



HEAT-RELATED ILLNESS

IMPORTANT!!!

If a runner seems mentally out of it (confused, not responding normally) along with any heat illness symptoms, that is a reason to call for medical help. Summon the race EMT if nearby or call 911. Don't delay! Always err on the side of caution. Not sure if it is heat illness? Call for medical help.

HEAT STROKE

WHAT TO LOOK FOR

- High body temperature (103°F or higher)
- Hot, red, dry, or damp skin
- Fast, strong pulse
- Headache
- Dizziness
- Nausea
- Confusion
- Losing consciousness (passing out)

WHAT TO DO

- **Get medical help right away-heat stroke is a medical emergency!**
- Move to a cooler place
- Lower core temperature with cool cloths (soak towels in ice water if ice is available and place on neck, armpits, groin, thighs, back) or a cool bath
- Do not give the person anything to drink

HEAT EXHAUSTION

WHAT TO LOOK FOR

- Heavy sweating
- Cold, pale, and clammy skin
- Fast, weak pulse
- Nausea or vomiting
- Muscle cramps
- Tiredness or weakness
- Dizziness
- Headache
- Fainting (passing out)

WHAT TO DO

- Move to a cool place
- Loosen clothing
- Lower core temperature with cool cloths (soak towels in ice water if ice is available and place on neck, armpits, groin, thighs, back) or take a cool bath
- Sip water
- **Get medical help right away if:**
 - Vomiting
 - Symptoms worsen
 - Symptoms last longer than 1 hour

HEAT CRAMPS

WHAT TO LOOK FOR

- Heavy sweating during intense exercise
- Muscle pain or spasms

WHAT TO DO

- Stop physical activity and move to a cool place
- Drink water or a sports drink
- Wait for cramps to go away before doing any more physical activity
- **Get medical help right away if:**
 - Cramps last longer than 1 hour
 - Person is on a low-sodium diet
 - Person has a history of heart issues

https://www.cdc.gov/disasters/extremeheat/pdf/Heat_Related_Illness.pdf

<https://www.mayoclinic.org/diseases-conditions/hyponatremia/symptoms-causes/syc-20373711>

Yeates, K. E., Singer, M., & Morton, A. R. (2004). Salt and water: a simple approach to hyponatremia. *CMAJ : Canadian Medical Association Journal* 170(3), 365–369.

Disclaimer: The information above is not medical advice and should be construed as such. Consult a licensed physician for medical advice. If you have an emergency, call 911 immediately.

FLUID/ELECTROLYTE IMBALANCE

DEHYDRATION (too little fluid intake)

WHAT TO LOOK FOR

- Dry skin
- Dizziness
- Headache
- Cramps
- Dry mouth/thirst,
- Skin is slow to return to normal elasticity when pinched on back of hand
- Little urine output / dark, concentrated urine

WHAT TO DO

- Drink fluids with adequate electrolyte replacement, based on runner's needs and the conditions until runner is urinating normal amounts of clear fluid regularly.
- **Caution: do not over-hydrate as this can lead to hyponatremia.**

HYPONATREMIA

In runners, usually caused by drinking too much fluid, while taking in too little sodium, to the point where the sodium in blood is diluted and the body starts acting like it has low sodium levels.

WHAT TO LOOK FOR

- Headache
- Lethargy
- Dizziness
- Gait/balance problems
- Mild confusion.
- Can progress to psychosis, seizures and coma if untreated.

WHAT TO DO:

- Fluid restriction (wet the mouth only)
- Salty foods/drinks.
- **Do not try to treat hyponatremia without professional medical help.**

BONUS: SOME WHYS FOR RUNNER NERDS

If you catch heat illness early, you can save your race and likely finish without any lasting effects. You have to be willing to slow down, cool down, and restore your body's equilibrium. You're in trouble when you have nausea or you're not urinating, or only urinating small amounts of dark fluid.

When you're too hot, your body has to send too much blood to your skin to try to cool you down, but you also need blood to carry oxygen to the GI tract to process fluids and calories (or you'll have nausea/vomiting), to your muscles so they can work (or you'll have cramps), and to bring oxygen to your other organs: heart, kidneys, brain so they can function properly (or you'll be unable to urinate, get dizzy, lethargic or confused).

It's important to stop, take a break, cool down, and the blood flow will start to return to those organs. If you're feeling bad, take that cool-down break, and pretty soon your body will let you know it's getting better because you'll have to pee, start getting hungry or thirsty again, and you'll be feeling ready to hit the trail again.

Sodium is the main electrolyte in the body. It is the most common underreplaced electrolyte. For example, the normal concentration of sodium in the blood is about 30 times the concentration of potassium. Potassium is lost mostly through the GI tract- vomiting and diarrhea will deplete those electrolytes much faster than just sweating.

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