

SAINT FRANCIS SPORTS MEDICINE

Making athletes of all ages BETTER, STRONGER, FASTER since 1995.

- ⊕ Acclimating to Heat Is Beneficial in All Temperatures
- ⊕ Adequate Hydration Is the Top Weapon Against Heat Illness
- ⊕ Heat Illness Treatment Focuses on Bringing Down Core Temperature

Acclimating to Heat Is Beneficial in All Temperatures

Living in the nation's heartland like we do, athletes are accustomed to the scorching heat and soaring humidity of summer as well as the bone-chilling cold of winter. The key to preparing the body for optimal competitive performance in either of these extreme conditions is to train in them.

"As tempting as it is to train indoors when the weather outside is unpleasant, it is a good idea to prepare for these conditions from a number of perspectives," says David Enderle, ATC, certified athletic trainer at Saint Francis Medical Center. "The body and mind both perform better when you train them to deal with extreme conditions."



David Enderle, ATC

A study published in the *Journal of Applied Physiology* showed the benefits of acclimatization on performance. A group of endurance cyclists received a heat acclimation protocol featuring 90 minutes of daily cycling at low to medium intensity for 10 days at 104 degrees. Meanwhile, a control group did the same training without the heat stress factor.

The study demonstrated that just 10 days of heat acclimatization increased maximal oxygen uptake 5 to 8 percent, timed-trial performance 6 to 8 percent, and power output at lactate threshold at least 5 percent in both cool and hot conditions. The control group showed no improvements in performance in either cool or hot conditions. Researchers believe the improvements in performance are the result of a heat-induced increase in plasma volume.

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“Perhaps as important as preparing the body to perform in hot conditions is gaining the confidence needed from a psychological perspective,” Enderle says. “It is a natural tendency to scale back on effort when the temperatures are high, but that is not an option during actual competition.”

For more information on safe heat acclimation, please call the Sports Medicine team at Saint Francis Medical Center at 573-331-5153.

Adequate Hydration Is the Top Weapon Against Heat Illness

Heat stroke is a serious version of heat illness that athletes and coaches must take seriously, particularly during the hot summer training months. The primary difference between the two is the presence of confusion and other mental status changes during heat stroke.

“The number one factor in preventing heat illness is keeping the body hydrated,” states David Enderle, ATC, certified athletic trainer at Saint Francis Medical Center. “The body’s primary defense against overheating is sweating, so it is important to supply the body with the fluids necessary to maintain its ability to sweat.”

Athletes suffering from heat stroke typically have a body temperature of 105 degrees or higher. They can develop headache, nausea, cramps and extreme fatigue in the early stages, and later may experience confusion, fall unconscious, or in extreme cases, even death.

“It is important not to ignore those early symptoms,” Enderle says. “Dehydration and heat stroke can generate major issues for the kidneys and other internal organs. It is much easier to prevent heat illness than treat it once symptoms appear.”

Here are a few tips from the National Athletic Trainers’ Association to prevent heat-related illness:

- Rest 10 minutes for every hour of exercise and change wet clothing often.
- Use sunscreen with a low SPF rating so it does not interfere with the body’s ability to regulate heat.
- Drink early and often, starting the night before a planned hot-weather exercise period. By the time you feel thirsty, you likely already are suffering from dehydration.
- Rapid fluid replacement is not an effective way to replenish fluids; in fact, it could stimulate increased urine production.
- Avoid drinks containing caffeine or alcohol, as they increase dehydration.
- Replace fluids after exercising at least one hour at the rate of 16 ounces per pound of body weight lost during exercise.

For more information on preventing heat illness, please call the Sports Medicine team at Saint Francis Medical Center at 573-331-5153.

Heat Illness Treatment Focuses on Bringing Down Core Temperature

Depending on the severity of an athlete’s condition, athletic trainers and the medical team can choose from several options in bringing down the core temperature for athletes suffering from heat-related illness.

The first step is to remove wet clothing that may prevent sweating. The body will attempt to regulate its own temperature, and the primary tool at its disposal is sweating. However, the medical team can not wait for the body to cool itself in severe cases where body temperatures reach 105 degrees or higher.

Accelerated cooling options include spraying water on the athlete, blowing cool air on them, wrapping them in cool, wet towels, and placing ice packs at various points around the body, especially the neck and armpits. More invasive cooling methods are available at the hospital.

Athletes who have had heat stroke in the past are at higher risk of experiencing it again. Call for emergency assistance if an athlete is experiencing confusion, faintness, staggering, hallucinations or unusual agitation.

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