

Don't wait till it's too late to regret

As the population is aging, the occurrence of osteoporosis is increasing. There is a general misconception that only people in and after their middle-age need more calcium intake. In fact, it is important that children and adolescents have adequate calcium intake to strengthen the bones and decrease the risk of fractures in the future.

Essential facts

Our body contains several types of minerals among which the proportion of calcium is the greatest. Up to 99% of the body's calcium is stored in the bones and teeth. The remaining 1% is in the blood where it helps in blood coagulation and contraction of the heart muscles.

When the calcium level in the blood is low, calcium would be released from bones in order to maintain a normal blood level. If this process continues, bone density would decrease as a result of excessive loss of calcium making the bones weak and increasing the risk of fracture.

Where can we obtain calcium?

- Milk and dairy products like milk powder, cheese and yoghurt are rich in calcium.
- As full cream dairy products have a high fat content, overweight children and those who want to stay fit should choose low fat or fat-free alternatives.

Calcium content and caloric value of full cream milk and skimmed milk.

240ml of milk	calcium (mg)	calories (kcal)
Full cream milk	291	154
Skimmed milk	302	84

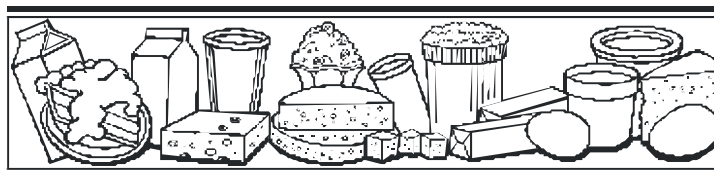
- Green leafy vegetables, fish which are eaten with the bones, bean curd and bean products, nuts are also rich in calcium.

Foods rich in calcium

Food type	Amount	Calcium (mg)
Dairy products		
2% Low-fat milk	1 glass (240ml)	297
Low-fat yoghurt	1 glass (180g)	200
Low-fat cheese (Cheddar)	1 slice (28g)	118
Vegetables		
Chinese cabbage (cooked)	1 bowl (170g)	158
Broccoli (cooked)	1 bowl (156g)	72
Kale (cooked)	1 bowl (130g)	94
Fish		
Canned sardines in tomato sauce (with bones)	100g	239
Canned salmon (with bones)	100g	213
Beans/bean products		
Soya bean (cooked)	1 bowl (172g)	175
Black-eye bean (cooked)	1 bowl (165g)	211
Fresh bean curd	1 bowl (248g)	260
Soya bean milk (calcium fortified)	1 glass (240ml)	300
Nuts		
Almond	approx. 2/3 bowl (100g)	264
Sesame	approx. 2/3 bowl (100g)	978
Pistachio nut	approx. 2/3 bowl (100g)	136
Peanut	approx. 2/3 bowl (100g)	93
Cashew nut	approx. 2/3 bowl (100g)	46

Remark: 1 bowl equals to ~ 240ml

Reference : Pennington, J.A.T. Bowes and Church's food values of portions commonly used 17th edition. 1998.



Daily calcium requirement

In U.S., the recommended daily intake* is as follows:

* Institutes of Medicine, National Academy of Sciences. U.S.

Age	Daily requirement (mg)
4-8	800
9-18	1300
19 or above	1000-1200

Tips for developing strong bones

Apart from adequate calcium intake, we need to know the factors affecting calcium absorption in order to build strong bones.

• Vitamin D

- Vitamin D helps in the absorption of calcium.
- Foods rich in vitamin D include vitamin D fortified milk and cereals.
- Skin produces vitamin D when it is exposed to the sun. In general, exposure of the face and arms to the sun for 20-30 minutes, two to three times a week would provide us with enough vitamin D.

• Salt intake

- Intake of large amount of salty foods increases the rate of calcium loss.
- Daily adult intake of salt should not exceed 5.8g*. (1 teaspoon contains about 5g of salt)
- Avoid salty foods like luncheon meat, ham, sausages, instant noodles.
- Use garlic, onions and ginger for flavour instead of salt.

• Protein

- Intake of large amount of protein increases the rate of calcium loss.
- Daily protein intake of adult should be 0.8g per kg of body weight*. (approximately 4-6 tael of meat, poultry or seafood).

• Caffeine

- Caffeine increases the rate of calcium loss.
- Avoid caffeine drinks like coffee, strong tea and caffeine added soft drinks and sport drinks.

• Smoking and alcohol

- Avoid smoking and drinking alcohol because they not only reduce calcium absorption but also increase the rate of calcium loss.

• Exercise

- Exercise is important in the prevention of osteoporosis.
- Regular and adequate weight bearing exercises like walking, jogging, basketball, badminton, dancing, stimulate bones to absorb and store more calcium.

Concepts about calcium

Q: *I do not like dairy products. Can I take calcium tablets as a supplement?*



A: Both dairy products and calcium tablets provide calcium. However, dairy products contain vitamin D, proteins, carbohydrates and other minerals in addition to calcium. Daily adult intake of calcium should not exceed 2500mg/day*. Excess intake of calcium may lead to the formation of kidney stones and may hinder the absorption of iron and zinc. In special circumstances, calcium supplements can be taken with doctor's advice.



Q: *Is prevention of osteoporosis not a concern in children?*

A: People of all ages need to protect themselves from developing osteoporosis. Bone development occurs during childhood and adolescence. The higher the density of the bones formed, the lower is the risk of developing osteoporosis.

Q: *Once osteoporosis is confirmed, is calcium absorption no more important?*

A: No matter you have osteoporosis or not, calcium absorption is important, because calcium absorption could prevent worsening of osteoporosis and prevent bone fracture.

Q: *Can soup made from pork bones and fish replace calcium?*

A: Calcium from pork bones and fish bones cannot dissolve into water easily, therefore, the calcium content of soup made of pork bone and fish is actually very low.

Q: *Can adequate daily intake of calcium and regular exercise protect us completely from fracture?*

A: Many of the complications of osteoporosis like bone fractures are related to accidents or trauma. Therefore, home safety and accident prevention are also important to minimize falls and slips.

Q: *Does osteoporosis occur only in the elderly?*

A: Osteoporosis is not a condition found only in the elderly. Actually, women above the age of 40 may already have a bone density that is below the lower limit of normal. Besides, men also have the chance to develop osteoporosis.

Adequate calcium intake starting from childhood could ensure adequate supply for the development of strong bones. This is the most effective way of preventing osteoporosis.

ΦΑΧΤΣ ΑΒΟΥΤ ΧΑΛΧΙΥΜ



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