



**Central States
Orthopedics**

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SPORTS MEDICINE MONTHLY

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Surgical & Non-Surgical Care. Sports Medicine. Physical Therapy.

GAINING MAXIMAL ATHLETIC PERFORMANCE IN THE HEAT AND HUMIDTY

Exercising in the heat and humidity during the month of August in Oklahoma is nothing new. However, in spite of multiple pediatric and sports medicine organizations publishing guidelines and recommendations on how to exercise safely in the heat and humidity, exertional related heat illness is still one of the most frequent preventable causes of death in the adolescent athlete.

Even though these guidelines are primarily put in place for safety and protection, they are just as valuable in maximizing athletic performance. Contrary to popular belief, exertional guidelines in hot and humid conditions were never intended to restrict athletic performance; they were designed to maximize it.

Much like an automobile has an optimum running temperature that it must maintain in order to produce maximal performance, the human body is really no different. Too cold; the body metabolically slows down, shunts blood away from the extremities, and reaction time is impaired. Too hot; coordination is impaired, speed is reduced, and stamina drains away. In short, optimal temperature equals optimal performance. Therefore, in cold, hot, and humid conditions, spending more time practicing can be your worst enemy. In reality, the amount of time actually spent practicing or competing should be determined not by the amount of work completed, but by the ability to regulate one's temperature during the work. Just like a car, once a temperature threshold is breached, maximal performance is gone.



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Tricks of the Trade

In a survey of athletic trainers and coaches over the last 5-10 years, there are several outstanding, and yet simple tricks of the trade that many have implemented to maximize athletic performance in the heat and humidity. Here are just a couple:

Hydration is for life, not just for the heat...

All athletes usually hear is that they need to "drink lots of water." Because few ever categorize this into a measurable quantity, the message usually gets old and behavior really isn't changed. By contrast, those who are actually taught how to track proper hydration on a daily basis are much more adept to make the crucial adjustments needed during extreme heat and humidity.

Cool, Cool, Cool...

There is a simple truth in the fact that athletes who are regularly cooled don't get heat illnesses. Athletes who are regularly offered cool towels, sprayers, misters, etc... are dramatically less likely to sustain a heat illness. Likewise, they are much more alert and attentive as well.



Take the Shoulder Pads Off...

Granted, safety is always first. However, since we all know that the shoulder pads hold heat against the body, look for opportunities to practice without them. Individual drills, 7 on 7, and several other drills during practice don't always require shoulder pads. If you drop the shoulder pads, you drop the core temperature of your athletes and improve their performance.

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State Activity Policies in OK

In the State of Oklahoma, the Oklahoma Secondary Schools Activities Association has published an Extreme Heat Policy to govern athletic practices and competitions in the heat. Here are some of the highlights:

#1. Heat Index Directs How We Practice

>95

*10min breaks for hydration and cooling every 30 min

95-99

*Helmets and other equipment removed during non-contact activities.

100+

*If helmets and other equipment are required, suspend the activity.

*If helmets and other equipment are not necessary, reduce overall practice time.

#2. Rest Breaks Count Towards the Total Allotment of Practice Time

FB practices are limited to 2.5 hours. Each required 10 minute cooling break counts toward this allotment.

#3. All Programs Must have a Heat-Related Emergency Policy in Place Prior to Events Beginning

A. Call EMS

B. Cool the patient

C. Make sure EMS access gates are open

#4. Pre-Season Practices Should Be Avoided Between the Hours of 12pm and 6pm

Practices at this time of day, especially during the first week, dramatically reduce athletic performance. Even if your athletes are used to the heat of the summer, the conditions usually present during these time make for a very dangerous situation for anybody.

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Tricks of the Trade cont...

Practice During the Morning Instead...

It doesn't take a 90+ Heat Index for the body to begin to acclimatize to the environmental conditions. Acclimatization occurs at every temperature level. In changing up the practice times to morning sessions for the first week or so, dozens of coaches report greater productivity and effort from their athletes. Additionally, once the transition to afternoon practices is made, these athletes have less heat-related problems when making the time change.

Provide Extra Support on Days 3-5

The dehydration and heat stress on the body is cumulative. As a result, days 3-5 are usually where we notice the highest occurrences of heat-related illnesses. Double down on all cooling and hydration measures on these days in particular.

Weigh In and Weigh Out...

Provided the information gathered is accurate, tracking your athletes weight from before practice to after practice and from day to day can greatly reduce the likelihood that an athlete will suffer a heat illness. On average, a 2% loss in body weight per practice is fairly common. Therefore, this weight should ideally be returned to pre-event levels prior to the next practice and it must certainly be returned prior to the next day.

Patients with Heat Cramps Don't Return to Practice the Same Day

Although the cramp is most often treatable in just a matter of minutes, the dehydration, electrolyte balance, and core temperature environment that caused the cramp in the first place will take hours to stabilize. Cramps are the first sign of a heat problem. Any choice to return this athlete to competition, unless made by a healthcare provider, is only asking for a greater heat-related problem to occur.

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