camoscope

CaMos

Canadian Multicentre Osteoporosis Study
Étude Canadienne multicentrique sur l'ostéoporose

BONE HEALTH *for life*

www.camos.org

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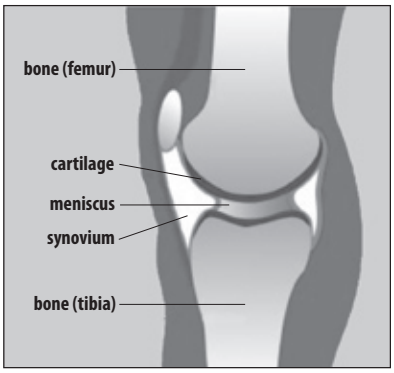
"I've got osteo"

Dr Tanveer Towheed
Kingston Centre
Co-director

People often use the statement : "I've got Osteo". They are usually referring to ONE of two common health problems that have similar names but are very different conditions; Osteoarthritis (OA) and Osteoporosis (OP). In this article, we give a little information about your bones and the different parts that are affected by these diseases.

OA is a disease of the joints - the area where two bones meet. Joints commonly affected are the knees and fingers. OA affects the articular cartilage at the bone tip. This area becomes worn out and the joint becomes painful and difficult to move efficiently. OA affects 3 million Canadians (1 in 10). It affects men and women in equal numbers.

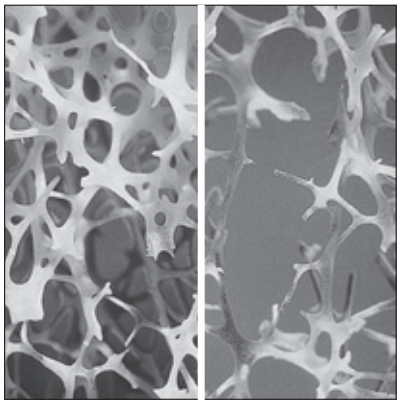
Knee joint



Source: www.fda.gov/fdac/features/2000/knees.html

OP is a disease of the bones. Bones commonly affected are the hip and the spine. 80% of our bone is the hard outer layer made of compact bone tissue, and 20% is the interior made up of a lattice (trabeculae) of soft spongy bone. In OP, the bones become less dense, more brittle and more vulnerable to fracture. OP is generally painless unless a fracture occurs. OP affects 1.4 million Canadians and the incidence is higher in women. ◆

Normal Bone **Osteoporotic Bone**



Source: www.iofbonehealth.org/newsroom/resources/image-normal-osteoporotic-bone.html

BONE FACTS

- Our bones play a much more important and dynamic role in our lives than we think
- There are 206 bones in the adult human body
- They give our bodies shape
- They protect our vital organs
- They store fat and minerals (especially calcium and phosphorus)
- They enable us to move around
- They act as a protector to buffer excessive acidity/alkalinity
- They store heavy metals and foreign elements which are subsequently expelled from our bodies
- The tiny bones in our ears transfer sounds so we can hear

Recent publications

Change in bone mineral density in women and men related to age and the use of antiresorptive agents

Claudie Berger
Statistician
Montreal

Bone loss begins in young adulthood and continues throughout life in both men and women. The current Canadian guidelines recommend a Bone Mineral Density (BMD) test at the age of 65 and for regular intervals thereafter regardless of a diagnosis of osteoporosis.

We looked at the BMD data for 6368 participants collected during the first five years of the CaMos study. We wished to observe at what age male and female participants lost the most bone density. Areas tested were the hip and spine. Several interesting facts were discovered.

Bone loss begins in women at age 40-44 and is more rapid in the hip. In women aged 50-54 (passing from pre to post menopause) bone loss was the greatest with BMD decreasing on average 6.8% over five years. The next period of accelerated loss occurs in the hip in women over the age of 70. In men, bone mineral density decreases more gradually than in women and starts around the age of 40.

In men and women aged 50-79, the use of osteoporosis medication (antiresorptive agents) was associated with reduced bone loss.

In conclusion we found that the yearly change in bone mineral density was very low, even during the periods of accelerated loss mentioned above. Thus we deduced that for a person with a normal BMD and no other risk factors, the period of time between regular BMD testing could be extended. ◆

Reference : C Berger, L Langsetmo, L Joseph, DA Hanley, KS Davison, R Josse, N Kreiger, A Tenenhouse, D Goltzman, CaMos Research Group. Change in bone mineral density as a function of age in women and men and association with the use of antiresorptive agents. CMAJ. 2008 Jun 17;178(13):1660-8.

Lisa Langsetmo
Fellow, Montreal

Antiresorptive agents and non vertebral fractures

This paper looks at how medications that prevent bone loss can help reduce the risk of fracture.

Bones are in a constant process of resorption and formation. Resorption occurs when old bone is broken down and removed in order to make room for the formation of new bone.

When we are young, more bone is produced than removed, but as we age, bone is lost faster than it's formed. Too much bone resorption can lead not only to bone loss, but also to increased bone fragility and fracture.

Antiresorptive agents, such as bisphosphonates, selective-estrogen receptor modulators, estrogen and calcitonin, are drugs that are known to inhibit bone resorption.

Data collected from 6008 female participants during the first 7 years of CaMos, suggested that treatment with antiresorptive agents is associated with a reduction in the number of fractures.

Antiresorptive therapy was found to be associated with a 32% reduced risk of all low trauma fractures excluding those in the spine. The risk reduction was higher for those women with major risk factors for fractures (such as prior osteoporotic fracture and/or bone mineral density T-scores $\leq$ -2.5). ◆

Reference: L A Langsetmo, S Morin, J B Richards, K S Davison, W P Olszynski, J C Prior, R Josse, D Goltzman, and the CaMos Research Group, Effectiveness of antiresorptives for the prevention of non-vertebral low-trauma fractures in a population-based cohort of women Osteoporos Int. 2009 Feb; 20(2): 283-90. [Epub 2008 Jun 26].

Differences in the incidence of low trauma fractures across Canada

We looked at CaMos data collected during the first 8 years of the study in order to understand how some common risk factors are related to differences in the rate of the incidence of low trauma fractures across the country.

We used data collected from 2484 men and 6093 women who were 50 years of age and older, focusing particularly on those who sustained a low trauma fracture.

Two examples of regional differences we found were:

- Among men, the incidence of low trauma fractures in Calgary was more than three times the incidence in Quebec City.
- Among women, the low trauma fracture incidence in Calgary was twice as high as those in Halifax.

In the same group of men and women we also found that the number of people with a low bone mineral density (BMD) defined as a T-score of -2.5 or less indicating

(see **Recent Publications**, page 3) ➤

Question and Answer

Dr Sophie Jamal
Toronto Centre
Co-director

Q: ***I was diagnosed with osteoporosis three years ago, put on medication and sent for yearly bone density tests. At my last check-up, my bones had improved and I was told that I didn't need another test for 2 years but I had to keep taking the medication. When will I be able to stop the medication?***

A: Thank you very much for your question. Because osteoporosis is a chronic, silent disease with many contributing factors, it is important that individual treatment plans are worked out between each patient and their doctor. That being said, here are a few insights into the reasons why continued osteoporosis treatment would be recommended.

Without continued treatment your fracture risk may still be high and would only continue to increase as you age. Osteoporosis medications, however, can reduce this fracture risk by up to 50 %.

To receive the maximum benefit from your medications it is important to take them consistently and equally important to take them as instructed.

For most men and women being treated for osteoporosis it is reasonable to check BMD every 2 to 3 years. You know that you are doing well if your BMD is maintained and you have not had a fracture.

Overall, the current treatments that we have for osteoporosis are safe and have very few side effects. If you do sustain a fracture, or if you suffer side effects from one medication, then alternative therapies may be recommended. ◆

YOUTH ZONE

YOUTH QUESTION

Dr Millan Patel
Vancouver Centre
Co-director

Q: ***I'm 18 years old and both my grandmas have osteoporosis. Will I get it when I'm old?***

A: Our family history is important because it makes us more likely to get a condition, but it is not guaranteed that we will. Our lifestyle choices, particularly those made while we are young, are equally as important as our inherited risks for developing osteoporosis. A healthy diet with plenty of calcium and vitamin D and a lot of exercise from childhood onwards can help build strong healthy bones and may help overcome a family history of osteoporosis. Warning signs of osteoporosis however, include a bone breaking with hardly any force, or multiple breaks either in you or in a close family member. Other diseases, or the medications used to treat them (like prednisone), can also lead to weak bones.

In conclusion, your bones are like a retirement fund that gets built up while you are young and from which you slowly withdraw when you are older. Exercise and a good diet are the best ways to make sure this fund gets filled to the brim. ◆

➤ (**Recent Publications** from page 2)

osteoporosis, varied across the country. Surprisingly, geographic areas with the lowest BMD levels did not correspond with those with the highest number of low trauma fractures. However when other fracture risk factors such as a history of repeated falls, previous fractures, vertebral/spinal deformities (as seen on x-ray) were included in the assessment of fracture risk, the pattern was much more predictable.

These findings emphasize the need for physicians to make a comprehensive clinical assessment of all risk factors for fractures when diagnosing and assessing treatment options for osteoporosis. ◆

Reference: L Langsetmo, DA Hanley, N Kreiger, SA Jamal, J Prior, JD Adachi, KS Davison, C Kovacs, T Anastassiades, A Tenenhouse,D Goltzman, CaMos Research Group. Geographic variation of bone mineral density and selected risk factors for prediction of incident fracture among Canadians 50 and older. Bone. 2008 Oct;43(4):672-8. [Epub 2008 Jul 1].

Behind the scenes

Our Pharmaceutical Partners

The information provided by CaMos participants continues to be studied and analyzed by a group of Canadian Osteoporosis experts. The high quality of the data produced enables our government and Canadian researchers to inform Canadian health policy and decisions regarding bone health without relying solely on data from the United States or Europe.

As you can imagine, a research project of this quality costs a lot of money to design, implement and maintain. The core funding for CaMos comes from the Canadian government, but when the study first started over a decade ago, we were encouraged to seek out industrial partnerships to complement this funding.

Our five industry partners are The Alliance (sanofi-aventis and Procter and Gamble Pharmaceuticals), Eli Lilly Canada Inc., Merck Frosst Canada Ltd., Novartis Pharma Inc., and Servier Canada Inc. They follow a strict code of conduct and aim to improve the quality of life of all Canadians while making sure that industry does not influence study design, scientific methods, or the freedom of researchers to analyze and publish results.

We are very fortunate to have had the support from our partners and the government of Canada to make CaMos such an excellent example of how academia and industry work together.

CaMos could not have been the success it is without the combined funding, commitment of each study participant and a lot of hard work. We look forward to continuing this remarkable partnership in the future. ◆

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REGIONAL NEWS

Calgary

CaMos participants from the Calgary center were invited to participate in an ancillary study at the University of Calgary Bone Imaging Lab. Clinical assessment for the study required scanning the wrist and ankle for approximately 5 minutes at each site using the XtremeCT. This equipment measures the three dimensional architecture of bone and provides information on changes in bone quantity as well as bone strength and quality. Currently 412 participants from the CaMos youth and adult cohort consented to participate in the study.

Participation in the XtremeCT study helps support research to establish a new clinical tool which can complement existing technology.

For more information on the XtremeCT please visit the website: www.bonelab.ucalgary.ca ◆

Hamilton

This year Osteoporosis Canada (OC) will be having its annual general meeting in Burlington, on Saturday June 13th at the Travelodge, 2020 Lakeshore Rd. Burlington ON L7R 4G8. For more information about the meeting, you can contact the Hamilton/Burlington chapter of OC by calling (905) 525-5398 or by visiting the website: http://www.osteoporosis.ca. ◆

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