

CAN HOT WEATHER – BE YOUR FRIEND

The optimum conditions for running/race-walking are under 20°C, with low humidity, a light wind and overcast/cloudy conditions. Unfortunately this rarely happens for us and our more likely scenario is that we will race or train in heat and humidity that can put us at risk of dehydration, heat stroke and other heat-related illnesses. However if handled correctly, hot conditions can help improve your running/walking. A 2010 study by the University of Oregon found that heat acclimation improves the ability to control body temperature, improves sweating and increases blood flow through the skin, and expands blood volume allowing the heart to pump more blood to muscles, organs and the skin. It also found that the test group showed improved performance in cold weather by as much as 7%.

Common sense is the key - training in the heat is not dangerous, provided you listen to your body. The current thinking is that, in *most* cases, the brain will pace the body to stay within an acceptable heat range. However if you have a pre-existing medical condition especially heart or respiratory problems or you are on any medications, consult your doctor before training in the heat. And remember humidity exacerbates the issue! Sweating helps reduce your core body temperature that naturally rises during a workout. Humidity prevents sweat evaporating meaning heat is retained, so on humid days, pay attention to the Heat Index which combines temperature and humidity. It may only be 30 degrees but if humidity is 70% it will feel like, and have the effect of, 38 degrees.

So what can be the benefits?

Improved fitness. There have been studies that show that training in hot weather increases your fitness level. It's a bit like altitude training where the body learns how to work out at a more intense level, so that when you are in "normal" conditions, it feels easier.

It can make you more efficient. With an increased blood flow and expanded volume, it helps make our hearts more efficient. For distance runners/walkers in particular, efficiency is what makes us faster.

Your body learns how to sweat better. The better you sweat, the cooler you are. Your body becomes more efficient at handling hot weather after training in it.

It helps build mental fitness. Working out in the heat is really challenging but it can make you mentally tougher.

It can force you to vary your workouts. High temperatures make some of our normal workouts hard to take so it provides a good reason to vary them. Change your route for a shadier one, do some strength training in the middle to lower your heart rate and drop the distance. Variety can lead to improvement.

Knowing there are benefits what can we do to ensure we gain these benefits safely?

1. Acclimation

As discussed above acclimating the body to heat and humidity can also improve performance under other conditions. If there is no hot weather before a predicted hot race - pile on the clothing during training. Your body probably needs up to two weeks to fully acclimate to the heat but you will make most of your acclimation during the first five days.

2. Type of workout

Slower is probably better than shorter – even go without a watch so that a slower time doesn't disappoint.

3. Clothing

Wear light coloured loose fitting synthetic fabrics (such as CoolMax or Dri-Fit). These specialty synthetic fabrics wick moisture away from your skin so cooling evaporation can occur more efficiently. Avoid wearing cotton when running because it holds sweat and doesn't dry quickly, it will cling to your skin, increasing heat build-up and can lead to chaffing. Light weight acrylic socks keep feet dry and cool.

4. Hydration

Hydration is critical before, during and after a workout and always practice drinking – it's no good doing it just on race day. Drinking adequate amounts of fluids (appropriate to the likely fluid loss) before exercise will improve cardiovascular function and body temperature regulation during exercise when it is difficult to drink enough.

Remember that electrolytes are lost both in sweat and in urine. In a litre of sweat 460-1840 mg of sodium, 710-2840 mg chloride and 160-390 mg potassium are lost, so during and after a workout opt for the sports drink - they also assist in retaining more fluid!

During a workout remember the other use of water. Pour it over yourself! Up to 70 percent of the heat you can lose goes out through the top of your head (probably more so in my case – being hirsutely challenged) so regularly pour water over your head.

If you can - drink cold water – not only does cold water leave the stomach quicker, it produces a slight physiological cooling effect – and an even greater psychological cooling effect.

5. Skin care

Protect your skin with a waterproof sunscreen that has an SPF of at least 15 and offers broad spectrum protection. Make sure you cover areas of your body that you assume may be protected as some summer running clothes are made of mesh or very thin fabric, so they might not provide protection. And don't forget your eyes - a good pair of UV-blocking sunglasses help protect your eyes from the sun's damaging rays.

6. Be Very Aware

Heat exhaustion and heat stroke are very serious conditions. The symptoms are dizziness, goose bumps, nausea, headache, weak legs, lack of coordination, rapid pulse, heavy sweating often accompanied by moist and cold skin and muscle cramping, strange behaviour and fuzzy thinking, cessation of sweating and hot/dry skin. If you experience any of these symptoms you must seek medical attention.

Hyponatremia occurs when the body becomes dangerously low in sodium. It's caused when you literally take in too much water. Although hyponatremia is rare, it's wise to be aware that it can occur.

Conclusion

There are severe risks when working out at high temperatures but with a sensible approach it is just possible to get that edge you have been looking for.

References

Lorenzo S, Halliwill JR, Sawka MN, Minson CT. "Heat acclimation improves exercise performance". *Journal of Applied Physiology*. 2010