



Osteoporosis Canada

Ostéoporose Canada

COPING

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Remember: You can live well with osteoporosis!

Smoking and Drinking: Two Risk Factors for Osteoporosis and Fractures

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Fracture Fact

Smoking is one of the largest causes of preventable premature death.

According to the World Health Organization, the annual cost to the world's economies from smoking and its side effects is \$1 trillion.

The article on smoking is adapted and reprinted from the International Osteoporosis Foundation, May 20, 2015: <https://www.iofbonehealth.org/news/smoking-real-danger-your-bone-health>.

Smoking is a real danger to your bone health

While most people are aware that smoking harms cardiovascular health and increases cancer risk, fewer are aware that smoking endangers bone health too.

Many studies have shown a direct relationship between smoking and decreased bone density, as well as increased risk of experiencing a fracture. In fact, because the evidence linking smoking with increased fracture risk is so strong, smoking is one of the scientifically validated risk factors that are included in FRAX® (Fracture Risk Assessment Tool), the online tool that calculates an individual's 10-year risk of osteoporotic fracture.

According to the National Institute of Health (NIH) in the USA, evidence shows that:

- The longer you smoke and the more cigarettes you consume, the greater your risk of fracture in old age.
- Older women and men who smoke experience significant bone loss.
- Smokers who fracture tend to take longer to heal than non-smokers and they may experience more complications during the healing process.
- Exposure to second-hand smoke during youth and early adulthood may increase the risk of developing low bone mass.
- Compared with non-smokers, women who smoke may produce less estrogen (a sex hormone) and tend to experience menopause earlier, which may lead to increased bone loss.

Fracture risk is higher in smokers, especially with increasing age

The strongest evidence of the effects of smoking in decreasing bone mineral density

comes from a landmark study that concluded that roughly one in eight hip fractures may result from cigarette smoking. The study showed that current smokers lose bone at faster rates than non-smokers, and by age 80 this can translate into 6% lower bone mineral density and greater fracture risk. Hip fracture risk among smokers, as compared to non-smokers, was shown to be greater at all ages but rises from 17% greater at age 60 to 71% at age 80.

Male smokers may be at even higher risk than women, with a recent study finding that male smokers had a small, but significantly greater, risk of low bone density, and more vertebral fractures, than female smokers.

Many factors increase osteoporosis and fracture risk in smokers

Nicotine and other toxic substances in cigarettes trigger bone-damaging changes in many ways, including by:

- Reducing the blood supply to bones (as it does to many other body tissues).
- Slowing the production of bone-forming cells (osteoblasts) so that they make less bone.
- Decreasing the absorption of calcium from the diet.
- Breaking down estrogen in the body more quickly. Estrogen is important to build and maintain a strong skeleton.

In addition there are other factors that may place smokers at an increased risk for osteoporosis apart from their tobacco use. People who smoke tend to be thinner than non-smokers, may be less physically active, and have poor diets. Women who smoke also tend to have an earlier menopause than non-smokers.

Start by quitting - and follow a bone-healthy lifestyle

The best thing smokers can do to protect their bones is to quit smoking. At any age, this will help limit smoking-related bone loss and reduce fracture risk.

If you're a former smoker, attention to a bone-healthy lifestyle is essential. This includes eating a well-balanced diet rich in calcium; vitamin D supplementation; regular weight-bearing, strength training and balance exercise; and avoiding excessive alcohol use. You should also talk to your doctor about bone health and request a bone density test. A bone density test together with a CAROC (acronym for Canadian Association of Radiologists Osteoporosis Canada) or FRAX® risk assessment will help detect osteoporosis before a fracture occurs and can predict the chance of fracturing in the future. The results of the bone density test and fracture risk assessment will help your doctor determine whether osteoporosis medication should be prescribed.

Excess alcohol is also bad for bones

Excessive alcohol use has many health risks, including liver disease, cardiovascular disease and cancer. It is also bad for bones. Regular heavy drinking can have a detrimental effect on bone health, increasing the risk of fractures and the risk of osteoporosis later in life. This is particularly important during adolescence and young adult years, before the skeleton is mature.

Why is alcohol bad for bones?

The relationship between chronic heavy drinking and fractures is related to a number of factors that may weaken bones and increase the risk of falls. These factors include malnutrition, the interaction between alcohol and hormones that affect bone health and the effect of alcohol on bone and nerve cells. There is no universally

accepted definition of excessive alcohol use. Osteoporosis Canada's definition of excess alcohol, at which point it becomes a risk factor for fracture, is more than two drinks per day on average for both men and women.

When you drink too much alcohol, liver damage can occur. This may decrease the ability of the liver to activate vitamin D, and vitamin D is essential for the absorption of calcium from the intestine. Calcium is an essential nutrient for building and maintaining healthy bones, and it is also required by other cells in the body, including heart, nerve and muscle. If adequate calcium cannot be absorbed from the intestine to satisfy the body's requirements it will be leached from the bones. When bones lose calcium they become thinner and weaker and are more likely to break.

Poor nutrition is also common in individuals who drink more than 2 or 3 alcoholic drinks per day, which can result in a low dietary intake of calcium and other essential nutrients. This may also result in neuropathy (nerve damage), which will increase the risk of falls.

Hormones that play an important role in bone health are also affected by chronic alcohol use. Women may have irregular periods and decreased estrogen levels, while men may have low testosterone levels. Low levels of these hormones can result in bone loss. Chronic alcohol use has also been shown to increase cortisol levels, and this hormone can affect bone at the cellular level, both by increasing bone breakdown and decreasing bone formation.

Alcohol can also have a direct effect on osteoblasts, the bone-making cells. The major effect is to slow down their ability to produce new bone, resulting in bone loss.

Drinking increases your risk of fracture

Heavy drinkers are at risk for frequent falls and fractures, and have a higher risk for hip and spine fractures than non-drinkers. This is due in part to the fact that their bones are brittle, and also because of the effect of alcohol on balance and gait, which results in frequent falls. In addition, these fractures may heal more slowly because of malnutrition.

For many people, smoking and drinking go hand in hand. Quit smoking today and drink only in moderation to start on the path to healthier bones.

We Welcome Your Feedback

- Have a question?
- Is there an osteoporosis-related topic that you would like to see featured in the newsletter?
- Looking for a great volunteer opportunity?

Please contact us by calling Osteoporosis Canada's toll-free number **1-800-463-6842** or emailing copn@osteoporosis.ca.

FUNNY BONE:

Some cause happiness wherever they go; others, whenever they go.

– Oscar Wilde

A Recipe from our Sponsor

Swiss-French leek soup

Course: *Soups & Creams*

Preparation Time: *10 mins*

Cooking Time: *30 mins*

Yields: *4 servings*

3/4 milk product serving(s) per person

Calcium: 40% DV/ 437 mg

For more information about this recipe:

<https://www.dairygoodness.ca/getenough/recipes/swiss-french-leek-soup>



Ingredients

2 tbsp (30 mL) **butter**
3 large leeks, rinsed well and sliced
Salt and freshly ground pepper
1 - 2 cloves garlic, chopped
1 1/2 tbsp (25 mL) balsamic vinegar
4 cups (1 L) beef broth, no salt added
1 sprig fresh thyme
8 slices baguette bread, toasted
5 oz (150 g) **Canadian Swiss cheese**, grated

Tips

Did you know? Whole or sliced, leeks can be stored in the refrigerator for about two weeks. Once blanched, leeks can be kept in the freezer for up to a year.

Cheese alternatives: Canadian Gouda, Cheddar (Mild, Medium or Aged).

Preparation

In a large saucepan, melt butter on medium-high heat and cook leeks for 10 min, stirring frequently. Season generously with salt and pepper. Add garlic 2 min before end of cooking.

Deglaze with balsamic vinegar. Add broth and thyme. Bring to a boil and simmer for 10 min on medium heat.

Preheat oven to broil.

Divide soup among gratin bowls. Top with two slices of bread and cheese.

Cook in the oven for about 5–7 min, or until cheese is golden. Enjoy!

Note: Accompanied by a green salad, this Swiss-French leek soup will satisfy the heartiest appetite!

This issue of COPING is sponsored by Dairy Farmers of Canada

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