

Key Words

Hydrated: the body has enough water

Dehydrated: the body does not have enough water

Functions in the body:

- All cells, bodily fluids (e.g. saliva, blood, urine, digestive juices) and body tissues contain water
- Controls body temperature.
- Needed for chemical reactions in body.
- Keeps skin moist and healthy
- Removes waste products from body.

Sources:

- Drinking water (tap water).
- Naturally found in many foods (e.g. milk, milk products, fruit, vegetables, meat, fish, eggs).
- Added to many foods during preparation, cooking and processing (e.g. soup, sauces, pastries, breads, boiled rice, pasta, beans, pulses etc.).

Effects of excess:

- Substances in the blood become over-diluted.
- Vital organs in the body start to fail, e.g. heart, kidneys.
- May cause death.

Effects of deficiency:

- Thirst—the brain detects when the body is thirsty + sends a message to the mouth
- Headache—blood pressure is concentrated so as it passes through the brain results in a headache
- Dehydration – urine becomes very dark. Should be very pale yellow in colour
- Feeling weak and sick as the body's normal chemical reactions are affected
- Body overheats as it cannot cool itself down
- Confusion as dehydration affects how the brain works
- Blood pressure and heart rate change as volume of blood is reduced

Water

Amount needed for different life stages

In the U.K it is recommended people drink 1—2 litres of water or other fluids a day (6—8 medium glasses) but needs to be increased in hot weather or if a lot of physical exercise takes place.

The Eatwell Guide limits fruit juice and/or smoothies to a total of 150ml per day. This is because they are both high in sugar and acids. The sugar is 'free' sugar because it has been released from the fruit during processing and can be concentrated. This is not good for the teeth meaning the enamel can be damaged by bacteria in the mouth producing acids from the sugar and acids in the fruit. If you drink more than 150ml you would also be getting more sugar than is recommended.

Bottled or tap water. Which source is better for environmental sustainability?

- Bottled water is sold in plastic bottles. These use a lot of energy and non-renewable resource (oil to make plastics) and they are bad for the environment because they have to be disposed of, often in landfill sites. Some, but not all, of the plastics used are recyclable.
- Tap water has to be cleaned to make it safe to drink, which uses energy, but it does not have the same effects on environmental sustainability as the plastic bottles used for bottled water.

Ways to encourage young children to drink more water:

Provide more watery foods such as fruits, vegetables, salads.

- Add slices of fresh orange, lemon or lime, or fresh mint to tap water.
- Add fun-shaped ice cubes to tap water.
- Serve water with every meal as a regular habit.
- Adults should set an example and drink water with the child so it becomes normal behaviour.



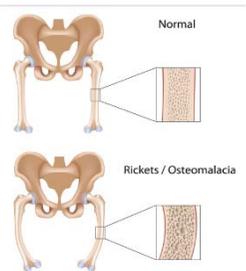
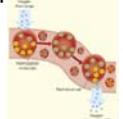
Urine colour chart

| | | |
|---|--|--------------------|
| 1 | | Good |
| 2 | | Good |
| 3 | | Fair |
| 4 | | Dehydrated |
| 5 | | Dehydrated |
| 6 | | Very dehydrated |
| 7 | | Severe dehydration |



Minerals

Micronutrients needed in small amounts by the body

| Mineral | Functions | Sources | Deficiency and excess |
|------------|--|---|--|
| Calcium | <p>Strong bones and teeth; makes nerves and muscles work; helps blood clot after injury.</p>  | <p>Milk, cheese, yogurt, green leafy veg., canned fish with soft bones that are eaten e.g. salmon.</p> <p>Enriched soya drinks, wheat flour (added by law to plain white flour)</p> | <p>Rickets: caused by insufficient vitamin D in children meaning calcium cannot be absorbed</p> <p>Osteomalacia: adult form of rickets</p> <p>Peak bone mass: may not be reached.</p> <p>Osteoporosis: after peak bone mass is reached, bones naturally lose minerals and weaken. Minerals are not replaced and may become fragile and easily break.</p> <p>Excess: Too much salt leads to high blood pressure and cardiovascular disease.</p> |
| Iron | <p>Makes haemoglobin in red blood cells to carry oxygen to produce energy in body cells.</p>  | <p>Red meat, kidneys, liver, wholemeal bread added by law to wheat flour (except wholemeal), green leafy veg. e.g. watercress, spinach, cabbage), egg yolk, dried apricots, lentils, cocoa, plain chocolate, curry powder, fortified breakfast cereals.</p> | <p>Iron deficiency anaemia; tiredness, lack of energy, weakness, pale skin complexion, weak and spilt nails.</p> <p>Excess: Poisonous if too much taken e.g. in supplements.</p> |
| Sodium | <p>Controls water in body, nerves and muscles.</p> | <p>Salt (sodium chloride), salted foods, cheese, yeast extract, stock cubes, gravy, and seasonings, snack foods e.g. crisps, canned fish, bacon ham, dried fish, soy sauce, salted butter, fast foods, many ready meals and take away. Baking powder used in baked goods.</p> | <p>Muscle cramps.</p> <p>Excess: high blood pressure which can put a strain on the heart + kidneys which affects how efficiently they work</p>  |
| Fluoride | <p>Strengthens tooth enamel and bones.</p> | <p>Seafood, fish, tea and some water supplies.</p> | <p>Weak enamel – more chance of tooth decay.</p> <p>Excess: May lead to discoloured teeth.</p> |
| Iodine | <p>Produces thyroxin in thyroid gland to control metabolic rate of body.</p> | <p>Seafood, vegetables and dairy foods.</p> | <p>Swelling in neck (goitre).</p> |
| Phosphorus | <p>With calcium for strong bones and teeth; energy release; makes cell membranes especially in the brain.</p> | <p>Wide range of foods.</p>  | <p>This is rare.</p>  |

Key words:

Peak bone mass: the age at which the bones should contain the maximum amount of minerals and are at their strongest and most dense (30—35 years old)

Amounts needed for different life stages:

Teenage girls and women: need iron and vitamin C to replace iron lost in menstruation.

Boys and girls still growing: need calcium and vitamin D to enable bone growth and bone density to occur

Salt intake:

People should eat no more than 6g of salt each day. There is a concern about the amount consumed because:

- Too much sodium causes a rise in blood pressure which can lead to hypertension.
- Hypertension can lead to a risk of CVD, blood clots and strokes.
- Salt is added to many foods, e.g. cheese and salt fish, to preserve.
- Added as a flavouring in foods such as fried snacks, crisps, chips, ready meals.
- Sodium also found in baking powder (sodium bicarbonate) and monosodium glutamate, which is used as a flavour enhancer in many processed and fast foods.
- Because it is in so many different foods, it is easy to eat more salt (sodium) than people realise.