Dietary prevention of osteoporosis

By Ms Jo-Anne Dembo,
Principal Dietitian,
Diet By D'Zyne. Tel 9242 4441

Dietary modification to help prevent osteoporosis needs early intervention as the influence of diet on the development and progression of osteoporosis begins at a very young age. The years from pre-puberty to mid-20's is the time when bone increases in mass, the peak bone mass years. Therefore, it is essential to strengthen bones with enough calcium during these years and reduce the likelihood of osteoporosis.

While adequate dietary calcium is important to achieve optimal bone mass, vitamin D is also important in aiding calcium absorption, and several dietary components adversely affect calcium status, including high intake of alcohol, caffeine and salt.

The Recommended Dietary Intake (RDI) of calcium for adolescents (aged 12-18 years) is 1300 mg daily. At least three serves of dietary calcium daily will ensure the RDI requirements are achieved, with dairy products containing the richest source of calcium.

A dietary serve of calcium is classified as 250 ml (1 cup) low fat milk, 40 g (matchbox size) low fat cheese and 200 g (small container) low fat yoghurt. Other dietary sources of calcium include fish with soft edible bones, tofu, almonds and leafy green vegetables.

Getting it right for your patients

There are some simple interventions that doctors can recommend to both young men and women, when opportunity presents:

- Encourage at least 3 serves of reduced fat dairy foods daily
- Encourage 15 minutes of safe sunlight daily for Vitamin D
- Caution excessive intake of caffeine and alcohol, and advise limited salt intake
- Encourage regular exercise
- Suggest professional advice for those on poor diets, especially if there is a family history of osteoporosis

Facts on calcium

Low fat dairy products tend to have higher calcium values than full fat varieties.

Yellow cheese (e.g. cheddar) provides more calcium than white cheese such as ricotta and cottage cheese.

Many soy and rice based drinks are fortified with calcium, making them a good source of calcium.

Plant based sources of calcium (e.g. broccoli, cabbage, spinach) are not as well absorbed as dairy sources.

Some practical ways to increase dietary calcium are:

- Low fat grated cheese added to salads, vegetables, pasta dishes and egg dishes.
- Skim milk powder added to sauces, soups, scrambled eggs and mashed potato.
- Fruit smoothies made with low fat milk, low fat yoghurt and fresh fruit.
- Low fat yoghurt or custard with some almonds added to fruit for desserts.

Amongst future developments, it seems non-digestible oligosaccharides (prebiotics) can enhance calcium absorption, especially during the adolescent years, and there may be a potential role for vitamin K as a functional food ingredient for bone health [1].

Calcium ready-reckoner

Food	Amount calcium (mg)* per 100g (100 ml milk)
Whole milk	117
Reduced fat milk (1-2 % fat)	141
Skim milk powder	1290
Soy milk (calcium fortified)	121
Low fat yoghurt (plain)	160
Low fat cheese (50% reduced fat cheddar)	925
Ricotta cheese	225
Low fat custard (commercial vanilla)	127
Salmon (canned pink salmon in water, drained)	310
Sardines (canned in water, drained)	380
Almonds (raw)	235
Broccoli (raw)	31
Spinach (English spinach raw)	53
Oranges	29

**Rounded to the closest figure. Source: Foodworks Professional Edition 2007. Version 5 Service Pack 1. Xyris Softtware.*

Reference: 1. Cashman K. Diet, Nutrition and Bone Health 1,2, The Journal of Nutrition, 2007; 137: S2507-13.