



Running and the Importance of Hydration

Water is essential to maintain blood volume and viscosity, which helps regulate body temperature and, along with electrolytes, allows muscle contractions to occur. During exercise, the primary way the body regulates body temperature is by sweating. The body is cooled when beads of sweat on the skin evaporate, resulting in a loss of body fluid. Sweat production and body fluid loss increase with rising ambient temperature, humidity and exercise intensity.

Ambient Temperature: Running activity raises the body temperature and causes the body to sweat in an attempt to cool itself. Higher than normal ambient temperatures or direct sunlight heating the body will speed up the body's attempt to cool itself, resulting in an additional fluid loss.

Humidity: When the air has an increased level of water molecules, it has by volume proportionately less oxygen & nitrogen. High humidity reduces the efficiency of the breathing cycle that oxygenates the blood, raising body temperature and fluid loss as muscles are starved of oxygen and have to work harder.

The Benefits of Proper Hydration

Proper hydration helps or maintains:-

- The lubrication of the joints
- Blood (84% water) viscosity and the transportation of oxygen and nutrients to the muscles
- The effective removal of toxins and waste from the body
- The regulation of body temperature
- Protection of our internal organs, muscles and connective tissues.

Pre Run/Race: Hydrate well the day before - drink water, fruit juice, squash or Lucozade (NOT Alcohol; see panel) until your pee runs clear.

Hydrating before, during and after running is necessary to replace fluids and electrolytes lost in sweat. A "pre-run drink"¹ will subsequently reduce the risk of heat stress, maintain normal muscle function, prevent performance decreases due to dehydration and minimise injuries.

The rates of sweat loss will vary from person to person, and it is essential to learn your sweat rate and know how much you should drink. This is an integral part of distance training, particularly for those running a half or marathon. However, it is also important to acknowledge that it is possible to over-drink during running – too much water alone (or even isotonic drinks) may cause hyponatremia².

More.....

NOTE! Alcohol is a diuretic; it encourages the body to **lose more water** than it takes on by halting the production of the body's anti-diuretic hormone Vasopressin. Without this hormone, you will feel the need to pee excessively as the kidneys send water directly to the bladder instead of reabsorbing it into the body, thus speeding up the fluid loss that leads to dehydration.

1. Fluid taken 5 -10 mins before a run will not normally increase the need to pee.

2. Low sodium levels in the blood. Sodium is an electrolyte, and it helps regulate the amount of water that's in and around your muscle cells.

Dehydration

When your body doesn't have enough water, performance will decline. In addition, the extra stress placed on muscles and connective tissue may also lead to a severe injury.

Dehydration starts to happen when you lose more fluid than you have taken in, and it can exhibit mild to severe symptoms that can include the following:-

- Dizziness or lightheaded feeling
- Nausea or vomiting
- Muscle cramps / spasms
- Dry mouth
- lack of sweating
- Hard, fast pulse
- **Weak or rapid heartbeat**
- Dark coloured urine
- Thirst
- Headaches
- **Confusion**
- Lack of energy
- Loss of strength
- Tiredness
- **Inability to pass urine**
- **Irritability**
- Reduced bowel movements

The items **marked with yellow** may suggest a serious underlying problem – visit your GP

Rehydration: How to replace fluid and electrolytes

There are easy ways to replace fluids levels and keep your electrolyte levels up, including:-

Water: This is not the most complete solution but will alleviate some of the symptoms above.

Sports drinks/gels: Though sports drinks such as Lucozade sports drinks or gels, are often recommended as quick-fix for restocking electrolyte levels during & after exercise, they typically contain high levels of refined sugars. Look for sugar-free options or consider alternatives to prevent consuming empty calories post-workout. Sports Gels will not replace fluid but will give you a shot of Electrolytes and Carbohydrates – usually enough for 1-2 miles (2-3K) during a race.

Electrolyte tablets: Electrolyte supplements, such as electrolyte effervescent tablets, **are a great option** for topping up low levels of fluid & electrolytes after exercise. They are also particularly beneficial for older adults who are more likely to have an electrolyte imbalance. Electrolyte tablets are also almost sugar-free.

Most importantly, you should replace fluids and electrolytes as soon as possible to minimise or totally avoid the symptoms above and get your body back to normal.

See separate paper on the importance of “electrolytes”.