

A glass pitcher filled with white milk is the central focus of the image. In the foreground, a slice of yellow cheese is visible. The background is a light, textured surface.

The Story of Calcium

FAST FACTS

- Calcium is required for the normal development and maintenance of the skeleton as well as for the proper functioning of neuromuscular and cardiac function.
- It is stored in the teeth and bones where it provides structure and strength. Low intakes of calcium have been associated with a condition of low bone density called osteoporosis which is quite common in western cultures and which often results in bone fracture.
- It is one of the major causes of morbidity amongst older Australians and New Zealanders, particularly postmenopausal women.
- Calcium intake throughout life is a major factor affecting the incidence of osteoporosis, however other factors, notably adequate vitamin D status and exercise, also play a role.
- Bone mass increases by about sevenfold from birth to puberty and a further threefold during adolescence and then remains stable until about age 50 in men and until the menopause in women. During the adolescent growth spurt, the required calcium retention is two to three times higher than that required for the development of peak bone mass which occurs at the same time as maximum height.
- Calcium balance deteriorates at menopause when there is a decline in intestinal calcium absorption and/or an increase in urinary calcium excretion. In postmenopausal women, there is evidence that a high calcium intake will slow the rate of bone loss and may reduce the risk of fracture

Lifestyle can affect bone strength

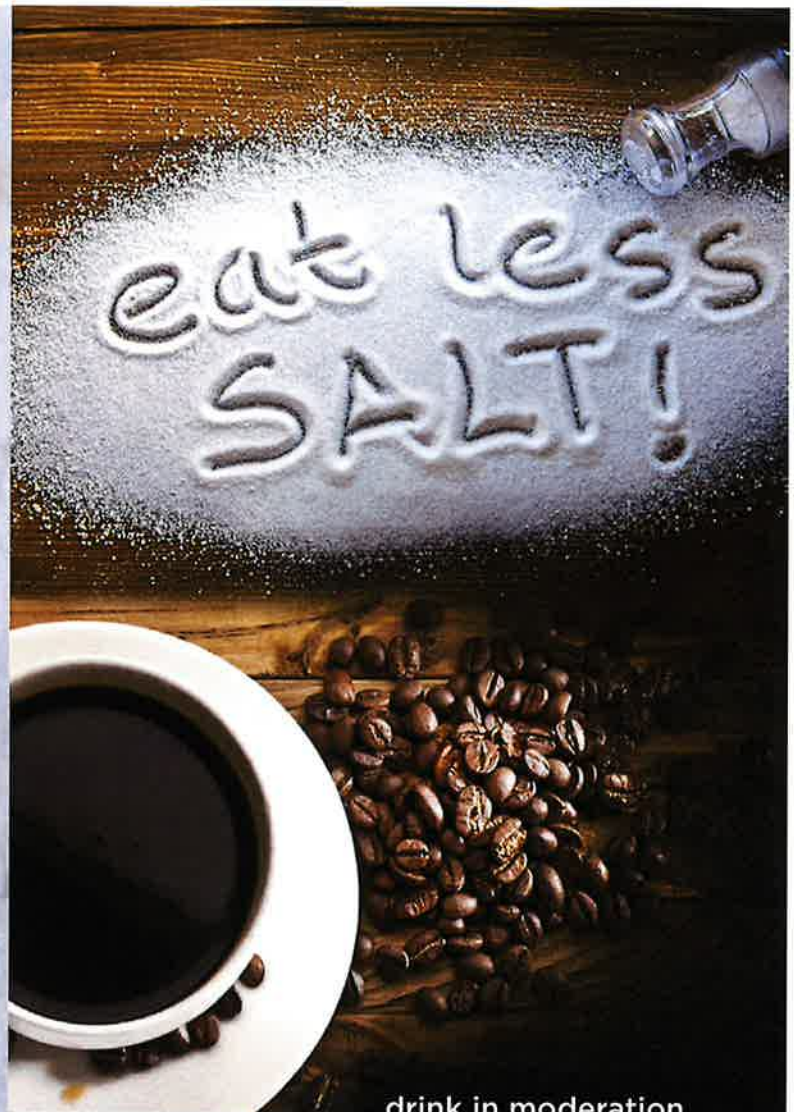
Some of the factors that can reduce calcium in your bones and lower bone density (weaken bones) include:

- high-salt diet
- more than six drinks per day of caffeine-containing drinks – for example, coffee, cola, tea and energy drinks (although tea has less caffeine)
- 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.

Hypercalcemia (too much calcium)

may be caused by:

- **Overactive parathyroid glands.** The most common cause of hypercalcemia, overactive parathyroid glands (hyperparathyroidism) may stem from a small noncancerous tumor on one or more of the four parathyroid glands.
- **Cancer.** Lung cancer and breast cancer, as well as some cancers of the blood, can increase your risk of hypercalcemia. Spread of cancer (metastasis) to your bones also increases your risk of hypercalcemia.
- **Other diseases.** Certain diseases, such as tuberculosis and sarcoidosis, may raise blood levels of vitamin D, which stimulates your digestive tract to absorb more calcium.
- **Immobility.** People with cancer or other diseases that cause them to spend a great deal of time sitting or lying down may develop hypercalcemia. Over time, bones that don't bear weight release calcium into the blood.
- **Medications.** Certain drugs – such as lithium, which is used to treat bipolar disorder – may increase the release of parathyroid hormone.



drink in moderation



Quit Smoking

Symptoms

You might not experience any signs or symptoms if your hypercalcemia is mild. More-severe cases produce symptoms related to the parts of your body affected by the high calcium levels in your blood. Examples include:

- **Kidneys.** Excess calcium in your blood means your kidneys have to work harder to filter it out. This can cause excessive thirst and frequent urination.
- **Digestive system.** Hypercalcemia can cause stomach upset, nausea, vomiting and constipation.
- **Bones and muscles.** In most cases, the excess calcium in your blood is leached from your bones, which weakens them. This can cause bone pain. Some people who have hypercalcemia also experience muscle weakness.
- **Brain.** Hypercalcemia can interfere with the way your brain works, resulting in confusion, lethargy and fatigue.
- **Heart and Vascular system:** Accelerated atherosclerosis, hypertension

Calcium supplements

It is much better to get calcium from foods (which also provide other nutrients) than from calcium supplements. 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. It's a good idea to discuss this with your doctor or other registered healthcare professional.

Calcium needs vary throughout life. The recommended dietary intake of calcium is different for people of different ages and life stages, including:

Babies 0–6 months	approx. 210 mg (if breastfed) approx. 350 mg (if formula fed)
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	1,300 mg
Women 19–50	1,000 mg
Women 51–70	1,300 mg
Men 19–70	1,000 mg
Adults over 70	1,300 mg

Good sources of calcium

- **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
- **fish** – sardines and salmon (with bones). 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** – including breakfast cereals, fruit juices and bread. One cup of calcium-fortified breakfast cereal (40 g) contains up to 200 mg of calcium. 1/2 cup of calcium-fortified orange juice (100 ml) contains up to 80 mg of calcium, and two slices of bread (30 g) provides 200 mg of calcium.

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Information provided within this article refers to the following:

www.betterhealth.vic.gov.au/health/healthyliving/calcium

www.nrv.gov.au/nutrients/calcium

www.mayoclinic.org