

Outliving our Bones

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We all know about osteoporosis, don't we? The topic comes up regularly in the media. Is it so often that we have come to let it slide past our consciousness? Osteoporosis is one of those health issues that really doesn't cause a problem until it's too late and bones are weak enough to break. Maybe a closer look is warranted.

Osteoporosis is a disease that causes your bones to become so thin that they can break during normal daily activities such as lifting a heavy object or even just rolling over in bed. Developing the disease depends on the thickness of your bones early in life, your health, diet and the amount of physical activity later in life. It is linked to aging, and to the decreased production of estrogen in women and testosterone in men.

The key to understanding osteoporosis is knowing how bones work. Bones, it turns out, are living, growing things, not just the rigid sticks of calcium they appear to be. They are constantly changing in a process called *remodelling* — and yes, it is what it sounds like — where aging, worn or damaged sections of bone get replaced.

Bones are also flexible. Their structure comes from a matrix of collagen, a very flexible material. This matrix is filled with calcium, a very inflexible material (ever try to bend a piece of chalk?), but one resistant to compression. Vitamin D stored in the bones helps to fill the collagen structure with calcium.

The calcium in blood is essentially constant, but when it drops, the body redirects calcium from bone into the bloodstream. That is one of the reasons for taking in enough calcium in our diet. In osteoporotic bone the amount of collagen is lower but since the ratio of collagen to calcium is constant, there is also less calcium. Thus, bones get smaller and have less internal architecture.

About 1.4 million Canadians suffer from osteoporosis: one in four women and one in eight men over the age of 50, though it can strike at any age. In fact, we all start losing bone around the age of 35; women lose it faster around menopause. Over a lifetime, women may lose about half of their bone mass, and men, about 30%.

The major risk factors for osteoporosis include being over 65, having a family history of osteoporotic fractures (especially maternal hip fracture), and early menopause. Other risk factors include rheumatoid arthritis, low dietary calcium intake, being a smoker, and consuming excessive alcohol and/or caffeine.

A person with one or more of the risk factors should talk to their family doctor to help determine if osteoporosis is a danger. Diagnosing the disease usually begins by evaluating a patient's medical history and doing a physical examination. Bone density testing is done using a special x-ray technique called "Dual-Energy X-ray Absorptiometry" (DEXA). The test is simple, quick, and accurate.

Osteoporosis is a natural part of aging and as our life span has increased beyond 50 – 60 years, so too has its prevalence. By living longer we are, in effect, starting to outlive our bones. To find out more about this bone disease, contact your health practitioner, or visit the Osteoporosis Society of Canada website at < www.osteoporosis.ca >.

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