GHADIALI

GHADIALI
General Surgery

PRESENTS

Dr. Mufa T. Ghadiali is skilled in all aspects of General Surgery.
His General Surgery Services include:

- General Surgery
- Advanced Laparoscopic Surgery
- Surgical Oncology
- Gastrointestinal Surgery
- Hernia Surgery
- Endoscopy

BONE MINERAL DENSITY TEST

Multimedia Health Education

Disclaimer

This film is an educational resource only and should not be used to make a decision on **Bone Mineral Density Test**. All such decisions must be made in consultation with a physician or licensed healthcare provider.

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MULTIMEDIA HEALTH EDUCATION MANUAL

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INTRODUCTION

Bone Mineral Density Test is a procedure that allows a doctor to determine the bone health using special X-Ray, CT-Scan or Ultrasound tests. Bone Mineral Test measures the density of minerals such as calcium that are present in the bone. This test can identify osteoporosis, a disease that causes bones to become more fragile and likely to break.

What is a Bone Mineral Density Test?

Bone Mineral Density Test is also called a dual-energy X-ray absorptiometry or DEXA test.

A bone density test uses X-rays to measure how many grams of calcium and other bone minerals are packed into a segment of bone.

The results of a bone density measurement are reported in two ways: as T-scores and as Z-scores.

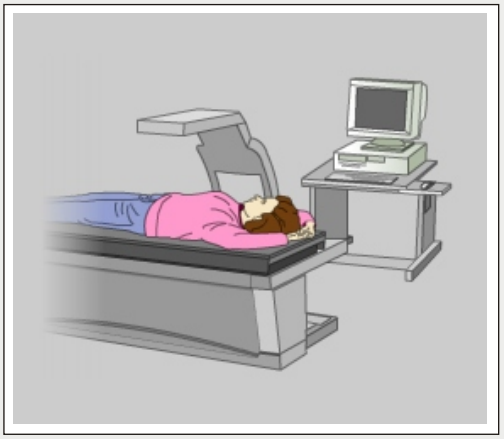
(Refer fig. 1 & 2)

A T-score compares the bone density to the optimal peak bone density for gender. A T-score of greater than minus 1 (-1) is considered normal.

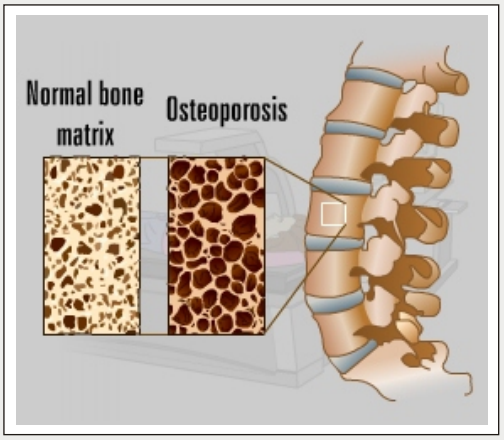
A T-score of minus 1 to minus 2.5 is considered osteopenia, and is a risk for developing osteoporosis.

A Z-score is used to compare your results to others of same age, weight, ethnicity, and gender. A Z-score of less than minus-1.5 raises concern of factors other than aging as contributing to osteoporosis.

(Refer fig. 3)



(Fig.1)



(Fig.2)

Normal	Bone density is within 1 SD (+1 or -1) of the young adult mean.
Low bone mass	Bone density is between 1 and 2.5 SD below the young adult mean (-1 to -2.5 SD).
Osteoporosis	Bone density is 2.5 SD or more below the young adult mean (-2.5 SD or lower).
Severe (established) osteoporosis	Bone density is more than 2.5 SD below the young adult mean, and there have been one or more osteoporotic fractures.

(Fig.3)

Different Measures of Bone Mineral Density

The following are different ways to measure Bone Mineral Density (BMD):

Dual-Energy X-ray absorptiometry (DEXA):

This is the most accurate way to measure BMD. It uses different X-ray beams to estimate bone density in the hip and spine.

(Refer fig. 4)

Peripheral dual-energy X-ray absorptiometry (P-DEXA):

P-DEXA is a type of DEXA test. It measures the density of bones in the arms or legs, such as the wrist. P-DEXA also uses very low doses of radiation, and the results are ready faster than standard DEXA measurements.

(Refer fig. 5)

Ultrasound:

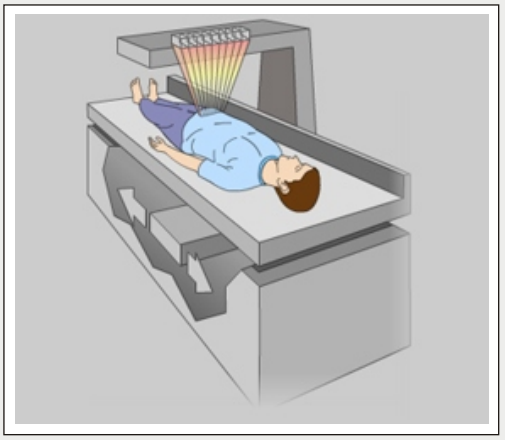
Ultrasound uses sound waves to measure BMD, usually in the heel. Ultrasound is quick, painless, and does not use potentially harmful radiation like X-rays.

It cannot measure the density of the bones most likely to fracture (the hip and spine) from osteoporosis.

(Refer fig. 6)

Quantitative Computed Tomography(QCT):

This is a type of CT scan that measures the density of a bone in the spine (vertebra). QCT uses higher radiation doses and is less accurate than DEXA or P-DEXA.



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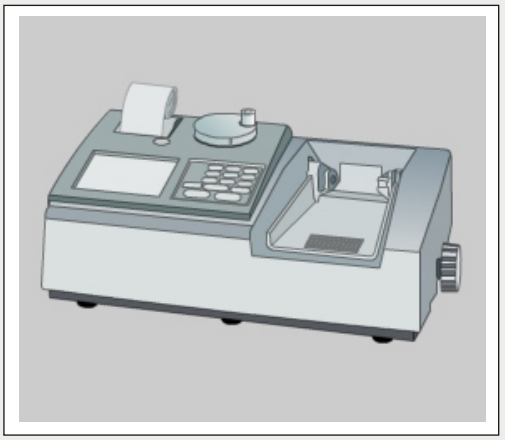


(Fig.5)

(Fig.6)

Unit 2: Purpose of Bone Mineral Density Test

Why is a Bone Mineral Density Test Performed?

A bone mineral density test informs your doctor about the mineral content in your bones and helps diagnose Osteoporosis.

The higher the bone mineral content, the denser the bones are. And the denser the bones, the stronger they generally are and are therefore less likely to break.

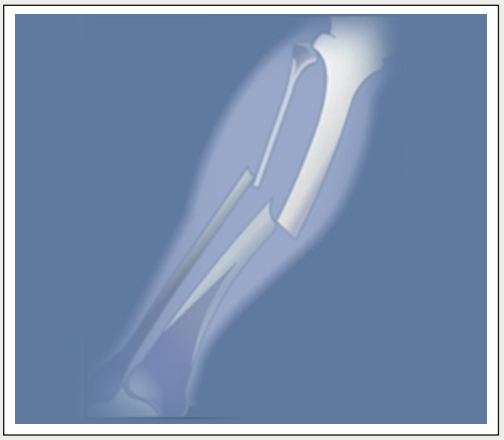
A doctor may perform Bone Mineral Density Test to :

- Identify decreases in bone density before a bone break occurs
- Determine the risk of broken bones (fractures)
- Monitor and assess osteoporosis treatment

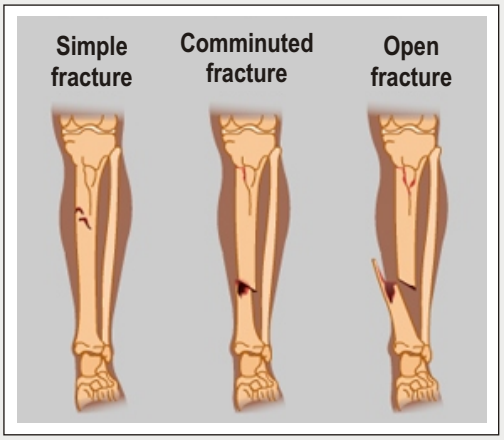
The U.S. Preventive Services Task Force recommends that women age 65 and older be screened routinely for osteoporosis. The National Osteoporosis Foundation also recommends bone density testing for:

- Woman under age 65 with one or more risk factors for osteoporosis
- Men of age 70 or older
- Men between age 50 and 70 with one or more risk factors for osteoporosis
- Persons older than age 50 and have experienced a broken bone

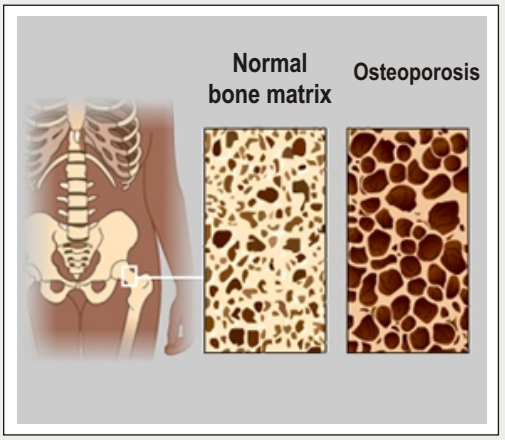
(Refer fig. 7 to 10)



(Fig.7)



(Fig.8)



(Fig.9)

(Fig.10)

How is it Performed?

A bone mineral density scan is usually done in the special radiology department or clinic by a technologist.

There are different machines that can do bone mineral density testing. The most common methods use low-dose X-rays (1/10th the radiation dose of a chest X-ray).

The patient will lie on a padded table. A scanner passes over the patient's body and the machine takes X-rays of the lower spine and hip. The machine will scan the bones and measure the amount of radiation they absorb.

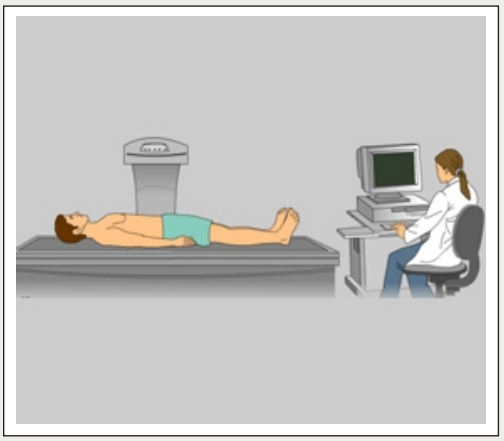
Testing at least two different bones each time, usually the hip and spine, is the most reliable way of measuring BMD. It is best to test the same bones and to use the same measurement technique and BMD equipment each time.

Peripheral dual-energy X-ray absorptiometry (P-DEXA) machines are portable units that can be used in a doctor's office.

P-DEXA can measure bone density in the wrist or forearm. Ultrasound measurements are usually taken in the heel. For these measurements, the patient may be able to sit in a chair during the test.

(Refer fig. 11 to 13)

(Fig.11)



(Fig.12)

(Fig.13)

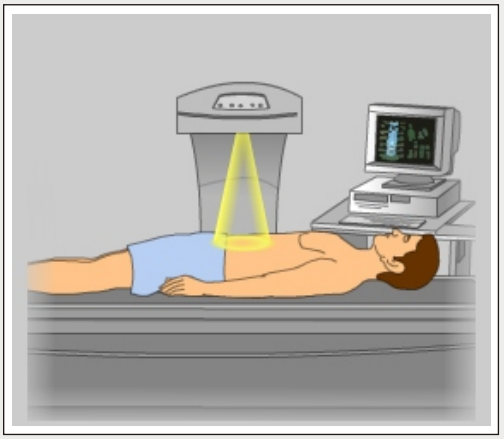
What are the Risks?

Bone density tests are easy, fast and painless. In fact, some simple versions of the bone density tests can be done at a local pharmacy or drugstore.

Possible risks of a Bone Mineral Density Test include:

- During a bone mineral density scan, the patient is exposed to a very low dose of radiation.
- A BMD scan is not recommended for pregnant women because of the radiation exposure to the unborn baby.

(Refer fig. 14 & 15)



(Fig.14)

(Fig.15)

Unit 3: Disclaimer

Although every effort is made to educate you on **BONE MINERAL DENSITY TEST** and take control, there will be specific information that will not be discussed. Talk to your doctor or health care provider about any concerns you have about **BONE MINERAL DENSITY TEST.**

☐ ☐ ☐ **YOUR SURGERY DATE**

☐ **READ YOUR BOOK AND MATERIAL**

☐ **VIEW YOUR VIDEO /CD / DVD / WEBSITE**

☐ **PRE - HABILITATION**

☐ **ARRANGE FOR BLOOD**

☐ **MEDICAL CHECK UP**

☐ **ADVANCE MEDICAL DIRECTIVE**

☐ **PRE - ADMISSION TESTING**

☐ **FAMILY SUPPORT REVIEW**

Physician's Name : _____

Physician's Signature: _____

Date : _____

Patient's Name : _____

Patient's Signature: _____

Date : _____