

Osteoporosis

Osteoporosis is a disease characterized by low bone mass and deterioration of bone tissue, which can lead to increased risk of fracture from activities such as bending, coughing, twisting, or falling. People living with osteoporosis face a reduced quality of life, lowered self-esteem, reduction or loss of mobility, disfigurement, a lack of independence and in some cases, death.

What are the risk factors for Osteoporosis?



Over 65 years of age



High intake levels of alcohol



Being underweight



**Diet low in Calcium,
Vitamin D & Vitamin B12**



Being inactive



**Health conditions that
affect nutrient uptake***



Smoking



**Family history
of Osteoporosis**



High intake levels of caffeine



**Long term use of some
medications****

* Such as celiac disease and inflammatory bowel disease (e.g. Crohn's disease, ulcerative colitis)

** Such as glucocorticoids (Cortisone, Prednisone)

What can I do to prevent further loss of bone density?

1. Meet Your Calcium and Vitamin D Needs

Calcium is a necessary mineral to build healthy bones and maintain bone density. Your body also needs enough vitamin D, to be able to absorb and use the calcium.

There are dietary levels of calcium and vitamin D that should be eaten per day called Recommended Dietary Allowance (RDA) based on your age and gender. There is also dietary levels of calcium and vitamin D that you should not go beyond called Upper Intake Level. This table will help you decide what level is right for you.

Calcium & Vitamin D Needs by Age Group	Recommended Dietary Allowance per day for Calcium	Upper Intake Level per day for Calcium	Recommended Dietary Allowance per day for Vitamin D	Upper Intake Level per day for Vitamin D
Adults 19-50 years old	1000 mg	2500 mg	600 IU (15 mcg)	4000 IU (100 mcg)
Adults 51- 70 years old	1000 mg 1200 mg	2000 mg 2000 mg	600 IU (15 mcg)	4000 IU (100 mcg)
Men Women				
Adults > 70 years old	1200 mg	2000 mg	800 IU (20 mcg)	4000 IU (100 mcg)

Meeting your daily levels of vitamin D can also help to improve your blood pressure, blood sugar, brain health, and immune system.

Sunshine is another source for vitamin D. When sunshine hits our skin, it converts to an active form which can then be used by our body. Many people do not get enough vitamin D due to our long winter months. So, it is important to take a vitamin D supplement year-round.

Sometimes it is difficult to know if you are getting enough vitamin D. Your doctor can order a blood test to measure your blood concentration of vitamin D and suggest the appropriate supplement dose for you. This test is covered by OHIP for these conditions:

- Osteoporosis and Osteopenia
- Rickets
- Malabsorption Syndromes

- Renal Disease
- Patients on medications that affect Vitamin D metabolism (speak to your pharmacist)

It is important to try to eat foods rich in calcium and vitamin D. Below are some food choices.

Foods High in Calcium & Vitamin D	Serving size	Approximate calcium content (mg)	Approximate Vitamin D content (IU)
Milk - whole, 2%, 1%, skim, chocolate	250 mL (1 cup)	300	100
Cottage cheese	250 mL (1 cup)	150-200	10
Yogurt - plain	175 g (3/4 cup)	300-325	Trace
Soy beverage - fortified with calcium	250 mL (1 cup)	300	90
Salmon (pink/humpback, red/sockeye) - canned with bones	75 g (2 1/2 oz)	175-200	400-600
Beans - baked, canned	175 mL (3/4 cup)	100	Trace
Almonds - dry roasted	60 mL (1/4 cup)	100	Trace
Spinach - frozen, cooked	125 mL (1/2 cup)	150	Trace
Egg yolk	2 medium	Trace	50

2. Consume enough Vitamin B12

Ensuring your dietary intake of vitamin B12 will help to lower your risk of osteoporosis. Most adults need 2.4 mcg vitamin B12 per day.

Foods High in Vitamin B12	Serving size	Approximate Vitamin B12 content (mcg)
Beef	75 g (2 1/2 oz)	2
Poultry	75 g (2 1/2 oz)	0.2- 1.0
Organ meat (kidney)	75 g (2 1/2 oz)	19-60
Mackerel - cooked	75 g (2 1/2 oz)	14
Salmon - pink, with bones, canned	75 g (2 1/2 oz)	4
Milk - 3.3%, 2%, 1%, skim	250 mL (1 cup)	1.2-1.4

Egg - cooked	2 large	1.5
Soy products (meatless burger etc.)	75 g (2 1/2 oz)	0.5-3

Talk to your health care provider about possible supplementation needs if you are vegetarian, vegan, or at higher risk of osteoporosis.

3. Eat Enough Vegetables & Fruits

Enjoy natural food sources of potassium, magnesium, vitamin C, and vitamin K to nourish your bones. Follow [Canada's Food Guide](#) and fill half of your plate at lunch and dinner with colourful vegetables and have 2-3 servings of fruit per day (1/2 cup or the size of your fist).

4. Eat Enough Protein

Protein is another essential nutrient to build and repair your bones and maintain muscle mass to protect your skeletal system. High protein food sources include meat, poultry, eggs, milk products, beans, lentils, and soy products.

5. Limit Your Sodium

Eating too much sodium may reduce your bone mass. Keep your total sodium intake below 2,300 mg per day. High sodium foods include processed foods such as deli meats, pizza, canned foods, sauces, and frozen pre-prepared meals. Read your food label and aim for less than 200 mg of sodium per serving.




6. Limit Your Caffeine

Your caffeine intake should not exceed 400 mg of caffeine per day which is equivalent to 2 to 3 cups of coffee. Too much caffeine may reduce the amount of calcium your body stores if your dietary calcium intake is not enough. Here are some examples of drinks with caffeine levels:

Amount of Caffeine in Beverages	Caffeine level (milligram) in 8 oz. (237mL)
Brewed coffee	96 mg
Instant coffee	62 mg
Brewed black tea	47 mg
Cola (soda)	22 mg
Energy drink	29 mg

7. Limit Your Alcohol

- Osteoporosis Canada suggests avoiding excessive alcohol intake and defines this as drinking two or more drinks per day:

One Standard Alcoholic Drink	
	341 ml (12 oz.) bottle of 5% beer, cider, or cooler
	142 ml (5 oz.) glass of 12% wine
	43 ml (1.5 oz.) serving of 40% distilled alcohol (e.g., rye, gin, rum)

Alcohol can increase risk of low bone density and fractures by:

- Damaging your liver and reducing the activation of vitamin D in the liver. This can reduce calcium absorption by your body.
- Leading to hormonal imbalance that would regulate bone mineral and health.
- Increasing risk of malnutrition and fragile bones.
- Increasing chance of losing your balance and falling.

8. Try to Stop Smoking

Smoking can reduce your bone density and increase the risk of fractures.

Cigarettes contain nicotine and other toxic substances that may:

- Reduce blood supply to the bones
 - Slow the mineralization and production of bone mass
 - Decrease the absorption of dietary calcium
- Male smokers are at higher risk of vertebral (back) fractures than female smokers. Women who smoke, tend to experience earlier menopause which leads to increased bone mass loss. Children and youth exposed to second-hand smoke may have lower bone mass.
 - If you are struggling to quit, try to reduce the number of cigarettes smoked a day. Talk to your health care provider about options to help you stop smoking.

9. Be Physically Active

- Regular physical activity, including aerobic and resistance exercise, helps in developing and maintaining healthy bones. Exercises that improve your balance such as yoga and tai chi are beneficial in improving your posture and reducing your risk of falling.
- Avoid combined motions of back bending + side bending + rotation with weight. Modify your body position for safer snow shovelling, vacuuming, and picking up groceries from the ground to the fridge.



10. Take Your Medication as Prescribed

Your doctor may prescribe medications such as:

- Antiresorptive agents, that can slow down bone loss (bisphosphonates, denosumab, raloxifene and estrogen).

- Parathyroid hormone analog teriparatide, that helps to build up bone mass and density.

How do I reduce my risk of bone fracture from falls?

- Improve your strength and balance with regular exercise.
- Book a medication review with your doctor or pharmacist to ensure that none of the meds cause dizziness and/or sleepiness.
- Prevent falls by reducing hazards such as: cleaning up clutter, repairing any tripping hazards, having appropriate lighting, wearing shoes indoors and, using non-slip bathmats in the

shower.

- Attend a free falls prevention education program in your local community.

Read these resources for more information on how to prevent and manage osteoporosis:

- <https://osteoporosis.ca>
- Too Fit to Fracture: Managing Osteoporosis through Exercise_
<https://osteoporosis.ca/wp-content/uploads/OC-Too-Fit-To-Fracture-Osteo-Exercise-Book.pdf>
- Eating well to prevent and treat osteoporosis:_
<https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-eating-well-prevent-treat-osteop.pdf>
- Lower your risk of osteoporosis:
 - <https://www.unlockfood.ca/en/Articles/Bone-Health/Lower-your-risk-of-osteoporosis.aspx>
- Vitamin D and Calcium: Updated Dietary Reference Intake:_
https://www.canada.ca/en/health-canada/services/food-nutrition/healthy-eating/vitamin_s-minerals/vitamin_-calcium-updated-dietary-reference-intakes-nutrition.html#a7