

ON THE RUN

[TRAINING, INJURY PREVENTION & NUTRITION]



Beat the Heat

Expert insights on how to train and race in the heat of summer

BY ALAN CULPEPPER

Not long after winning the 2004 U.S. Olympic Trials Marathon, I was fortunate to undergo a battery of physiological tests at the Gatorade Sports Science Institute (GSSI) near Chicago. The Olympic marathon was going to be run amid the heat and humidity of Athens, Greece, later that summer, and with temperatures expected to be in the 90s on race day, I knew I needed to get as much insight as possible about

heat adaptation, my sweat rate and my typical sweat content.

While working with the GSSI, I learned some valuable information about my individual qualities and how the body adapts to heat. I was able to implement some easy measures in my training to ensure proper adaptation and race-day execution.

Two of the most important factors to consider for warm-weather training and racing are the following:

1) The body becomes much more efficient at losing heat, but it also becomes much more efficient at losing less essential electrolytes. Losing heat efficiently and keeping electrolytes in balance are critical to performance.

2) As your body adapts to the heat, you gain the benefit of greater overall aerobic conditioning. Our bodies have to work harder when running in the heat, but that environment also allows for advancements in overall fitness. So at least you can be content with the fact that you're actually getting fitter as you suffer through harsh conditions.

With proper implementation you can adapt to the heat and still enjoy positive results from your training.

WARM-WEATHER TRAINING TIPS

Hydrate, hydrate, hydrate: Most runners do not have a clear understanding of how much fluid they are actually taking in

DID YOU KNOW? After Haile Gebrselassie dropped out of the 2007 London Marathon, the Gatorade Sports Science Institute developed a customized endurance drink blend, which would allow him to take in maximal electrolytes and 90g of carbs per hour. In his next race at the 2007 Berlin Marathon, he won in a world-record 2:04:26.



The Right Way to Refuel

We all sweat and get depleted when running in the heat, but our bodies all react differently. Because of that, developing a hydration and fueling strategy for a warm-weather race or even a long training run should be a highly individualized process.

Determining your sweat rate will go a long way in helping you realize how much you need to drink every hour in hot conditions. If you're a heavy sweater, you'll need to replace a lot of lost fluid out on the course. Simply taking a few sips of fluid at each aid station likely means you're not consuming enough liquid, especially in warm-weather races.

► **PRE-RUN:** 20-24 ounces of water (or electrolyte blended drink during exceptionally warm periods) 60 to 90 minutes before the race or run.

► **DURING EXERCISE:** Drink 4-6 ounces every 20 minutes for runs longer than 75 minutes. For runs in the 50-75-minute range, drinking 8-10 ounces every 15 minutes will suffice. For runs of 75 minutes or longer, try to drink 10-12 ounces every 15 minutes with at least 60g of carbohydrates per hour (in any combination of drinks, gels or chews) to restore your quickly depleting energy reserves.

► **POST-RUN:** 24-32 ounces of some form of electrolyte blend. Hydration is key, but so is the need to take in more carbohydrates and protein. Having a well-balanced meal that includes about 15-30g of protein as soon as you feel comfortable to eat will go a long way in helping you get back to equilibrium.



Although knowledge about sports nutrition and hydration has proliferated in recent years, studies have shown that most runners are not taking in enough fluid in longer races.

>> before, during and after exercise. For the majority of the year, you can get away with drinking less than optimal amounts of fluids and not suffer ill effects. But during the warmer months, adequate hydration becomes critical. Not only does appropriate hydration improve the effectiveness of training, but it also grossly affects how you feel during your training and how quickly you recover.

It's easy to assume you are drinking enough because you are following your standard daily routine. But what is probably happening is you've become accustomed to a perpetual state of cumulative dehydration. Without proper hydration, training will become less productive and injury much more likely, especially during the heat of summer. It takes about 20 minutes to actually absorb the fluid you are taking in, so drinking large amounts right before you head out the door will not take effect until several miles into a run. Many runners wonder why they don't feel good for several miles early in a run or why their heart rate is elevated

at the start. Dehydration is often the primary cause.

SLOW DOWN: I am rarely an advocate of super slow running and almost never one to endorse loafing along just to get the time on your feet. However, when it comes to warm-weather training and harder workouts, it makes sense to slow down in order to complete a session.

There is a tendency to try to hit the prescribed time and subsequently cut the workout short. Ultimately it will prove more beneficial to slow down and get in the entire workout instead of trying to hit the times and suffer the detrimental effects of the heat. Your heart rate will go up as the body heats up and often the only option is to slow down. Taking in fluids during the workout will help, but overall it will be more beneficial to simply back off a bit and finish the session.

GIVE YOURSELF A BREAK: If you are feeling particularly beat down by the heat either physically or emotionally, then give yourself a break. Factor in a few days indoors on a treadmill or an easy day in the

>> pool to give yourself some reprieve. Among the obvious signs you need a bit of a break are struggling to hold your standard daily pace for several days or that your heart rate is 5-10 beats higher than usual. It's amazing how much better you will feel when you give your system a few days to truly recover from the heat.

WARM-WEATHER RACING TIPS: Be mindful of expectations: When it comes to racing in the heat, it is essential that you have a good understanding of what to expect. Going into a warm-weather event with a nonchalant attitude is never a good idea. You might not have all the intricacies of the route memorized, but knowing where the fluid stations are located and what the temperature is expected to reach are very important. Having a race-day heat strategy will give you the confidence that you are doing everything you can do to maximize your performance for those conditions. In cool-weather races, you can get away with just taking it as it comes. In a warm-weather race, that's definitely not an option. Plan your hydration strategy, factor in the aid stations on the course, note the temperature at start time and perhaps recalculate your predicted finish time. Slacking in one area could have big consequences.

RE-FUEL: Although knowledge about sports nutrition and hydration has proliferated greatly in recent years, studies conducted by the Gatorade Sports Science Institute have concluded that most runners aren't taking in enough fluid, electrolytes or carbohydrates during a marathon, which is the primary reason so many runners experience a big bonk late in a race.

Practicing taking in electrolytes during your training will help your body adapt to the absorption required during the event.

ELECTROLYTES: When it comes to warm-weather racing conditions, electrolytes are crucial. Sodium, potassium and magnesium are all extremely important to performance. Small shifts in the balance in your system could have damaging consequences. Water alone will not suffice when racing in warm conditions and in almost every instance we lose more than we can take in. Bumping up the sodium in your diet the few days leading up to the race can help create a nice buffer along with adding a sports drink to your pre-race hydration routine. During the race, electrolytes should be taken at every aid station as long as your stomach is not acting up. Practicing taking in electrolytes during your training will help your body adapt to the absorption required during the event.

CARBS: Most runners carbo-load the day before a long race, but many aren't reloading lost carbs at a fast enough rate to maintain their energy during a race. Aiming to ingest 50-60g of carbohydrates per hour is a good benchmark. This might mean taking at least two gels or two servings of chews (which typically have 20g-30g of carbs per serving) per hour, plus several swigs of a sports nutrition drink and copious amounts of water, too.

PRACTICE. Just as you wouldn't show up on the day of the race without training, you shouldn't limit your hydrating and fueling strategies only to races. Practice drinking and refueling at regular intervals during your long runs, even if it means running in loops or stashing water bottles and gels ahead of time.

EASE INTO IT: Racing should always include an element of trusting your instincts and in the case of a warm-weather race you will need to pay particular attention to how you are feeling. The effects of heat can creep up on you quickly so you need to really pay attention and be reactive to what your body is telling you. Taking in extra fluid at an aid station or slowing down can help you salvage a solid performance. Easing into the race will also help your body adjust to the conditions and not send your system into a state of shock by going out too aggressively. Better to run consistent and steady when dealing with those warm-weather temperatures on race day.



Two-time U.S. Olympian Alan Culpepper helps runners of all abilities via his website at www.culpeppercoaching.com.



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