

The implications of drying out

By Paula Shingler, BSc, MCSP

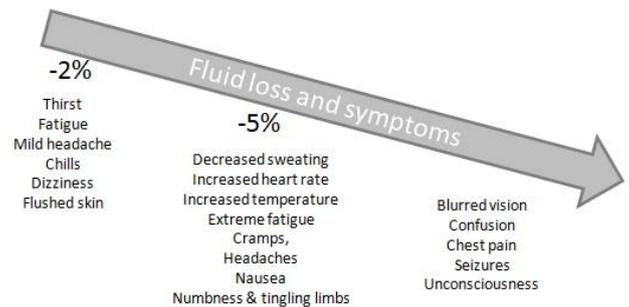
We all know we shouldn't get dehydrated because we have been told on many occasions, but what are the drawbacks if we do let our fluid levels slip? Does dehydration have any impact on injury? Let's have a look.

Dehydration affects most body systems

Dehydration is 'a metabolic state where there is a less than normal level of fluid available to facilitate normal biochemical and physiological processes' - phew quite a mouthful! As our bodies are made up of 75% water surely we can do without a little? Well we can do without a little, but so many of the processes in the body rely on water that even a little drop in volume can have consequences, especially when we are exercising. The processes that rely on water include heart rate, blood flow, temperature regulation, muscle function, joint cushioning, delivery of nutrients to cells, and the removal of waste products. So you can see that a reduction in volume of water will affect most of the body systems.

Feel the burn

During exercise the blood must supply the muscles with essential oxygen and electrolytes for them to function optimally, and blood also needs to get to the skin to dissipate the heat generated by exercise. If the blood volume is reduced due to less water, then the skin flow is reduced as the muscles take priority. This then causes an increase in temperature which, over time, can have huge effects. Also muscles and nerves rely on electrolytes such as sodium and potassium for conduction of the electricity that controls their function. So if blood flow is lessened, the electrolytes going to muscles and nerves will be reduced too - crucial during exercise as a poorly functioning muscle is not ideal when you are at full pace!



Dehydration sets the body up for injury

Dehydration will not of itself cause injuries but if your body is suffering from the symptoms you are vulnerable to accidents, as your normal reactions or perceptions are not as clear.

Muscle cramps, which are a very common sign of dehydration, have been thought to cause muscle tears. Recent evidence shows this is not the case, however cramps are an involuntary spasm in the muscle caused by mineral imbalance and of course dehydration means lower blood flow inhibiting minerals and electrolytes getting to the muscles. When the imbalance is resolved the muscle will go back to normal. Occasionally, if you have an underlying muscle tear, cramps can exacerbate this, but will not be the initial cause.

How much is enough?

So how do you avoid dehydration? The best thing is obviously to try to hydrate before an event, especially if it is on a warmer day. Ideally you should have 500mls of water 2 hours before competition and 250mls every 20 mins of competition.



The most vital is the fluid taken well before the event as it will then be in your system already. Having to stop to rehydrate can be costly in a competition but if you do start to feel any of the early symptoms described above, then you must stop to rehydrate or you might not make it to the end! Interestingly a 1% decrease in weight from dehydration can result in a 5%

decrease in performance! Amazing what a little lack of water can do!

Also after competition rehydration is extremely important to correct fluid loss. Rehydration should include water, carbohydrates to



replenish glycogen stores, and electrolytes to speed the rehydration process. Just as well there are food and drink stalls selling delicious treats at events! We must also remember that we do multi day events so if you do not properly replenish after each day then there will be a detrimental effect in the following days - which will increase your injury risk.

Being aware of the negative effects of even mild dehydration is important especially if you happen to be out in the bush alone when you start to feel dehydration effects. Make sure you are hydrated before you start and if you feel you may be out there for an extended period of time, (yes we can all be a little navigationally challenged at times!) then take water with you just in case. It would be a shame to be leading your event and succumb to poor performance or a fall just due to a little lack of water, wouldn't it?

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