plenty of time to get rid of the excess before you start running
 - during exercise, drink early and often
 - many athletes have a tough time drinking enough to keep up with sweat loss (you can sweat out 1-2 quart in an hour)
 - go for cool, tasty beverages
 - studies show that a slightly cooled beverage is more palatable, so people tend to drink more of it than a beverage at room temperature
 - for exercise lasting over an hour, sports drinks with carbohydrates and electrolytes will enhance performance (for shorter runs, sports drinks probably won't do much good -- but they won't hurt, either)
 - most sports drinks are blends of carbohydrates (for energy) and electrolytes such as sodium and potassium (for maintaining fluid balance)
 - Note: drinks that are too high in carbohydrates or electrolytes will hamper fluid absorption into the body, which is why the majority of sports drinks are relatively dilute (more dilute, for instance, than soft drinks or fruit juices)
 - consume carbohydrates at the rate of 30 to 60 grams (or 120 to 240 calories) per hour during exercise lasting over an hour
 - this will provide muscles with energy and help delay fatigue
 - sports drinks containing a 4 to 6 percent carbohydrate concentration (by weight) are specially formulated to replace carbohydrates at the proper rate during exercise. In fact, if you drink about 5 to 12 ounces every 15 to 20 minutes during exercise, you'll meet both carbohydrate and fluid needs

- drinks that contain sodium are recommended for exercise lasting over an hour
 - at a concentration of about 1/2 gram per quart of fluid, sodium will enhance flavor and promote fluid retention
 - and don't forget sodium drinks after exercise, as they'll help you retain the water you're trying to get back into your system
 - sodium drinks also guard against hyponatremia, which occurs when sodium concentrations fall dangerously low in the body during very long runs

HEAT DISORDERS

Recognition, Treatment, and Prevention

- Heat disorders are caused by strenuous activity in a combination of hot and humid weather, resulting in
 - a loss of body water
 - a breakdown of the body's thermoregulatory system
- Three different types of heat disorders:
 - **heat cramps**
 - the most common, yet least serious, type of heat illness that an adolescent athlete may experience
 - caused by a loss of salt, electrolytes, and water in the body with activity
 - signs and symptoms of heat cramps include
 - calf and abdominal muscle spasms
 - wet and warm skin
 - normal or slightly elevated body temperature, pulse, and respiratory rate
 - (the athlete will be alert and oriented to their surroundings)
 - best way to treat
 - apply ice and firm pressure to the muscle
 - gently stretch the contracted muscle
 - increase liquid intake
 - provide a gentle massage if necessary
 - **heat exhaustion**
 - a serious disorder but easily managed

- can be life threatening if not treated immediately and properly
- caused by
 - prolonged sweating and inadequate replacement of body fluids
 - signs and symptoms include
 - excessive thirst
 - dry mouth
 - weight loss
 - fatigue
 - weakness
 - mental dullness
 - small urine volume
 - decreased body temperature
 - cool, clammy and wet skin
 - profuse sweating
 - headaches
 - pale or gray skin
 - dizziness
 - nausea,
 - fast yet shallow breathing
 - treatment
 - immediate removal from the hot environment
 - place the athlete on their back with their feet elevated
 - remove as much equipment and clothing as possible
 - sponge or towel the athlete with cool water
 - increase fluid intake immediately
- **heat stroke**
 - caused by thermoregulatory failure of a sudden onset where the volume of circulating blood becomes so low that the sweating mechanism is shut off to conserve remaining fluids
 - considered a medical emergency and 911 should be called immediately
 - while waiting for EMS every effort should be made to reduce the athletes body temperature by any means available
 - signs and symptoms
 - rapid increase in body temperature
 - hot, dry, reddened or flushed skin

- rapid and strong pulse
- headache, dizziness
- weakness
- disorientation
- convulsion
- loss of consciousness
- treatment
 - Reduce the body temperature as quickly as possible by using any means available
 - place ice or cold towels around the athlete's body or immerse the athlete in cold water
 - you can also have a fan blow directly on the athlete
 - sponge the athlete with cold water or alcohol
 - remove as much of the athlete's equipment and clothing as possible
 - if the athlete is conscious, have them drink cool fluids as often as possible
- Prevention for all three types of heat disorders include
 - proper acclimatization
 - eating foods containing sodium chloride
 - staying well hydrated
 - receiving frequent water breaks during activity
 - practicing outside the heat of the day (morning or evening)
- Relating % loss of body weight to symptoms and performance in the heat:
 - 0% - normal heat regulation and performance
 - 1% - thirst is stimulated, heat regulation during exercise is altered, performance begins to decline
 - 2% - further decrease in heat regulation, increased thirst, worsening performance
 - 3% - more of the same
 - 4% - exercise performance cut by 20 - 30%
 - 5% - headache, irritability, "spaced-out" feeling, fatigue
 - 6% - weakness, severe loss of thermoregulation
 - 7% - collapse is likely unless exercise is stopped