



Calcium and vitamin D

- Calcium is important for building strong bones
- Calcium can be found in lots of foods – including dairy food, sardines and salmon, almonds, tofu, baked beans, green leafy vegetables
- Vitamin D is essential for strong bones, muscles and overall good health
- The sun is the best natural source of vitamin D

Our bones

Our bones are living tissue. They're constantly growing, rebuilding, replacing and repairing.

From birth to about 25 years of age, we build more bone than we lose. Our bones are not only getting bigger as we grow during this time, but they are developing their density. This determines how strong they are.

From about 25 to 50 years of age our bones break down and rebuild at about the same rate. They are in a state of balance. This is when we have achieved our 'peak bone mass'. Our bones are at their strongest.

After about 50 years of age, we start to break down more bone than we rebuild. While this means that we will all experience some bone loss – it doesn't mean that everyone will develop osteoporosis.

Women commonly experience a period of rapid bone loss after the onset of menopause. After this time there is a steady but less rapid loss of bone. It's important during all of these stages that you do everything you can to improve your bone health.

One of the most important things you can do is to make sure you're getting adequate amounts of both calcium and vitamin D each day. This will minimise your risk of developing osteoporosis later in life.

Calcium and bones

Our bones act as a calcium bank. Most of the body's calcium is stored here. The rest is in our blood and body fluids and is vital for many of our bodily processes, such as the functioning of nerves and muscle tissue.

If you don't have enough calcium in your diet to maintain adequate levels in the blood, then your body takes calcium from your bones. If calcium is constantly taken from our bones, your bones will become weaker over time.

For adults the amount of calcium required each day is between 1000–1300mg. The exact amount depends on your age and gender.

How much calcium do we need every day?

Children and teenagers

1-3 years	500mg
4-8 years	700mg
7-11 years	1000mg
12-18 years	1300mg

Adults

Women over 50 years	1300mg
Men over 70 years	1300mg

Calcium can be found in lots of foods – including dairy food, oranges, sardines and salmon, almonds, tofu, baked beans and green leafy vegetables.



Check the nutritional panel to see how much calcium is contained in your food.

Some people are not able to get enough calcium through their diet alone. Talk with your health professional about whether a calcium supplement may be necessary for you.

Calcium calculator

The International Osteoporosis Foundation (IOF) has developed a calcium calculator to help you work out if you're getting enough calcium in your diet. You can access the calculator on their website or download a mobile app. To find out more visit the IOF website: www.iofbonehealth.org/calcium-calculator.

Vitamin D and bones

Vitamin D is essential for strong bones for a number of reasons. It helps increase the absorption of calcium and phosphorous from the small intestine, helps regulate the amount of calcium in your blood and helps strengthen your skeleton. It can also assist with muscle function and reduce the risk of falls.

Vitamin D deficiency in older adults can increase the risk of osteoporosis, falls and fractures.

There are 2 types of vitamin D:

- D3 (cholecalciferol) which is formed in the skin by the action of ultraviolet (UV) light
- D2 (ergocalciferol) which is produced by UV light on plants and is obtained through our diet.

How much sun exposure do we need?

In Australia the main source of vitamin D is sunlight.

It's important to expose your hands, face and arms to the sun every day. The amount of time you need to do this depends on where you live, the time of the year and the complexion of your skin. Osteoporosis Australia has developed a chart to help you work this out: www.osteoporosis.org.au/vitamin-d.

It's also important to be aware of exposing your skin to the sun safely. You need to be aware of the danger of sun damage. SunSmart has developed an app which will help you determine the safe times to expose your skin to the sun. Find out more about the app here: www.sunsmart.com.au/tools/interactive-tools/free-sunsmart-app.

Vitamin D can also be found in small quantities in foods such as: fatty fish (salmon, herring, mackerel), liver, eggs and fortified foods such as low fat milks and margarine. For most people it is unlikely that adequate quantities of vitamin D will be obtained through diet alone.

If you don't get enough exposure to sunlight, you may be deficient in vitamin D. It's important to discuss this with your doctor. Vitamin D supplements may be required.

Some calcium supplements and multivitamin preparations contain vitamin D, but their levels may be too low to treat vitamin D deficiency.

Who is most at risk of vitamin D deficiency?

- elderly people - especially those who are housebound or in residential care
- people who wear concealing clothing for religious or cultural reasons
- people with certain health or medical conditions who need to avoid the sun
- people with dark skin
- people in occupations where they have limited incidental UV exposure throughout the day – such as taxi drivers, factory workers, office workers and night-shift workers
- people with diseases which make it difficult to absorb enough vitamin D.

Where to get help

- Your doctor
- Dietitian
- Musculoskeletal Australia
MSK Help Line: 1800 263 265

How we can help

Call our MSK Help Line and speak to our nurses. Phone 1800 263 265 or email helpline@msk.org.au.

We can help you find out more about:

- osteoporosis and musculoskeletal conditions
- ways to live well with these conditions
- managing your pain
- upcoming webinars, seminars and other events.

More to explore

- Dietitians Association of Australia <http://daa.asn.au>
- International Osteoporosis Foundation www.iofbonehealth.org
- Osteoporosis Australia www.osteoporosis.org.au
- SunSmart www.sunsmart.com.au/tools/interactive-tools/free-sunsmart-app

June 2018