

HOW DO I KNOW IF I AM DEHYDRATED?

-your urine color will indicate hydration status:

-clear to light yellow urine indicates proper hydration.

-the darker the urine color, the greater the dehydration level.

-signs of dehydration include:

-thirst

-dizziness

-irritability

-cramps

-headache

-nausea

-weakness

-decreased performance

WHAT CAN HAPPEN AS I DEHYDRATE?

You can suffer from:

-HEAT CRAMPS: (Signs and symptoms to follow)

An acute, painful, involuntary muscle contraction.

Proposed causes include dehydration, electrolyte imbalances, neuromuscular fatigue, or any combination there of. Can occur during or after an intense exercise session.

-HEAT SYNCOPE: (Signs and symptoms to follow)

Passing out while exposed to high environmental temperatures. Will usually occur during the first 5 days of acclimatization. Often occurs after one has been standing for a long period of time, immediately after stopping an activity, or after standing too rapidly from a seated or resting position.

-HEAT EXHAUSTION: (Signs and symptoms to follow)

The inability to continue exercise associated with any combination of heavy sweating, dehydration, sodium loss, and energy depletion. Occurs most frequently in hot, humid conditions.

-HEAT STROKE: (Signs and symptoms to follow)

Occurs when the temperature regulation system shuts down due to excessive heat production and/or inhibited heat loss.

This life threatening situation occurs during activity and effects organ tissues resulting in systemic organ failures.

-HYPONATREMIA:(Signs and symptoms)

A rare illness that can be fatal, occurring when an athlete attempts to rehydrate post activity with water alone and in too large a quantity. Is due to too great a sodium loss as compared to the water loss. Can be prevented by matching fluid intake with sweat and urine losses by rehydrating with fluids that contain sufficient sodium.

SIGNS AND SYMPTOMS OF HEAT ILLNESSES TO WATCH FOR:

-HEAT CRAMPS:

- dehydrated
- thirst
- sweating
- fatigue
- multiple cramps affecting one muscle, than another, etc.

-HEAT SYNCOPE:

- dehydration
- tunnel vision
- decreased pulse rate
- lightheadedness
- fatigue
- pale or sweaty skin
- dizziness
- fainting

-HEAT EXHAUSTION:

- headache
- diarrhea
- persistent muscle cramps
- chills
- urge to defecate
- hyperventilation
- core body temp from 97 to 104 degrees F
- nausea
- decreased urine output
- profuse sweating
- cool, clammy skin
- weakness

-HEAT STROKE:

- core body tempo greater than 104 degrees F
- central nervous system changes:
 - dizziness
 - irritability
 - aggressiveness
 - staggering
 - drowsiness
 - confusion
 - hysteria
 - disorientation
 - seizures
- hot and wet or dry skin
- increased heart rate of 100 to 120 beats per minute
- hyperventilation
- vomiting
- diarrhea

-HYPONATREMIA:

- nausea
- hands and feet swell
- confusion
- lethargy
- vomiting
- progressive headache
- significant mental compromise
- seizures

**Note: not every one will experience all of these signs and symptoms. Nor do you have to experience cramping before you suffer from heat exhaustion or heat stroke.

HOW CAN I PREVENT DEHYDRATION?

- acclimate to the heat over a period of 10 -14 days by beginning to exercise during the hot parts of the day for 10 -20 minutes and gradually increase your exercise time working up to 1 – 2 hours.
- be sure to drink plenty of proper fluids during the acclimatization period.
- drink fluids containing sodium to keep your urine clear to light yellow
- if you sweat a lot, or heat conditions worsen, be sure to take in extra sodium during the day with your meals and/or rehydration beverages containing sodium.
- when exercising in the heat, cloths should be breathable and allow for proper sweating and evaporation. Clothes that get wet and hold on to the sweat need to be changed regularly.
- alter intensity and frequency if exercising in the heat. Always make adjustments as the heat and/or humidity increase.
- hydration breaks should be more frequent and longer as the heat and/or humidity increase.

HOW DO I KNOW IF I AM REPLACING FLUIDS PROPERLY?

- always begin each exercise session well hydrated:
 - drink approximately 17 – 21 fluid ounces of water or a sports drink 2-3 hours before exercising and 7-10 fluid ounces 10 -20 minutes before exercising.
- fluid replacement should approximate sweat and urine loss:
 - this can be achieved by consuming 7-10 ounces every 10-20 minutes.
- post exercise hydration should correct fluid loss:
 - should be completed within 2 hours post exercise
 - beverage should contain:
 - water to rehydrate
 - carbohydrates to replenish glycogen stores
 - electrolytes to speed rehydration

WHY ARE CARBOHYDRATES IMPORTANT AND HOW MUCH SHOULD I HAVE?

- carbohydrates replace the glycogen stored in muscles which provide the energy to recover and function for the next exercise session.
- by consuming 17-21 ounces of a sports drink 2-3 hours before an event along with normal dietary intake, should keep glycogen stores high enough for participation
- if exercise levels will be intense that session/day, then consuming carbohydrates about 30 minutes prior to the event/exercise session may also be beneficial.
- carbohydrate levels in a sport drink should be about 6 % and no more than 8 %.
- optimal carbohydrate replacement should be about 1 liter of a 6 % carbohydrate drink per hour.
- avoid the following beverage types during exercise; fruit juices, carbohydrate gels, soda, and some sports drinks that contain greater than 8 % carbohydrate concentrations,
- post exercise, avoid consuming caffeine and carbonated beverages until rehydration is complete and then limit consumption to avoid setting the stage for dehydration for the next exercise session.

HOW DOES DEHYDRATION AFFECT MY PERFORMANCE?

-Physiologically:

- remember that water accounts for **73 %** of lean body mass.
- increases body core temperature during physical activity which may result in an inability to sweat properly, thus not allowing the body to get rid of the increased heat generated through physical activity.
- increased cardiovascular strain resulting in an increased heart rate, less blood pumped from the heart, and increased resistance within the arteries and veins, making it more difficult for the blood to flow smoothly.
- the cardiovascular changes are directly proportional to the level of dehydration.
 - heart rate increases by 3-5 beats per minute for every 1 % of body weight loss.
- glycogen is used more quickly, elevated muscle temperatures, and increased lactate level due to a poor blood flow

-Performance:

- muscle strength is affected when dehydration levels reach 5 % or greater
- maximum aerobic performance decreases with as little as 3 % dehydration levels.
- as dehydration levels increase, work capacity can decrease as much as 35 – 45 %.
- significant performance deficits, while performing in the heat, have been recorded with a dehydration level as little as 2.5 % of body weight

WHAT IF I AM PRONE TO CRAMPING OR SWEAT PROFUSLY?

- be sure you add salt to your diet by adding a salty snack and/or adding a quarter to half a teaspoon of salt to your food, especially during pre-season.
- remember that if you increase your salt intake, you **must** also increase your water intake.
- large doses of sodium (as found in salt pills) is not necessary if you make the necessary changes in your daily food and beverage intake.
- increasing sodium intake without increasing fluid intake, or increasing sodium intake if you do not suffer from cramps, may lead to dehydration and its effects simply because there is not enough fluid in your body to accommodate the increased sodium levels.

DO NOT FORGET.....

- dehydration is very preventable.
- a well balanced diet with plenty of fruits and vegetables will help keep you hydrated.
- hydration starts days before the actual event/exercise session.
- dehydration is cumulative. A loss of as little as 1% body weight compounded over a few days can lead to heat illness and decreased performance.
- avoid over hydration.
- optimal rehydration replaces fluids lost through sweating and urination within 2 hours of stopping the activity.
- when you begin feeling any of the signs and symptoms mentioned earlier, be sure to let your coach and Athletic Trainer know. The effects of dehydration can worsen quickly.

The above information has been taken from:

- The Gatorade Sports Science Institute; *Tips for Safer Two-A-Days.*
- The Gatorade Sports Science Institute; Sodium: *The Forgotten Nutrient*
- The National Athletic Trainers Association; *National Athletic Trainers' Association Position Statement: Exertional Heat Illness*
- The National Athletic Trainers Association: *National Athletic Trainer's Association Position Statement: Fluid Replacement for Athletes*

These articles and other information regarding hydration and other topics, can be found at gssiweb.com and nata.org (search word hydration).