

STAYING HYDRATED

3.1 The importance of fluids

During activity, body temperature rises, breathing increases and sweat is produced. The resulting loss of fluids and electrolytes (such as sodium and potassium) leads to **dehydration**. As little as **2 to 3% dehydration can negatively affect performance** by causing premature fatigue or cramping. Athletes will lose fluids and electrolytes at different rates. Be sure to watch for **signs of dehydration**.

Mild dehydration (2 to 5 % body weight loss)	Moderate dehydration (5 to 6 % body weight loss)	Severe dehydration (more than 7% body weight loss)
Chills	Increased body temp	Rapid pulse
Headache or head rush	Faster breathing	Rapid breathing
Loss of appetite	Increased heart rate	Low blood pressure
Slightly decreased urine output	Little or no urine output	Inability to produce tears
Dark yellow urine	Decreased ability to sweat	Mottled/shriveled skin
Dry or flushed skin	Sunken eyes	Impaired vision
Slightly dry mucous	Muscle cramps	Muscle spasms
Constipation	Tingling hands and feet	Confusion
Fatigue	Extreme fatigue	Seizure/Coma

Through proper hydration, athletes can replace lost fluids and electrolytes, maintain energy levels and maximize performance.

Dehydration is a bigger risk for athletes who compete in **hot or humid conditions** and/or **endurance activities**.

3.2 Assessing hydration levels

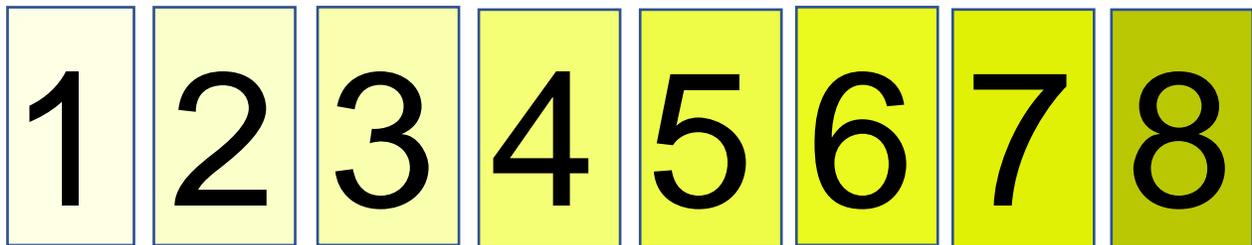
3.2.1 Thirst

It's well-established that thirst is not a good indicator of hydration levels. In fact, by the time athletes feel thirsty, they may have already lost about 2% of their body mass. To stay hydrated, athletes should drink on a schedule.

If athletes drink only when they're thirsty, it can take 24 to 48 hours to re-establish ideal hydration levels.

3.2.2 Urine

Athletes can assess hydration levels by inspecting the colour of their urine. The **clearer** their urine, the **more hydrated** they are. If their urine is light and straw-coloured, they are optimally hydrated.



If your urine matches the colours **1, 2 or 3 you are hydrated**.

If your urine matches the colours numbered **4 through 8 you are dehydrated** and need to drink more fluid.

Be aware! If you are taking single vitamin supplements or a multivitamin supplement, some of the vitamins in the supplements can change the colour of your urine for a few hours, making it bright yellow or discoloured. If you are taking a vitamin supplement, you may need to check your hydration status using another method.

3.3 Hydrating before activity

Athletes should drink fluids before activity to ensure they're properly hydrated.

In general, athletes should start slowly drinking fluids **at least 4 hours before activity** (about 250 to 350 mL for an athlete who weighs 110 lbs).

If they haven't produced urine or their urine is dark, they should slowly drink more fluids **about 2 hours before activity** (about 150 to 225 mL for an athlete who weighs 110 lbs).

Drinking fluids well in advance of activity ensures that there's time for urine output to return to normal before activity.

Athletes might not drink if they aren't thirsty. Eating small amounts of salted snacks or foods with sodium may stimulate thirst. Drinks with sodium or flavouring may also be easier to drink.

3.4 Staying hydrated during activity

Athletes need to drink enough during activity to maintain weight and fluid balance. As a rule of thumb, they shouldn't lose more than 2% of their body weight. Fluid and electrolyte loss will vary for each athlete and is based on several factors:

Intensity and duration of activity

Environmental conditions

Sweat rate

Electrolyte content in sweat

Clothing or equipment required during activity

Participants should drink **400 to 800 mL of fluid per hour** of activity. To avoid discomfort, they should drink **smaller amounts (150 to 350 mL) every 15 to 20 minutes**.

These are **general recommendations**. Individual athletes will have different needs and be able to tolerate different amounts and types of fluid during activity.

3.5 Hydrating after activity

Hydrating after activity replaces lost fluids and electrolytes.

Athletes should drink approximately **1.5 L of fluid for each kilogram of body weight lost** during activity.

To maximize fluid retention, athletes should consume fluid over time (and with sufficient electrolytes) rather than in large amounts.

Intravenous fluid replacement may be required in cases of severe dehydration (more than 7% loss of body weight). If an athlete shows signs of severe dehydration, consult a medical professional.

3.6 Water vs. sports drinks

Sport drinks contain **carbohydrates and electrolytes**. Water doesn't. This doesn't mean a sport drink is always a better choice than water. Sport drinks typically contain **high levels of sugar and sodium**, which should be consumed in moderation.



Research suggests that sport drinks can **improve performance** when activity lasts **longer than an hour** without interruption. Sport drinks may also provide benefits in **hot or humid conditions**. Otherwise, consuming a sport drink probably won't significantly improve performance.

Water is almost sufficient for hydration before, during and after activity.