



Calcium & Bone Health

Calcium is essential for building and maintaining bone strength and structure. Most of the body's calcium is found in our bones. If you do not take in enough calcium from your diet, the body will withdraw calcium from your bones, to use in other parts of the body. This can result in a decline in bone strength and increased risk of osteoporosis (porous bones). Bone density is also affected by malnutrition and hormonal problems, including high levels of cortisol, and low levels of leptin, IGF-I, oestrogen in women, and testosterone in men.

Bone Health and Eating Disorders

Research shows that loss of bone density and bone mineral deficiencies are common in individuals with eating disorders (especially anorexia nervosa), and that damage can occur early in the course of an eating disorder. Puberty is a time of rapid growth in bone density, with peak bone density reached by the age of 25-30. If damage or insufficient growth occurs during adolescence, an individual may not achieve their optimal bone density, increasing risk of osteoporosis. If osteoporosis develops, bones become fragile and are likely to break from the slightest injury or fall. Bone fractures, chronic pain, disability, and loss of stature may occur.

Improving Bone Health

1) **Nutrition** - A well-balanced diet rich in calcium, vitamin D, and vitamin K is important for building and maintaining bone strength. Vitamin D plays an important role in calcium absorption and bone health. It is made by our body through the action of sunlight on the skin, and is found in foods (e.g., mackerel, sardines, eggs, margarine and cheese). Diets rich in vitamin K have also been associated with improved bone health. Vitamin K may be found in green, leafy vegetables such as broccoli and Brussels sprouts. You will need to work towards maintaining a healthy body weight, normalising body composition (particularly fat), and eating calcium-rich foods. Minimise foods that inhibit absorption of calcium (e.g. salty food and caffeine).

2) **Exercise** - Excessive exercise will deplete calcium resources. However, regular weight-bearing exercise is important to maintain bone strength. Activities such as walking, jogging, skipping, dancing, stair-walking, tennis, or progressive resistance training (e.g. lifting weights) are recommended for bone health.

3) **Calcium supplements** - Calcium supplements come in various forms, and can be taken with few side effects. However, they are not a substitute for good nutrition. You should consult with a medical practitioner to seek advice regarding type or dosage.

Daily Calcium

Requirements (mg/day):

Children (1-8 yrs)	500-700
Children (9-13 yrs)	1000-1300
Adolescents (14-18 yrs)	1300
Adult Women (19-50yrs)	1000
Adult Men (19-50yrs)	1000
Anorexia Nervosa	1500



Sources of Calcium

Good sources of calcium include dairy products, canned fish containing bones, almonds, chickpeas, and leafy greens (broccoli, bok choy, silverbeet, cucumber, celery). Here are some examples:

FOOD	CALCIUM CONTENT
1 cup (250mL) of milk (whole, hilo, or skim)	310mg
200g tub of natural or fruit yogurt	340mg
40g (2 slices) cheddar cheese	310mg
1/4 cup mozzarella cheese, grated	260mg
1/4 cup ricotta cheese	150mg
1/2 cup tofu or bean curd	320mg
1 cup (250mL) of calcium-enriched soy drink	290mg
1 cup of vanilla ice cream	150mg
1/2 cup custard	130mg
100g (1/4 cup) canned salmon (with bones)	280mg
60g (1/2 small tin) canned sardines (+ bones)	200mg
5 dried figs	190mg
1/4 cup raw almonds	70mg
1/2 cup baked beans, canned in tomato sauce	50mg
1 cup of broccoli	30mg

Alternative Sources of Calcium

There is a wide range of lactose-free sources of calcium, like UHT and fresh soy products including milk, yoghurt, and ice cream. It is best if these foods are calcium enriched because soy based yoghurts are a moderate source of calcium. Powdered soy milks can be added to cakes, desserts and sauces to increase calcium. There are also a number of low lactose milk products available. Enzyme drops can be added to dairy products or lactase tablets can be taken prior to consuming dairy to aid with the digestion of lactose.

Developed in conjunction with Kate Fleming, Dietician

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