1st Edition 11/20

Calcium and Bone Health

Why is Calcium Important?

Calcium is essential for building and maintaining healthy bones throughout life. Calcium combines with other minerals to form hard crystals giving bones strength and structure. Almost 99% of the body's calcium is found in the bones.

A small amount of calcium is absorbed into the blood and used for the healthy functioning of the heart, muscles, blood and nerves. Bones act like a calcium bank. If there is not enough calcium in your diet the body will take what is needed from your bones for use in other parts of the body. If this happens your bone density (bone strength) will gradually decline and you may be at risk of developing osteoporosis.

How Much Calcium is Recommended?

Australian dietary calcium recommendations vary according to age.

Children • 1 – 3 years • 4 – 8 years **Girls and Boys** • 9 – 11 years	 500 mg per day 700 mg per day 1,000 mg per day	• Growing bones require daily calcium intake • Daily dietary recommendations increase as children grow
Teenagers • Girls and Boys	 1,300 mg per day	• Calcium is essential during the growth spurt • Peak bone mass is achieved by early twenties and 40% is acquired during puberty
Adults • 19 years +	 1,000 mg per day	• Adequate calcium intake maintains bone strength
Older Adults • Women over 50 years • Men over 70 years	 1,300 mg per day 1,300 mg per day	• Daily recommendation increases as calcium is less effectively absorbed from the intestine and more can be lost through the kidneys

- Excessive calcium intake is not recommended
- If calcium supplementation is used it should only form part of daily requirements

Calcium and Food

The best way to achieve recommended calcium intake is to eat a diet rich in calcium. Calcium content in food varies so it is important to consume 'calcium rich' foods. Half of all Australian adults do not achieve their daily recommended intake of calcium. It is easy to add calcium to your diet by focusing on food groups which contain higher levels of calcium.

Food Type	Examples	Calcium Range (mg per serve)
Calcium	Milk, cheese, yogurt	150 – 305 mg per serve
Seafood	Trout, snapper, mussels, oysters, prawns, canned sardines or salmon	35 – 300 mg per serve
Vegetables	Cucumber, kale, silverbeat, chinese cabbage, broccoli, rocket, watercress, bok choy, leeks	59 – 250 mg per serve
Nuts and seeds	Almonds, brazil nuts, hazelnuts, walnuts, sesame seeds, tahini paste	28 – 75 mg per serve
Fruits	Orange, strawberries, figs, kiwi fruit, dates	16 - 95 mg per serve
Other	Eggs, calcium-set tofu, canned chickpeas or soybeans	21 – 105 mg per serve
Meat	Pork chop, chicken	21 – 105 mg per serve

Do We Absorb All the Calcium We Eat?

The simple answer is no, not all the calcium we consume is absorbed. A small amount of calcium will be lost and excreted from the body which is normal. This is factored into the recommended intake for your age. Other factors

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can also impact calcium absorption and should be discussed with your doctor, for example: low vitamin D levels, excessive caffeine and alcohol intake and certain medical conditions (for example coeliac disease, kidney disease).

Calcium Supplements

It is recommended calcium is obtained from your diet. However when adequate calcium intake is not possible a supplement may be required as directed by your doctor or pharmacist. Healthy Bones Australia recommends supplement doses in the range of 500-600 mg daily when required. This is considered safe and effective.

The most common types of calcium supplements are calcium carbonate, calcium citrate or hydroxyapatite. Supplements are available as oral tablets, effervescent tablets or soluble powder. Calcium supplements are usually well tolerated.

Calcium supplements are sometimes combined with vitamin D, as adequate vitamin D levels are important to assist the absorption of calcium in the body. Take supplements as directed and talk to your doctor or pharmacist if you have any queries.

Diagnosed Osteoporosis and Calcium

Calcium is essential for supporting your bone health. However for people with diagnosed osteoporosis calcium alone is not sufficient to prevent fractures and osteoporosis medication is generally required, as directed by your doctor. It is common practice for doctors to prescribe calcium supplementation to accompany osteoporosis medication. Adequate calcium intake throughout adult life helps support bone health but may not prevent osteoporosis as other factors can negatively impact your bone health.

Vitamin D and Exercise

Simple steps to help support your bone health in addition to adequate calcium intake.

Focus On	Recommended
Vitamin D	• Limited sun exposure – in summer a few minutes per day, in winter slightly longer • Avoid UV index above 3 • If vitamin D deficiency is confirmed by your doctor a supplement may be required
Exercise	• Specific mix of weight bearing, resistance training and balance exercises

Other Common Risk Factors

Review other common risk factors for osteoporosis. If any risk factors apply to you – discuss these with your doctor.

Personal History	Medical Conditions	Medications
Previous fracture (from minor bump or fall)	Coeliac disease	Certain treatment for breast cancer
Family history of osteoporosis (parent/sibling)	Overactive thyroid or parathyroid	Certain treatment for prostate cancer
Loss of height (3 cm or more)	Rheumatoid arthritis	Glucocorticoids (steroids)
Smoking/Excessive alcohol	Early menopause/Low testosterone	Anti-epilepsy treatment
Inadequate calcium, vitamin D or lack of exercise	Chronic kidney disease or liver disease	
Age 70 years and over	Diabetes	