

## **WHAT IS BONE MINERAL DENSITOMETRY?**

Bone consists of a protein (collagen) framework covered by bone mineral (hydroxyapatite).

Bone density and so its strength depends largely upon the amount of bone mineral present.

The most common reason for an abnormal BMD is the osteoporosis associated with aging (see below) but alterations in BMD may occur in many other bone diseases and diseases which affect the bones secondarily. Measurement of BMD may be valuable in the detection of disease, in demonstrating the need for treatment and in assessing response to treatment.

A balanced diet, a certain level of mobility and exercise, and a certain balance of natural hormones is necessary to maintain BMD. Disturbance of these may lead to an abnormality (usually a loss) of BMD.

## **WHAT IS OSTEOPOROSIS?**

Osteoporosis is a “thinning” of the bones due to loss of both bone mineral and protein framework. It most commonly occurs as part of aging and may be thought of as rather like the progressive rusting that may weaken a steel structure. In males, the loss begins in early adulthood and continues steadily. In females, BMD is usually maintained at a young adult level until around the menopause. It then falls sharply for a few years followed by the slower steady decline of older age.

Osteoporosis may also be induced or accelerated by various factors including diet, smoking and necessary treatment given for a variety of

diseases which do not themselves affect bone. Although often thought of as a concern of the post-menopausal woman, osteoporosis occurs in both sexes and not only in middle and later life. It may be generalized or affect part of the skeleton.

The presence of osteoporosis may be detected by BMD measurement even when conventional x-rays are normal. Osteoporotic bone is brittle and therefore at increased risk of fracture.

All people are not equally at risk of developing osteoporosis. Body build, family history, ethnic background, smoking, diet and exercise all play a part in addition to other illnesses and its treatment.

## **HOW IS BMD MEASURED?**

BMD is measured very precisely by a computerized x-ray scanning method. Measurement is made at the lower (lumbar) spine and at the hip (femoral neck) because these are sites where fracture is likely to occur spontaneously or in response to minor trauma if BMD is lost and the bone weakened.

## **GENERAL INFORMATION**

If you are unable to keep your appointment, please let us know as soon as possible at 732-4141.

We will require a signed requisition to be faxed to our booking office from your doctor for the procedure to be booked with you.

## **SPECIAL PREPARATIONS?**

Clothing requirements: wear loose, comfortable clothing such as a sweat suit or clothes with no metal or plastic around the waist and hip area.

## **AT THE HOSPITAL...**

**Upon arriving at the hospital, use the entrance to Tower B – we are located right next to the Emergency Department. Due to the high volume of patients, please arrive 30 minutes early for your appointment and have your health card ready when you register in the D.I. department.**

## **WHO WILL PERFORM THE BMD?**

Under the supervision of a radiologist (a specialist medical doctor) whom you may or may not meet, your bone density test will be performed by an x-ray technologist.

## **WHAT HAPPENS TO ME DURING THE PROCEDURE?**

The technologist will position you on the scanning table with your legs elevated but supported so that your back is as flat as possible against the table. Correct positioning is crucial to this test particularly if it is to be repeated later. Therefore the technologist will take time to get it right. The x-ray source will then scan automatically across your lower abdomen and pelvis. It will not come particularly close to you and the process takes 10-15 minutes.

**(...over)**

A technologist will be in the room with you for the majority of the time to operate the equipment and to attend to your needs and

answer your questions. She may leave the room briefly but there will always be someone close at hand.

Because there is nothing in the test to upset you or make you unwell, you will be able to drive home immediately afterwards if you wish.

### **WILL THERE BE ANY AFTER EFFECTS?**

You should not expect any after effects from the procedure. The amount of radiation is less than 1/25 of that of a chest x-ray and a small fraction of that inevitably received from natural radiation in the environment each year.

### **WHEN WILL I KNOW THE RESULTS?**

Your test results will be examined by a specialist physician who will send a written report to the doctor who asked for the test to be done.

In addition to giving a figure for BMD, the report will comment on what it means in terms of the probability of fracture in either the lumbar vertebrae or the femoral neck. A person with severe osteoporosis will not necessarily sustain a fracture, but over a period of years is more likely to do so than a person with normal bones. Prevention of fracture is the aim of osteoporosis treatment.

### **WILL IT BE NECESSARY TO REPEAT THE MEASUREMENT?**

In some patients a single measurement of BMD is all that is required to establish the state of the bones. Others, particularly those requiring treatment, may need follow up studies to monitor the progression of disease

or the response to treatment. Follow up studies are usually at intervals of one year or longer because changes in the bones happen relatively slowly.

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If you have other questions or concerns that have not been answered here, please feel free to ask our staff. We are here for **YOU**-- patient care is our number one priority!

An appointment has been made for you at the Pembroke Regional Hospital  
on:

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at

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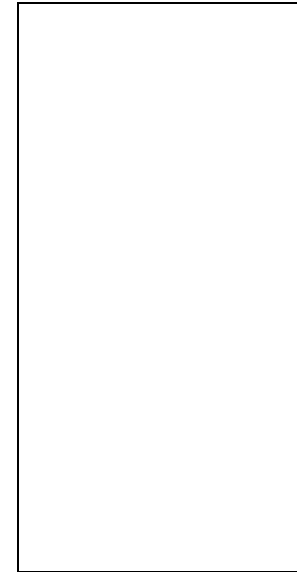
**Register at the Diagnostic  
Imaging Reception Area  
Tower B – Ground Floor  
(next to Emergency)**

Prepared in cooperation with Ottawa Civic Hospital's  
Department of Radiological Science.

**Pembroke Regional  
Hospital**

# **BONE MINERAL DENSITOMETRY**

## **EXAMINATION FOR OSTEOPOROSIS**



**DIAGNOSTIC IMAGING  
DEPARTMENT**