
Calcium

Summary

- Calcium is vital for healthy teeth and bones.
 - It is also important for the health and functioning of nerves and muscle tissue.
 - Good sources of calcium include dairy foods like milk, yoghurt and cheese, calcium fortified foods (such as soy products) and, to a lesser degree, some leafy green vegetables and nuts and seeds.
 - If you don't have enough calcium in your diet, you may be at increased risk of developing osteoporosis.
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The average adult's weight is made up of about two per cent calcium. Most of this is found in the skeleton and teeth – the rest is stored in the tissues or blood. Calcium is vital for healthy teeth and bones. It also plays a crucial role in other systems of the body, such as the health and functioning of nerves and muscle tissue.

Good sources of calcium include dairy foods like milk, yoghurt and cheese, and calcium-fortified products, such as some plant-based milks (for example, soy milk and rice milk) and breakfast cereals.

People at different life stages need different amounts of calcium – young children, teenagers and older women all have greater than average requirements.

According to the most recent **National Nutrition and Physical Activity Survey of 2011–12**:

- Over half of all Australians aged two years and over consume inadequate levels of calcium from food sources.
- Females are less likely to have adequate intakes of calcium than males.
- 73 per cent of females consume less calcium than recommended.
- 51 per cent of males consume less calcium than recommended.

It is much better to get calcium from foods than from calcium supplements. Be guided by your doctor about whether you need additional supplements. Too much calcium from supplements may cause other health problems.

Role of calcium in the body

Calcium plays a role in:

- strengthening bones and teeth
- regulating muscle functioning, such as contraction and relaxation
- regulating heart functioning
- blood clotting
- transmission of nervous system messages
- enzyme function.

Calcium and dairy food

Australians receive most of their calcium from dairy foods. If **milk** and milk-based foods are removed from the diet, this can lead to an inadequate intake of calcium. This is of particular concern for children and adolescents, who have high calcium needs.

Calcium deficiency may lead to disorders like **osteoporosis**, a disease in which bones become fragile and brittle later in life. Osteoporosis affects both men and women.

Too little calcium can weaken bones

If not enough calcium is circulating in your blood, your body will use hormones to reduce the amount of calcium your kidneys excrete in your urine. If not enough calcium is absorbed through the gastrointestinal tract, calcium will be taken from the bones.

If your dietary intake of calcium is constantly low, your body will eventually remove so much calcium from the skeleton that your bones will become weak and brittle.

Calcium needs vary throughout life

The recommended dietary intake of calcium is different for people of different ages and life stages.

Age and life stage	Recommended dietary intake of calcium (mg/day)
Babies 0–6 months – breastfed	approx. 210 mg
Babies 0–6 months – formula fed	approx. 350 mg
Babies 7–12 months	270 mg
Children 1–3 years	500 mg
Children 4–8 years	700 mg
Children 9–11 years	1,000 mg
Adolescents 12–18 years (including pregnant and breastfeeding young women)	1,300 mg
Women 19–50 (including pregnant and breastfeeding women)	1,000 mg
Women 51–70	1,300 mg
Men 19–70	1,000 mg
Adults over 70	1,300 mg

People with special calcium needs

It is particularly important that people from certain groups meet their calcium needs. These groups include:

- **babies** – formula-fed babies are estimated to need more calcium than babies that are breastfed, because the calcium in infant formula may not be absorbed as efficiently as that found in breastmilk
- **young children** – skeletal tissue is constantly growing, so young children have high calcium requirements
- **pre-teens and teenagers** – puberty prompts a growth spurt, which in turn increases calcium requirements. This group also needs more calcium to build peak bone mass. If the skeleton is strengthened with enough calcium during these years, diseases like osteoporosis in the later years are thought to be less likely
- **elderly people** – as we age, the skeleton loses calcium. Women lose more calcium from their bones in the five to 10 years around the age of menopause. However, both men and women lose bone mass as they grow older and need to make sure they get enough calcium in their diet to offset these losses. While a diet high in calcium cannot reverse age-related bone loss, it can slow down the process.

Caucasian (white) people have larger frame sizes and generally have higher intakes of animal foods, caffeine and salt than non-Caucasian people. It is thought they may need more calcium as a result.

Pregnant and breastfeeding women and calcium

A developing baby needs a lot of calcium. However, there is no need for women to take additional dietary calcium during pregnancy because pregnant women absorb calcium from food more efficiently.

Breastfeeding women do not need to increase their calcium intake, unless they are adolescents.

Good sources of calcium

Good dietary sources of calcium include:

Food type	Examples	Calcium per serve (mg)
Milk and milk products	Milk, yoghurt, cheese and buttermilk	One cup of milk, a 200 g tub of yoghurt or 200 ml of calcium-fortified soymilk provides around 300 mg calcium. Calcium-fortified milks can provide larger amounts of calcium in a smaller volume of milk – ranging from 280 mg to 400 mg per 200 ml milk.
Leafy green vegetables	Broccoli, collards (cabbage family), bok choy, Chinese cabbage and spinach	One cup of cooked spinach contains 100 mg, although only five per cent of this may be absorbed. This is due to the high concentration of oxalate, a compound in spinach that reduces calcium absorption. By contrast, one cup of cooked broccoli contains about 45 mg of calcium, but the absorption from broccoli is much higher at around 50–60 per cent.
Soy and tofu	Tofu (depending on type) or tempeh and calcium fortified soy drinks	One cup, or 260 g of tofu contains around 832 mg of calcium. One cup of tempeh contains around 868 g of calcium. 250 ml of calcium-fortified soymilk provides around 300 mg calcium.
Fish	Sardines and canned salmon (bones included)	Half a cup of canned salmon contains 402 mg of calcium.
Nuts and seeds	Brazil nuts, almonds and sesame seed paste (tahini)	Fifteen almonds contain about 40 mg of calcium.

Calcium-fortified foods	Breakfast cereals, fruit juices, bread, some plant-based milks	One cup of calcium-fortified breakfast cereal (40 g) contains up to 200 mg of calcium. Half a cup of calcium-fortified orange juice (100 ml) contains up to 80 mg of calcium, and two slices of bread (30 g) provide 200 mg of calcium. Plant-based milks (oat, almond, rice, etc.) may or may not be calcium-fortified, so it is important to check the label of these products if you intend to use these in place of regular dairy milk to boost your calcium intake.
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Calcium supplements

It is much better to get calcium from foods (which also provide other nutrients) than from calcium supplements. But if you have difficulty eating enough foods rich in calcium, you might need to consider a calcium supplement, especially if you are at risk of developing osteoporosis. Before taking supplements, it's best to discuss this with your doctor or other registered healthcare professional.

If you do take calcium supplements, make sure you don't take more than the amount recommended on the bottle. Too much calcium may cause gastrointestinal upsets such as bloating and constipation and, rarely, other complications such as kidney stones.

Calcium supplements – complications

A report published in 2010, and widely reported in the media, found a possible link between calcium supplements and an increased risk of heart disease – particularly in older women. The levels of calcium intake of participants in the trials reviewed were up to 2,400 mg/day, achieved by taking supplements. This is above the Recommended Dietary Intake (RDI), which is between 1,000 and 1,300 mg/day for adults, depending on age.

Although high levels of calcium intake through supplementation may be of concern, calcium supplementation at levels of 500–600 mg/day is both safe and effective for reducing the risk fractures in people who don't get enough calcium from their diet. If you have any concerns about calcium supplements, talk to your doctor or other registered healthcare professional.

Lifestyle can affect bone strength

Some of the factors that can reduce calcium in your bones and lower your bone density (weaken your bones) include:

- high-salt diet
- more than six drinks per day of caffeine-containing drinks – for example, coffee, cola and energy drinks (and, to a lesser extent, tea)
- excessive alcohol intake
- very low body weight
- very high intakes of fibre (more than 50 g per day, from wheat bran)
- low levels of physical activity
- low levels of vitamin D – people who are housebound or cover their bodies completely when they are outside are at increased risk
- smoking.

Where to get help

- Your **GP (doctor)**
- **Dietitians Association of Australia** Tel. **1800 812 942**
- **Nutrition Australia (Victoria)** Tel. **(03) 8341 5800**

This page has been produced in consultation with and approved by:

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