

## What is osteoporosis?

Osteoporosis is a significant reduction in bone mass due to loss of proteins and minerals such as calcium. It is often due to aging but can also result from medications, hormonal imbalance, vitamin deficiency and other disorders. The consequence of low bone mass is an increased risk of bone fracture.

## How widespread is osteoporosis?

In menopausal women over the age of 50, 80% of all fractures are due to osteoporosis and related disorders. Yet, fewer than 20% of women receive therapy to prevent further fractures.

## How can my physician check my bone health?

A basic clinical history is the first step according to the most recent osteoporosis guidelines published by the Canadian Medical Association (Oct. 12, 2010). Following a clinical history, your physician may request a test for bone mineral density (BMD) as well as blood tests such as those for calcium, thyroid hormones and vitamin D. If you are at increased risk of fracture, a bone turnover marker should be considered.

## What is bone turnover?

Bone is a dynamic tissue: your skeleton is constantly being broken down and rebuilt. In fact, it's been estimated that your skeleton is completely replaced every 10–15 years. Bone turnover reflects the relative rates of bone formation and bone degradation. This process is known as resorption. An imbalance of these two processes may lead to osteoporosis.

## What is the CTX test?

The CTX test measures the amount of degraded bone circulating in the bloodstream. Specifically, C-terminal telopeptide of type I collagen, a protein component of bone. This is the most established test of bone resorption, used in clinical trials of osteoporosis drugs such as Fosamax®, Actonel® and Prolia®.

## How does CTX differ from BMD?

### a) Rate vs quantity

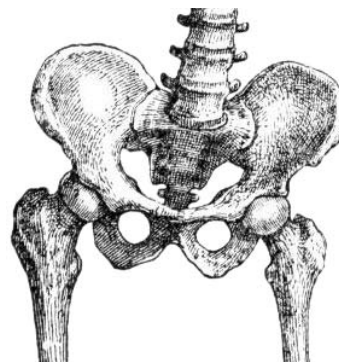
Think of BMD as the location of a moving car and CTX as its speed and direction. One test tells you where you are; the other tells you where you're going and how fast.

### b) Faster response

While a low BMD is the accepted definition of osteoporosis, it takes about two years for medical intervention to produce a noticeable BMD change. By contrast, a clinically significant change in CTX will be seen within a few weeks. This ability to provide more immediate feedback can help guide treatment plans.

### c) Evaluation of complete skeleton

Fractures can affect any bone in the body, but BMD is measured at only a few specific locations. CTX, by contrast, evaluates the rate of bone resorption from the skeleton as a whole.



## What will I learn from this test?

- a. If you are **not taking** medications for osteoporosis, an increased level of CTX may indicate a higher risk of bone fracture even if your BMD is not in the level associated with osteoporosis. Only one sample is needed.
- b. If you are **about to start** osteoporosis medications, a 35–55% drop in CTX from the initial (baseline) sample to the follow-up sample at 3 months indicates the drugs are working and likely to improve your BMD as expected. Two samples are needed.
- c. If you are **already taking** osteoporosis medications, CTX may be helpful if you are considering oral surgery and are concerned about your risk of bisphosphonate-related osteonecrosis of the jaws (BRONJ), a rare but serious side-effect linked to these drugs. CTX values lower than 0.15 ng/mL have been associated with increased risk of BRONJ, though the absolute risk remains very low and most patients with these low CTX values will not experience any complications. Only one sample is needed.

## What is the view of the Canadian Medical Association (CMA)?

While not specifically recommending the use of CTX and related bone turnover markers for monitoring osteoporosis, the CMA states that “increased values for bone turnover markers are associated with an approximately two-fold increased risk of fractures, which is largely independent of bone mineral density” and suggests that “markers of bone resorption and bone formation may help to assess and assign fracture risk and to monitor the effects of osteoporosis therapy.”

### How do I get tested?

Visit your physician. If CTX is right for you your physician will give you a standard requisition with “CTX” or “C Terminal Telopeptide” written in the section labeled “Additional Tests”. Take this to any of LifeLabs’ 83 patient service centers where your baseline blood sample will be collected. If applicable, you will also be given a notice to return for your second sample in 3–4 months. If you require 2 samples, your final test results will be prepared after you have provided the second sample.

### Is there a charge for the test?

Yes, you will be charged \$65 for a single sample or \$130 for a baseline and follow-up test. Payment must be made before any samples are collected.

### How do I pay for the service?

Payment may be made by Visa, MasterCard, debit, cash or cheque. The fee must be paid before any sample is collected.

### Can I get reimbursed by my insurer?

Possibly. All plans are different. Check with your extended healthcare provider to see if a test for measuring bone loss is covered by your plan.

### How do I get my results and how long will it take?

There are two ways to get your results. You can make an appointment to discuss your results with your physician (recommended), or you can visit [www.myehealth.ca](http://www.myehealth.ca) and sign up for electronic lab results.

LifeLabs has over 50 years experience serving the healthcare needs of Canadians.

Our laboratory testing services help physicians and other healthcare providers in the prevention, diagnosis, treatment and monitoring of disease and illness in patients. Our tests help to:

- Determine health risks and preventative steps;
- Diagnose and detect the onset of disease;
- Identify suitable treatments and reactions; and
- Monitor and adjust treatments as required.

#### Every year across Canada LifeLabs:

- Sees over 10 million patients
- Conducts over 50 million lab tests
- Provides service to nearly 20,000 physicians

We care about helping patients and physicians and we use our knowledge of laboratory medicine to help identify the right course of action to improve healthcare outcomes.



#### For more information please contact LifeLabs:

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# Osteoporosis & Bone Turnover



## A Test to Determine Risk of Bone Fracture and How Your Medications are Affecting Your Bone Health

LifeLabs offers C-telopeptide (CTX), a new test to help in the management of Osteoporosis and bone health.

Ask your doctor if it is right for you.

