

Bone Building for a Lifetime

Why should I be concerned about my bone health?

Bone health is important throughout your life to prevent osteoporosis. Osteoporosis affects nearly 1.4 million Canadians. Approximately 1 in 4 women and 1 in 8 men over the age of 50 have osteoporosis. However, the disease can strike at any age.

Osteoporosis is a disease that causes bones to gradually thin and become so porous or brittle that they break easily. Fractures of the hip, spine, or wrist are often linked to osteoporosis. It takes years of steady bone loss before any signs of the disease are experienced. In fact, you may not know you have the disease until your bones are so weak that a strain, bump, or fall causes a fracture.



Osteoporosis is preventable!

Building strong bones and achieving peak bone mass in childhood and teen years is the best investment for bone health throughout life. During adulthood, proper diet and regular

physical activity is recommended to improve bone mineral density (BMD) and/or reduce the rate of bone loss. Maintain healthy bones by knowing the risk factors for osteoporosis and making healthy choices.

Common factors that increase your risk of osteoporosis:

- thin or “small-boned” frame
- white or Asian ancestry
- over 50 years of age
- family history of osteoporosis
- prolonged use of steroids or thyroid medications
- early menopause

Making bone healthy choices

- ✓ Boost your calcium and vitamin D intake.
- ✓ Choose weight-bearing and resistance activities.
- ✓ Make other positive lifestyle choices.
- ✓ Consider your options for bone mineral density testing and/or drug therapy.

Boost Your Calcium and Vitamin D Intake

Calcium:

Calcium is a mineral needed for building strong bones and teeth throughout life. Calcium also enables muscle contraction, maintains blood pressure, and aids in wound healing. If there is not enough calcium in your diet for these functions, the calcium is taken from your bones. When this happens, the bones become thinner and more fragile and may fracture easily. Your calcium needs change with age.

Calcium recommendations:

- **Children:** Calcium is necessary to grow a healthy skeleton and to support a growing body. The bone density depends a lot on calcium intake at this stage. Children who are 4 to 8 years old need 800 mg of calcium daily.
- **Youth:** Bone mass continues to accumulate and peaks at around age 20. The greater this peak bone mass, the less likely the bones are to

become porous and fragile in later life. Youth age 9 to 18 need 1300 mg of calcium daily.

- **Adults under 50 years old:** Bones are living tissues and are constantly being remodelled every three or four months. Adequate calcium intake can help keep the process of breaking down the old bone and construction of new bone tissue in balance. Adults from age 19 to 50 need 1000 mg of calcium daily.
- **Adults over 50 years old:** With age, old bone is removed faster than new bone can be built, resulting in some bone loss. As estrogen levels drop at menopause, women may lose 2 – 5 % of their bone mass annually. Adequate calcium intake can slow bone loss and lower the risk of fractures. Adults over the age of 50 years need 1500 mg of calcium and a vitamin D supplement of 400 IU daily to help prevent osteoporosis.

Food Sources of Calcium*

Common Foods	Portion	Calcium (mg)
Milk and Alternatives		
Milk, any type	1 cup	315
Soy beverage – calcium fortified	1 cup	312
Hard cheese like Brick, Cheddar, Gouda	52 g 5 cm x 2 cm x .5 cm (size of an adult thumb)	350-375
Yogurt, low fat with fruit	¾ cup	281
Processed cheese, light	2 thin slices	256
Cottage cheese	½ cup	82
Meat and Alternatives		
Almonds	½ cup	206
Soybeans - cooked	1 cup	185
Sardines with bones	4	183
Pink salmon - canned with bones	½ cup	167
Tofu - with calcium sulphate	½ cup	130
Beans - cooked - kidney pinto navy	1 cup	52 94 130
Vegetables and Fruit		
Orange Juice - Calcium Fortified	1 cup	310-343
Chinese cabbage (Bok Choy)	½ cup	84
Figs - dried	3	81
Orange	1 medium	52
Broccoli - cooked	½ cup	51
Kale - chopped, boiled, drained	½ cup	49
Grain Products		
English muffin, plain	1	98
Muffin from recipe made with milk	1	84
Bread - whole wheat/white	1 slice	20-27

* Nutrient Value of Some Common Foods, Health Canada, 1999

Supplemental sources of calcium:

Calcium supplements are usually recommended for people who have difficulties getting enough calcium from food and drinks. Of the different calcium supplements available, calcium citrate or calcium carbonate are good choices. Ideally a calcium supplement should also contain vitamin D. Calcium is best absorbed when taken in doses of 500 mg or less.

Vitamin D:

Vitamin D increases calcium absorption by as much as 30 – 80%, and helps to deposit it in bones and teeth. Vitamin D can be obtained from sunlight on the skin, through foods, or in supplements. People who have darker skin, cover up in sunlight, or always use sunscreen may have difficulty getting enough vitamin D from sunlight. The major dietary sources of vitamin D are foods such as milk and margarine to which vitamin D is added. Drinking two cups of milk each day as recommended on Canada's Food Guide* will provide about 200 IU of vitamin D. In addition to following Canada's Food Guide, all adults over age 50 should take a daily vitamin D supplement of 400 IU (10 micrograms).

To promote bone health, children and youth require 200 IU of vitamin D per day, adults from age 19 to 50 need 400 IU of vitamin D per day, and adults over the age of 50 need 800 IU per day.

Can I get too much calcium or vitamin D?

Yes, too much of either nutrient can also affect your health. The upper level for these nutrients is 2500 mg of calcium or 2000 IU of vitamin D per day.

Summary of Recommended Nutrient Intakes**

Age (years)	Calcium (mg/day)	Vitamin D (IU/day)
1 – 3	500	200
4 – 8	800	200
9 – 18	1,300	200
19 – 50	1,000	400
> 50	1,500	800

** Brown, Jacques P., Josse, Robert G., and the Scientific Advisory Council of the Osteoporosis Society of Canada. CMAJ. November 12, 2002; 167 (90100)

** Dietary Reference Intakes (DRIs), 1997

CHOOSE WEIGHT-BEARING AND RESISTANCE ACTIVITIES

Regular physical activity provides health benefits for everyone. To enhance overall health, Health Canada recommends that adults accumulate 30 to 60 minutes of physical activity at a moderate pace on most days of the week. Children and youth should aim for 90 minutes of daily activities (30 minutes at a vigorous pace and 60 minutes at a moderate pace) for optimal health and development. For bone health, some activities are better than others. Weight-bearing and resistance activities are the best bone builders.

Weight-bearing activities, such as jogging, make your bones and muscles work against gravity. Since impact activities usually involve your legs and feet carrying your body weight, bone mass increase will be seen in your lower body, hip, and spine areas.

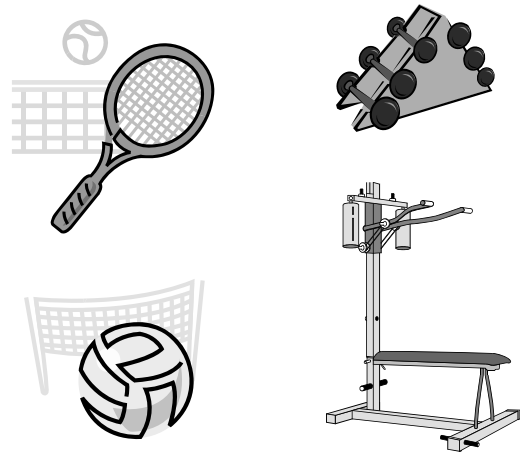
Resistance activities, such as using free weights, involve pulling, pushing, or lifting your body weight or objects. These activities strengthen a particular muscle group that in turn builds bone mass in that area.

Activity suggestions:

Children & Youth from 6 – 19 years: Developing peak bone density is the target. High impact activities such as gymnastics, running, climbing, skipping, jumping, basketball, soccer, volleyball, and playing on playground equipment are encouraged. Supervised weight training is only recommended after 12 years of age.



Adults under 50 years old: Maintaining bone strength developed in the younger years is the goal. High impact activities such as jogging, tennis, aerobics, jumping jacks, jumping rope, squash, volleyball, and basketball are ideal. Low impact activities such as stair climbing, step aerobics and walking (when combined with these other activities) are also recommended. Resistance activities, such as using free weights, weight-training machines, or exercise bands are encouraged especially for bones in the upper body.



Adults over 50 years old: Limiting the loss of bone mass is the target. Low impact activities such as walking when combined with climbing stairs and/or step aerobics are recommended. Resistance activities that focus on strength (e.g., exercise bands) and balance (e.g., Tai Chi) are encouraged.



If you have a health concern, consult with a health care professional before increasing your physical activity level.

OTHER LIFESTYLE CHOICES

Protein: Adequate protein is important for bone health. You can get adequate protein by following Canada's Food Guide* recommendations for meat and alternatives.

Salt (sodium): Excess sodium in your diet can decrease the amount of calcium in your body. Processed foods add the most sodium to your diet. To prevent this calcium loss, limit your intake of pickles, ham, bacon, prepared salad dressings, processed cheese including spreads, prepared soups, crackers, and salty snack foods.

Caffeine: Avoid large amounts of caffeine, defined as greater than 4 cups of coffee a day.

Alcohol: Excessive alcohol intake reduces bone mass. However, moderate alcohol intake may have beneficial effects on bone mass. If you drink, limit your beverage intake to one or two drinks a day.

Smoke free living: Smoking reduces the amount of calcium that the body absorbs. It also increases the likelihood of early menopause. Once you quit smoking, bone mass will decrease at a slower rate.

Other nutrients: You do not need additional amounts of magnesium, copper, zinc, phosphorus, manganese, iron, vitamin K, or essential fatty acids for the prevention or treatment of osteoporosis. Choosing a variety of foods from Eating Well with Canada's Food Guide will ensure an adequate intake of these nutrients.

BONE MINERAL DENSITY TEST

Bone Mineral Density (BMD) is the amount of calcium in your bones. The higher the density, the stronger your bones are. Measurement of bone mineral density by Dual Energy X-ray Absorptiometry (DEXA) is currently the best available method to confirm or rule out a diagnosis of osteoporosis. DEXA is a simple painless test that measures the bone density of your spine and hip. If you are a man or woman over the age of 50, talk to your doctor to decide if you should have a BMD test. Everyone over the age of 65 years should have a BMD test. You will not know that you have osteoporosis without this test. Don't let a bone fracture be your first symptom.

DRUG THERAPY

There are a variety of medications used to prevent and treat osteoporosis. To find a treatment that works best for you, talk to your doctor. Some options may include:

- **Bisphosphonates:** alendronate /*fosamax*®, risedronate /*actonel*®, etidronate /*didrocal*®
- **Selective Estrogen Receptor Modulators (SERMS):** (raloxifene /*Evista*®)
- **Hormone Replacement Therapy (HRT)**
- **Calcitonin nasal spray**
- **Parathyroid Hormone (PTH):** *Forteo*™

Bone Health Checklist

- ✓ Boost your calcium and vitamin D intake.
- ✓ Choose weight-bearing and resistance activities.
- ✓ Limit caffeine, reduce salt, reduce alcohol use, and be smoke free.
- ✓ Be tested if you are at increased risk or over 65 years of age.
- ✓ Keep informed.

For Support and Further Information

- ▶ Osteoporosis Canada:
1-800-463- 6842
www.osteoporosis.ca
- ▶ Hamilton/Burlington Chapter:
905-525-5398
Email: hamilton@osteoporosis.ca
- ▶ *Canada's Food Guide available at www.healthcanada.gc.ca/foodguide

