Water – a vital nutrient

Summary

- Water is essential to most bodily functions.
- The body has no way to store water and needs fresh supplies every day.
- The best source of fluids is fresh tap water.
- A child will need different amounts of fluid, depending on their age and gender.
- Women should have about two litres (eight cups) of fluids a day, and men about 2.6 litres (10 cups).
- Women who are pregnant or breastfeeding need more fluid each day than other women.
- Dehydration can happen when the body’s fluids are low. It can be life threatening, especially to babies, children and the elderly.

The human body can last weeks without food, but only days without water. The body is made up of 50 to 75 per cent water. Water forms the basis of blood, digestive juices, urine and perspiration, and is contained in lean muscle, fat and bones.

As the body can’t store water, we need fresh supplies every day to make up for losses from the lungs, skin, urine and faeces (poo). The amount we need depends on our body size, metabolism, the weather, the food we eat and our activity levels.

Water in our bodies

Some facts about our internal water supply include:

- Body water content is higher in men than in women and falls in both with age.
- Most mature adults lose about 2.5 to 3 litres of water per day. Water loss may increase in hot weather and with prolonged exercise.
- Elderly people lose about two litres per day.
- An air traveller can lose approximately 1.5 litres of water during a three-hour flight.
- Water loss needs to be replaced.

Importance of water

Water is needed for most body functions, including to:

- maintain the health and integrity of every cell in the body
- keep the bloodstream liquid enough to flow through blood vessels
- help eliminate the by-products of the body’s metabolism, excess electrolytes (for example, sodium and potassium), and urea, which is a waste product formed through the processing of dietary protein
- regulate body temperature through sweating
- moisten mucous membranes such as those of the lungs and mouth
- lubricate and cushion joints
- reduce the risk of cystitis by keeping the bladder clear of bacteria
- aid digestion and prevent constipation
- moisturise the skin to maintain its texture and appearance
- carry nutrients and oxygen to cells
- serve as a shock absorber inside the eyes, spinal cord and in the amniotic sac surrounding the foetus in pregnancy.
Water in our food

Most foods, even those that look hard and dry, contain water. The body can get about 20 per cent of its total water requirements from solid foods alone.

The process of digesting foods also produces a small amount of water as a by-product which can be used by the body. Water sourced this way can provide around 10 per cent of the body’s water requirements.

The remaining 70 per cent or so of water required by the body must come from fluids (liquids).

Recommended dietary fluid intake

The Australian Dietary Guidelines recommend that we drink plenty of water but how much is enough?

The amount of fluid your body needs each day depends on several factors, such as your gender, age, how active you are, whether you’re pregnant or breastfeeding, and the conditions you’re living in.

How much fluid to drink each day

<table>
<thead>
<tr>
<th>Age group</th>
<th>Daily Fluid Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants aged 0–6 months*</td>
<td>0.7 litres</td>
</tr>
<tr>
<td>Infants aged 7–12 months#</td>
<td>0.8 litres total (with 0.6 litres as fluids)</td>
</tr>
<tr>
<td>Girls and boys aged 1–3 years</td>
<td>1 litre (about 4 cups)</td>
</tr>
<tr>
<td>Girls and boys aged 4–8 years</td>
<td>1.2 litres (about 5 cups)</td>
</tr>
<tr>
<td>Boys aged 9–13 years</td>
<td>1.6 litres (about 6 cups)</td>
</tr>
<tr>
<td>Boys aged 14–18 years</td>
<td>1.9 litres (about 7–8 cups)</td>
</tr>
<tr>
<td>Girls aged 9–13 years</td>
<td>1.4 litres (about 5–6 cups)</td>
</tr>
<tr>
<td>Girls aged 14–18 years</td>
<td>1.6 litres (about 6 cups)</td>
</tr>
<tr>
<td>Men aged 19 years and over</td>
<td>2.6 litres (about 10 cups)</td>
</tr>
<tr>
<td>Women aged 19 years and over</td>
<td>2.1 litres (about 8 cups)</td>
</tr>
<tr>
<td>Pregnant girls aged 14–18 years</td>
<td>1.8 litres (about 7 cups)</td>
</tr>
<tr>
<td>Pregnant women aged 19 years and over</td>
<td>2.3 litres (about 9 cups)</td>
</tr>
<tr>
<td>Lactating girls aged 14–18 years</td>
<td>2.3 litres (about 9 cups)</td>
</tr>
<tr>
<td>Lactating women</td>
<td>2.6 litres (about 10 cups)</td>
</tr>
</tbody>
</table>

* from breastmilk or formula
# from breastmilk, formula, food, plain water and other beverages

These adequate intakes include all fluids, but it’s preferable that the majority of intake is from plain water (except for infants where fluid intake is met by breastmilk or infant formula).

Some people may need less fluid than this. For example, people:

- who eat a lot of high-water content foods (such as fruits and vegetables)
- in cold environments
- who are largely sedentary.

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Other people might need more fluid than the amount listed and will need to increase their fluid intake if they are:

- on a high-protein diet, to help the kidneys process the extra protein
- on a high-fibre diet to help prevent constipation
- vomiting or have diarrhoea, to replace the extra fluids lost
- physically active, to replace the extra fluids lost through sweat
- exposed to warm or hot conditions, to replace the extra fluids lost through sweat.

Although activity levels affect the amount of fluid needed, there are many factors that influence the fluid needs of athletes during training and competition. For example, it is likely that athletes exercising in mild conditions will need less fluid than athletes competing at high intensities in warm conditions.

**How to get enough fluid in your diet**

If the idea of having to drink lots of cups of water a day doesn’t appeal, don’t worry – fluids include fresh water and all other liquids, such as milk, coffee, tea, soup, juice and even soft drinks.

Fresh water is the best drink because it does not contain energy (kilojoules) and is best for hydrating the body. Water from the tap is also mostly free and generally available wherever you go.

However, milk is about 90 per cent water and is an important fluid, especially for children. Just remember to choose full-fat milk for children under two years old and low-fat and reduced-fat varieties for everyone else.

Tea can also be an important source of fluid. Tea can help you meet your daily fluid recommendations, and is a source of antioxidants and polyphenols, which appear to protect against heart disease and cancer.

If you prefer to get some of your fluids from fruit, aim to eat whole pieces of fresh fruit instead of having fruit juice – you’ll still get the delicious fruity juice (fluids) but you’ll also benefit from the bonus fibre and nutrients while avoiding the extra sugar found in fruit juice.

**Tips for drinking more water**

- Add a squeeze or slice of lemon or lime, or some strawberries or mint leaves to plain water to add variety.
- Keep a bottle or glass of water handy on your desk or in your bag.
- Drink some water with each meal and snack.
- Add ice cubes made from fresh fruit to a glass of water.

**Limit mineral water intake**

Commercially bottled mineral water contains salt, which can lead to fluid retention and swelling, and even increased blood pressure in susceptible people. Limit the amount of mineral water or choose low-sodium varieties (less than 30 mg sodium per 100 ml).

If you prefer bubbly water, think about getting a home soda water maker so you can just use tap water and make it fresh when needed.

**Water fluoridation**

An additional benefit of drinking tap (reticulated or mains) water in Victoria is that, in most areas, fluoride is added to the water. Bottled water does not usually have good levels of fluoride. Fluoridation of tap water helps prevent dental decay and is a safe and effective way of providing dental health benefits to everyone.

**Find out if your area has water fluoridation.**

**Avoid sugary and artificially sweetened drinks**

The Australian Dietary Guidelines recommend all Australians to limit their intake of drinks containing added sugar. This includes sugar-sweetened soft drinks and cordials, fruit drinks, vitamin-style waters, flavoured mineral waters, energy and sports drinks.

Having sugary drinks provides additional energy (kilojoules) to the diet, but no other essential nutrients. There is strong evidence of the association between having sugary drinks and excess weight gain in both children and adults.
adults, as well as reduced bone strength and tooth decay.

Artificially sweetened drinks add very little energy (kilojoules) to the diet and therefore do not contribute directly to weight gain. However, artificially sweetened drinks still maintain the ‘habit’ of drinking sweet drinks. They may also lead to decreased bone density (as people may drink less milk) and contribute to tooth decay due to their acidity.

**Dehydration**

Dehydration occurs when the water content of the body is too low. This is easily fixed by increasing fluid intake.

**Symptoms of dehydration**

Symptoms of dehydration include:

- thirst
- headaches
- lethargy
- mood changes and slow responses
- dry nasal passages
- dry or cracked lips
- dark-coloured urine
- weakness
- tiredness
- confusion and hallucinations.

If dehydration is not corrected by fluid intake, eventually urination stops, the kidneys fail, and the body can’t remove toxic waste products. In extreme cases, dehydration may result in death.

**Causes of dehydration**

There are several factors that can cause dehydration including:

- not drinking enough water
- increased sweating due to hot weather, humidity, **exercise** or fever
- insufficient signalling mechanisms in the elderly – sometimes, older adults do not feel thirsty even though they may be dehydrated
- increased output of urine due to a hormone deficiency, diabetes, kidney disease or medications
- diarrhoea or vomiting
- recovering from burns.

**At-risk groups for dehydration**

Anyone can experience dehydration but there are some people who can be more at risk – such as babies, children and the elderly.

**Babies and children**

Babies and children are susceptible to dehydration, particularly if they are ill. Vomiting, fever and diarrhoea can quickly cause dehydration.

Dehydration can be a life-threatening condition in babies and children. If you suspect dehydration, take your baby or child to the nearest hospital emergency department immediately.

Some of the symptoms of dehydration in babies and children include:

- cold skin
- lethargy
- dry mouth
• a blue tinge to the skin as the circulation slows
• in babies, depressed fontanelle (the soft spot on top of a baby’s skull where the bones are yet to close).

Elderly people

Older people are often at risk of dehydration due to:
• changes to kidney function, which declines with age
• hormonal changes
• not feeling thirsty (because the mechanisms in the body that trigger thirst do not work as well as we age)
• medication (for example, diuretics and laxatives)
• chronic illness
• limited mobility.

Getting the right balance of fluid intake

Not drinking enough water can increase the risk of kidney stones and, in women, urinary tract infections. It can also lower your physical and mental performance, and your salivary gland function, and lead to dehydration.

But did you know that it is possible to drink too much water and cause a condition called hyponatraemia (water intoxication)?

Water intoxication (hyponatraemia)

Drinking too much water can damage the body and cause hyponatraemia (water intoxication), although it is pretty rare in the general population.

Hyponatraemia occurs when sodium in the blood, which is needed for muscle contraction and sending nerve impulses, drops to a dangerously low level.

If large amounts of plain water are consumed in a short period of time, the kidneys cannot get rid of enough fluid through urine and the blood becomes diluted. Hyponatraemia can lead to headaches, blurred vision, cramps (and eventually convulsions), swelling of the brain, coma and possibly death.

For water to reach toxic levels, many litres of water would have to be consumed in a short period of time. Hyponatraemia is most common in people with particular diseases or mental illnesses (for example, in some cases of schizophrenia), endurance athletes and in infants who are fed infant formula that is too diluted.

Fluid retention

Many people believe that drinking water causes fluid retention. In fact, the opposite is true. Drinking water helps the body rid itself of excess sodium, which results in less fluid retention.

The body will retain fluid if there is too little water in the cells. If the body receives enough water on a regular basis, there will be no need for it to hold onto water and this will reduce fluid retention.

Where to get help

• In an emergency, call triple zero (000)
• The emergency department of the nearest hospital
• Your GP (doctor)
• Dietitians Association of Australia Tel. 1800 812 942