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Fracture Fact:

Always show your prescription and non-prescription medications to your doctor because seniors who take four or more medications a day, including over-the-counter medications and herbal supplements, have a significantly greater risk of falls.

Remember: You can live well with osteoporosis!

Secondary Osteoporosis – Drugs and Diseases that can Cause Bone Loss, Falls and/or Fractures

There are several well known risk factors for osteoporosis and osteoporotic fractures such as age, sex, low body weight, a low bone mineral density, a past fragility fracture, having a parent who had a hip fracture and a past history of fall(s). Less well known are which medications and medical conditions can increase the risk of osteoporosis and osteoporotic fractures either by causing more thinning of bones, by increasing the risk of falls or both. Osteoporosis that results from having another disease or condition or from the treatment of another condition is called secondary osteoporosis. This four-part series on secondary osteoporosis will present a brief summary of the more common treatments or conditions that can lead to bone loss, falls and/or fractures.

Part 1: MEDICATIONS

Synthetic Glucocorticoids (e.g. prednisone)

Glucocorticoids are produced naturally by the body as cortisol or cortisone, and are necessary for normal metabolism, growth and responding to physical stresses such as infection, injury and inflammation. However, high levels of glucocorticoids (both natural and synthetic) are associated with reduced activity of the bone-forming cells and increased activity of the cells that break down bone, which may result in bone loss. Synthetic glucocorticoids (e.g. prednisone, dexamethasone) are widely used in a variety of conditions because they are very effective anti-inflammatory drugs. Hydrocortisone and cortisone acetate are used to treat individuals who are deficient in cortisone.

Glucocorticoids are taken in a number of different ways. Bone damage more commonly results from the long-term use of glucocorticoid pills, such as prednisone, when taken at a dose of 7.5 mg (or more) daily for 3 (or more) months (these do not have to be consecutive) in the previous year. Glucocorticoid joint injections, inhalers, skin creams or eye drops have not been shown to increase the risk of osteoporosis. If treatment with glucocorticoid pills such as prednisone is required, bone health should be carefully monitored.

Breast Cancer Drugs

Aromatase inhibitors anastrozole (Arimidex®), letrozole (Femara®) and exemestane (Aromasin®) are used in the treatment of breast cancer. They prevent estrogen production, which results in extremely low blood levels of estrogen. These drugs have been shown to cause bone loss, and some studies have also shown increased risk of fractures, particularly at the spine and wrist.

Prostate Cancer Drugs

Androgen deprivation therapy is a type of treatment for prostate cancer in which the source of male sex hormone is removed. Androgen deprivation therapy has been associated with reduced bone mineral density, which is greatest during the first year of therapy in men aged 50 years and older. This results in an increased risk of fractures.

"Heartburn" Drugs

Proton pump inhibitors, such as Prevacid®, Losec®, Pantoloc®, Tecta®, Pariet® and Nexium®, are drugs that are used to treat acid-related diseases such as reflux, heartburn and ulcers. These drugs reduce the amount of acid produced in the stomach. Long-term use (several years) of proton pump inhibitors, particularly at high doses, has been associated with an increased hip fracture risk in older adults. This may be due to less calcium absorption from foods in the presence of lower stomach acid.

Depo-Provera

When used for contraception, the long-term use of injectable Depo-Provera has been shown to result in a significant reduction in bone mineral density. Most of this bone loss is reversible after the drug is discontinued.

Excessive Thyroid Hormone Replacement

Normal thyroid hormone blood levels maintain good bone health. In individuals who are on thyroid replacement therapy (Synthroid®, Eltroxin®), the dose needs to be monitored to ensure that the blood levels of thyroid hormone stay in the normal range. Monitoring is especially important in older adults because the dose required may decrease with age. Excessive thyroid replacement in older adults has been associated with abnormal heart rhythms and muscle weakness, both of which increase the risk of falls and fractures. Excessive thyroid hormone replacement can also reduce bone mineral density and bone quality, which may also lead to fractures.

How to Minimize the Harmful Effects of Medications on Bone

Talk to Your Doctor

These two issues of *COPING* may not include all medications that can contribute to fractures. If you are taking any medications that may increase bone

loss or the risk of falls, talk to your doctor and request a *fracture risk assessment*, which is a more in-depth assessment of your bone health. To do this your doctor may suggest you have a bone mineral density (BMD) test. This is a painless test that can help to predict your likelihood of fracture. Your doctor will also need to consider other risk factors including your age, sex, fracture history, parental history of hip fracture and glucocorticoid use.

Calcium, Protein and Vitamin D

The Osteoporosis Canada (OC) fact sheet [Nutrition: Healthy Eating for Healthy Bones](#) can help you determine if you are getting enough calcium and vitamin D. OC recommends that as much as possible, calcium intake should be from food, and calcium supplements should only be taken if one cannot consume sufficient calcium from the diet. On the other hand, there are few food sources of vitamin D and the sun is an unreliable source. Therefore, OC recommends *daily* vitamin D supplementation *all year round* for all Canadian adults. A well balanced diet, following *Canada's Food Guide*, will ensure that you get sufficient protein and other nutrients essential for bone health.

Regular Exercise

Exercise helps build and maintain strong muscles and bones. The OC fact sheet [Exercise for Healthy Bones](#) and [COPN's own 8-part newsletter series on exercise](#), both provide good general guidelines for choosing an exercise program that is right for you.

Smoking and Alcohol

Any type and amount of smoking contributes to bone loss and increases the risk of osteoporosis in both men and women. Drinking an average of three or more alcoholic beverages per day may also increase bone loss and fracture risk. OC recommends no smoking and no more than an average of two alcoholic drinks daily.

In the next issue, November 22, 2013, we will continue this discussion of which medications can contribute to bone loss, falls, and/or fractures.

FUNNY BONE:

For every action there is an equal and opposite criticism.

Breaking News on Broken Bones (BNBB) Blitz Week Wrap Up

In the September 13, 2013 issue of COPING, we introduced you to the Breaking News on Broken Bones campaign, designed to raise awareness among Canadians about the seriousness of a broken bone. BNBB is turning out to be possibly the most successful awareness campaign ever launched by Osteoporosis Canada.

Blitz Week - September 23 – 27 - was a flurry of BNBB related activity right across Osteoporosis Canada and the country. All in all there were 48 separate activities and events ranging from display booths to Stand Tall clinics, webinars, newspaper articles, radio and TV spots, public forums, and even a provincial utility bill insert. 17 OC Chapters, Branches, the national office and 8 healthcare professionals delivered a consistent message to more than 500,000 Canadians. The message:

1. It is **not normal** to break a bone from a minor fall.
2. If you do, you may be at high risk of breaking **another** bone.
3. A broken bone may be the first sign that you have **osteoporosis**.
4. There are effective **treatments** to reduce the risk of broken bones.

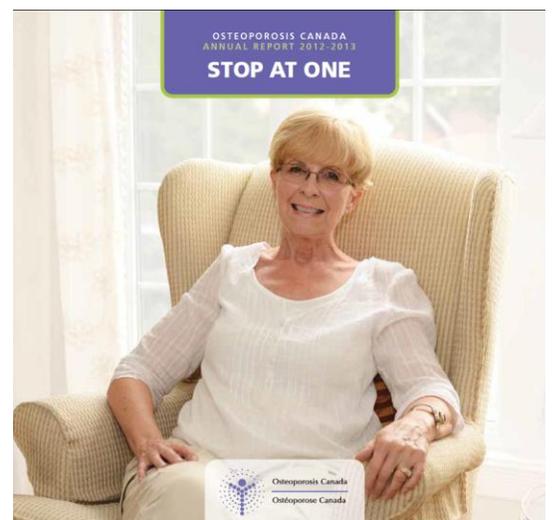
While the blitz week was an opportunity to turn the focus of the organization on a single and consistent message for a given period of time, BNBB activity will continue throughout November, Osteoporosis Month, and beyond.

Congratulations to everyone who participated in the BNBB blitz week; your efforts are going a long way to help spread the word about the consequences of broken bones and the need for follow up assessment and treatment to avoid recurring fractures.

News from the 2013 Annual General Meeting

Osteoporosis Canada's 2013 Annual Report **Stop at One**, released at OC's Annual General Meeting in Toronto in October, highlights the organization's progress towards its vision of a Canada without osteoporotic fractures. We at COPN are particularly proud that Gail Lemieux, one of COPN's four founding members, is prominently featured in the Report. **Stop at One** is now available on line (www.osteoporosis.ca).

The Annual Report also highlights the development of the Fracture Liaison Services (FLS) initiative. The culmination of many months of work by a team of experts led by Dr. Diane Theriault, OC's Chief Scientific Officer, this comprehensive implementation guide outlines the steps to be taken to establish FLS and close the post-fracture care gap in Canada. Future issues of COPING will describe FLS in more detail and track the progress of implementation of this world-class model of osteoporosis care across the country.



Osteoporosis Canada's Board of Directors was introduced at the Annual General Meeting. Chaired by Emily Bartens of Hamilton, Ontario, the Board includes the following slate of Directors:

Robert Allard, Laval, Quebec
Jeanne Archibald Q.C., Truro, Nova Scotia
Cheryl Baldwin, Winnipeg, Manitoba
Emily Bartens, Hamilton, Ontario
Alison Buie, Calgary, Alberta
Dr. Angela Cheung, Toronto, Ontario
Karen Demassi, Calgary, Alberta
Dr. Heather Frame, Winnipeg, Manitoba
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Jeffrey Narod, Vancouver, British Columbia
Brenda Payne, Bible Hill, Nova Scotia
Dr. Victoria Scott, Gabriola Island, British Columbia
Sharron Steeves, Moncton, New Brunswick

A Message from our Sponsor

Judith Blucheu, RD, Dietitian

November: Osteoporosis Month

It is well known that osteoporosis is a disease characterized by low bone strength. When the body's bones become weakened, they are more prone to fracture. To reduce the risk of osteoporosis, it is important to build and maintain strong bones. A high calcium diet slows down age-related bone loss and reduces fracture risk. Milk products are reliable sources of calcium and contain other important nutrients such as protein, phosphorus and vitamin A, which also contribute to bone health. The vitamin D added to milk improves calcium and phosphorus absorption, another component of bone strength.

To learn more about the benefits of milk products and to try our dietitians' recipes, go to getenough.ca.

This issue of COPING is sponsored by Dairy Farmers of Canada



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getenough.ca