OSTEOPOROSIS

Scanning by DEXA

What is osteoporosis?

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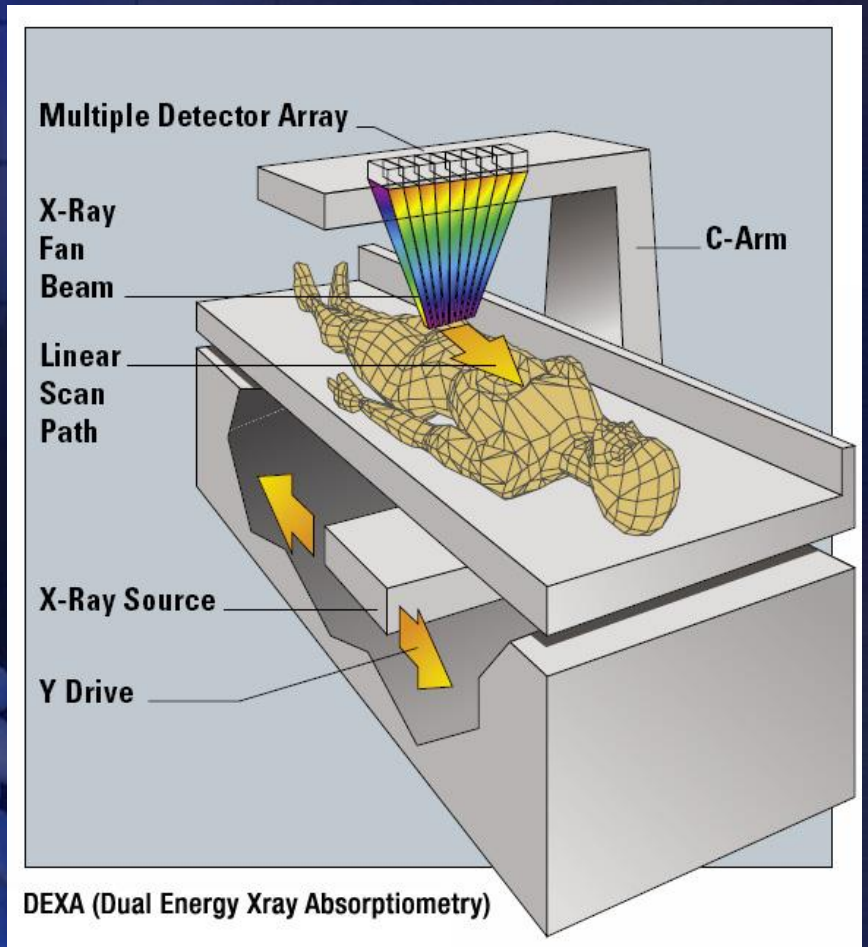
Osteoporosis - Do You Suffer From Osteoporosis Video - About.com.flv

Osteoporosis develops when there is failure to form new bone or excessive breakdown of old bone ,or both occur

causing the bones to become thinner, more fragile and more likely to break.

DXA is the standard for measuring bone mineral density BMD

DEXA It is short for Dual-Energy X-ray Absorbimetry



Why DEXA & not regular x-ray ,CT or BONE SCAN

- more accurate than regular X-rays. A person would need to lose 20-30% of their bone density before it would show up on an X-ray.
- require less radiation exposure than CT or Radiographic Absorptometry.
- The amount of radiation used is extremely small—less than one-tenth the dose of a standard chest x-ray, and less than a day's exposure to natural radiation.

How does the machine work?

DEXA - Dual Energy X-Ray Absorptiometry.flv

- The DXA machine sends a beam of x-rays with two energy peaks
- The rays will pass through the pt →detector where the transmitted intensity will be recorded
  bone mineral content (measured as the attenuation of the X-ray by the bones) is divided by the area of bone being scanned.
- special software displays the bone density measurements on a computer monitor.

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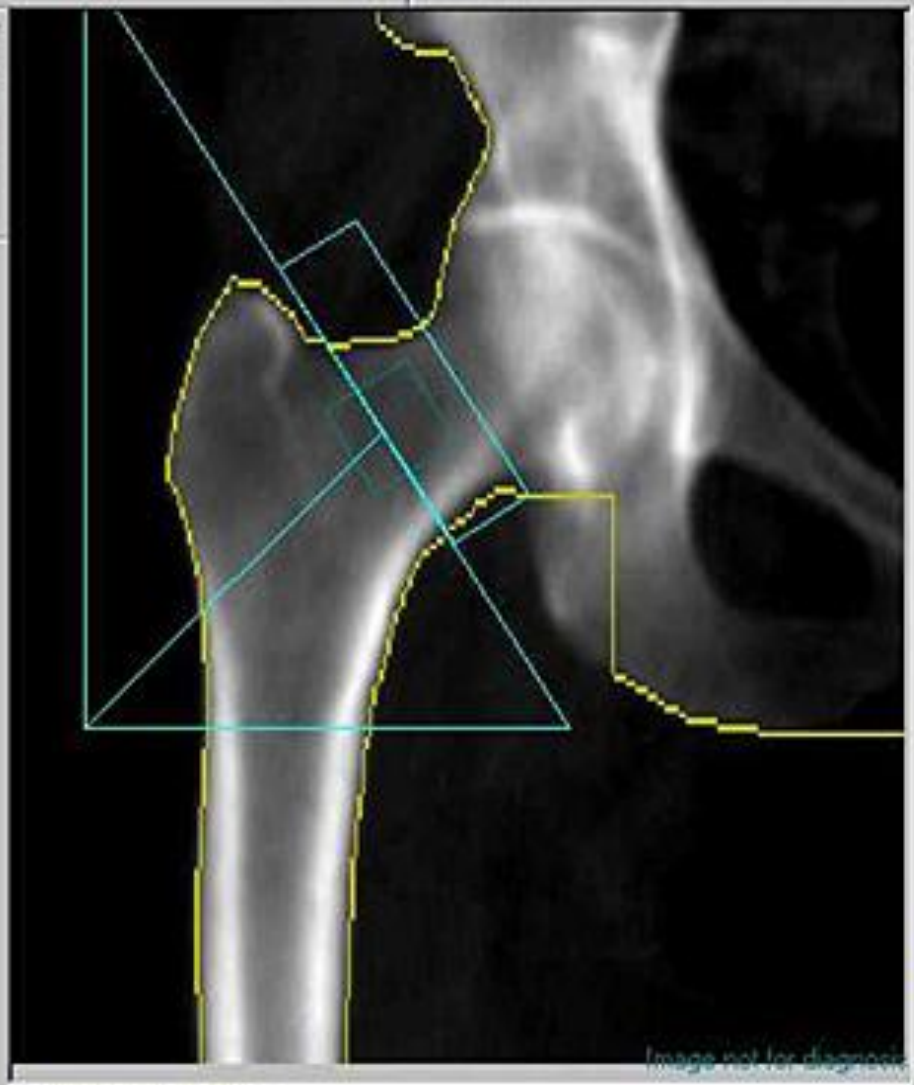
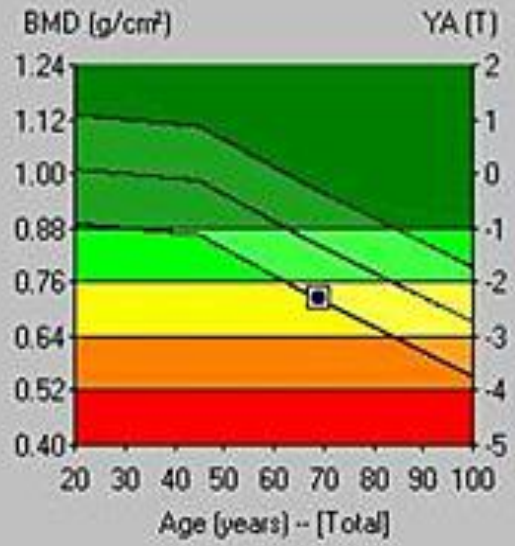


Densitometry | Reference | Trend | Information



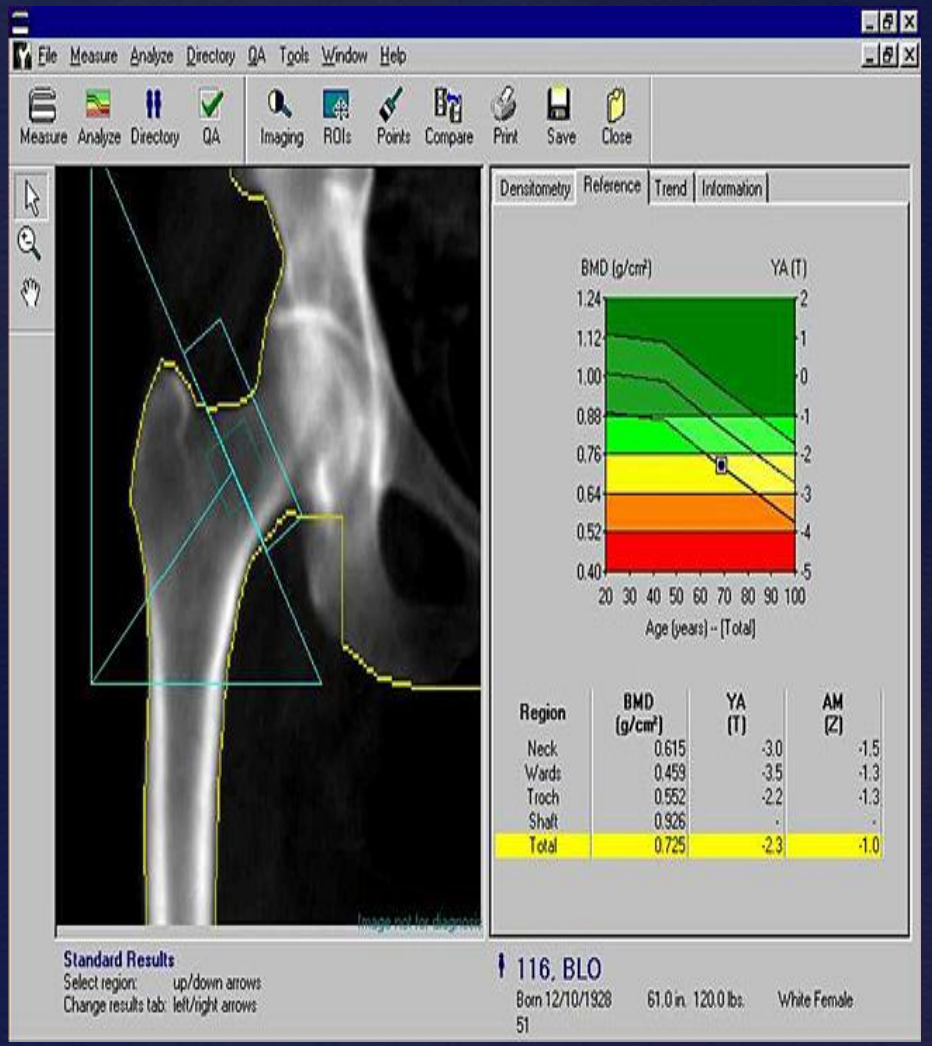
Region	BMD (g/cm²)	YA (T)	AM (Z)
Neck	0.615	-3.0	-1.5
Wards	0.459	-3.5	-1.3
Troch	0.552	-2.2	-1.3
Shaft	0.926	-	-
Total	0.725	-2.3	-1.0

Standard Results
Select region: up/down arrows
Change results tab: left/right arrows

116, BLO
Born 12/10/1928 61.0 in. 120.0 lbs. White Female
51

test results will be in the form of two scores: Z score

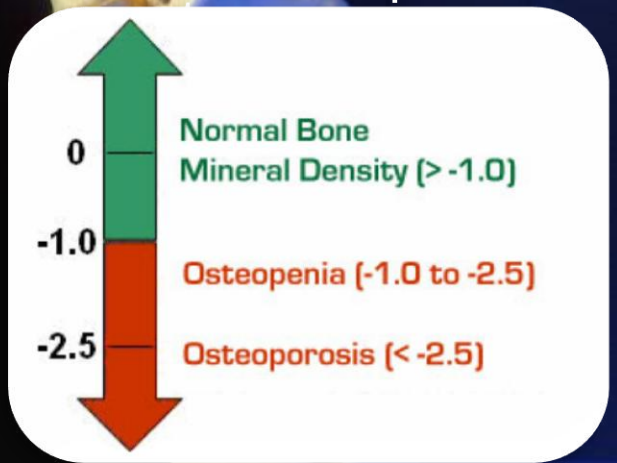
- **Z score** — reflects the amount of bone the pt has compared with other people in the same age group and of the same size and gender.
- By comparing a patient's bone density against there peers, a low score indicates there may be a reason other than age related bone loss. it may indicate a need for further medical tests.

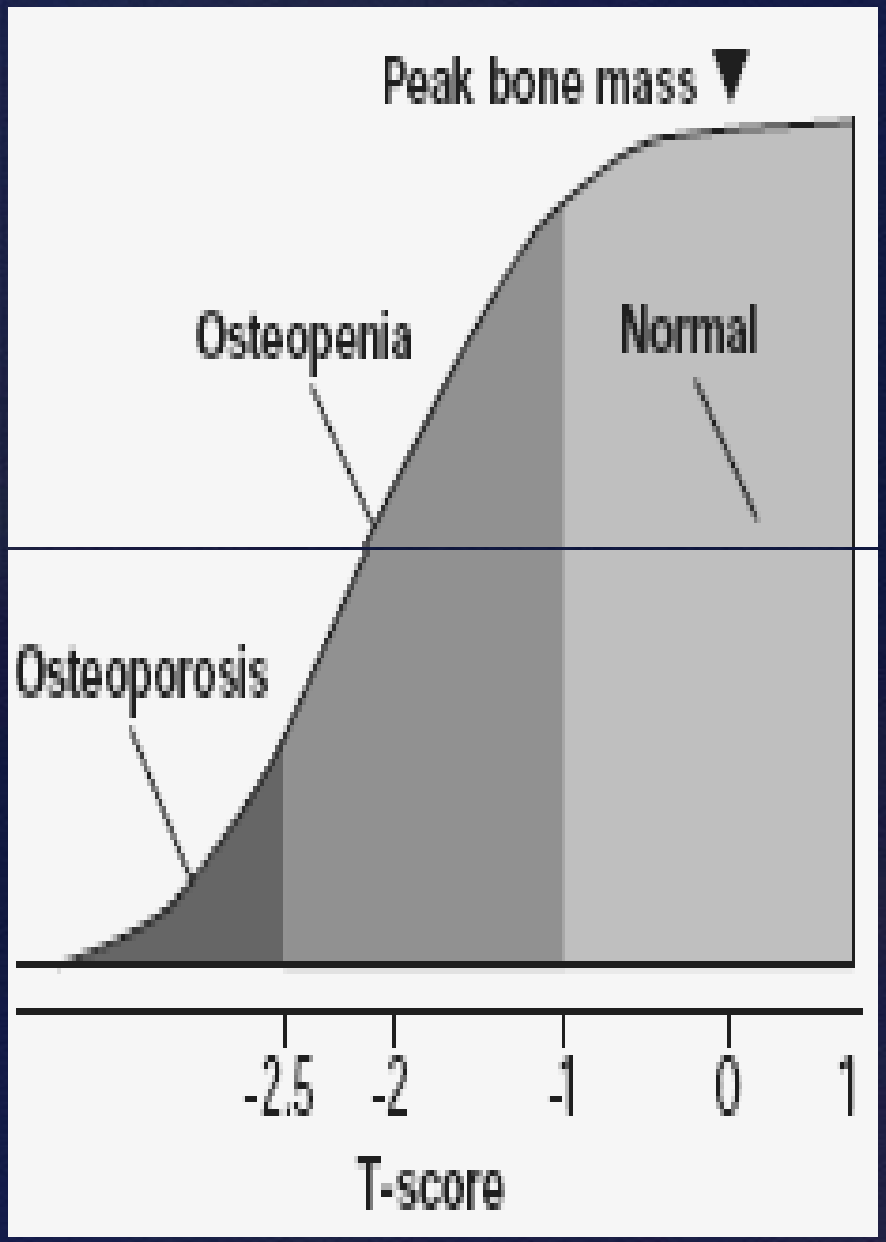


T score

T score — This number **shows the amount** of bone compared with a young adult of the same gender with peak bone mass.

- A score above -1 is considered normal.
- A score between -1 and -2.5 is classified as osteopenia (decreased bone mass).
- A score below -2.5 is defined as





What are the common uses of the procedure?

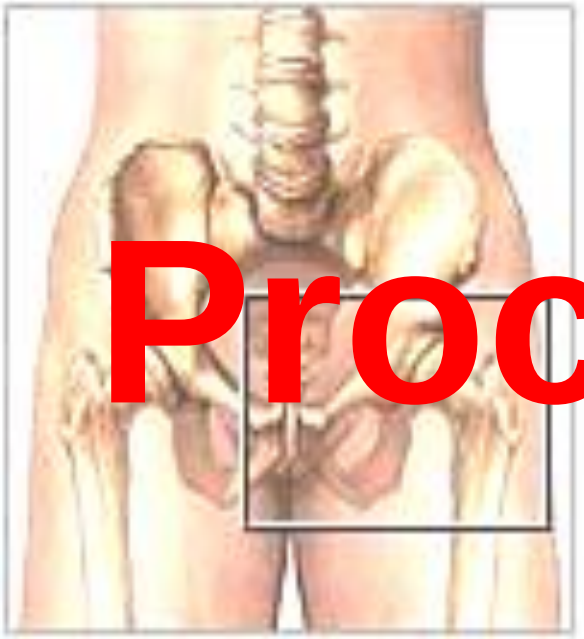
- to diagnose osteoporosis.
- tracking the effects of treatment for osteoporosis and other conditions that cause bone loss.
- assess an individual's risk for developing fractures

Bone density testing is strongly recommended in

- post-menopausal woman not taking estrogen.
- Pt is using medications that are known to cause bone loss
- family history of osteoporosis.
- high bone turnover, which shows up in the form of excessive collagen in urine samples.
- clinical conditions associated with bone loss ex. hyperparathyroidism.
- if fracture occure after only mild trauma.
- x-ray evidence of vertebral fracture or other signs of osteoporosis.

Preparation

- Stop taking calcium supplements for at least 24 hours before the exam.
- If PT recently had a barium examination or have been injected with C.M ,wait 10 to 14 days before the DXA test.
- avoiding garments that have zippers, belts or buttons made of metal.
- remove jewelry, eye glasses and any metal objects or clothing that might interfere with the x-ray images ,You may be asked to wear a gown..
- For female Pt 10 day role



Procedure

to assess the hipe

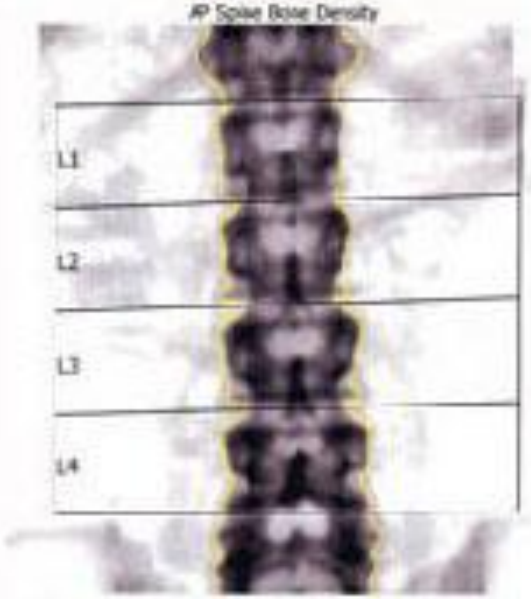
- the patient lies on a padded table.
- the patient's foot is placed in a brace that rotates the hip inward.

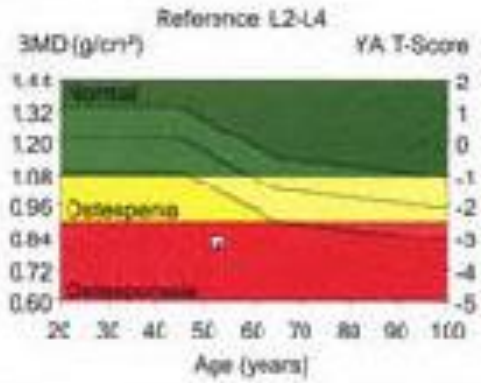
the x-ray generator is located below the patient and the detector is above.

the detector is slowly passed over the area, generating images on a computer monitor.Pt must hold very still

To assess the spine

the foot brace is changed .the patient's legs are supported on a padded box to flatten the pelvis and (lumbar) spine.





Region	BMD (g/cm²)	Young Adult (%)	Young Adult T-Score	Age-Matched (%)	Age-Matched Z-Score
L1	1.679	60	-3.8	64	-3.3
L2	1.699	58	-4.2	61	-3.7
L3	1.819	66	-3.1	71	-2.7
L4	1.937	75	-2.2	82	-1.7
L1-L4	1.790	67	-3.3	71	-2.7
L2-L3	1.759	63	-3.7	67	-3.2
L2-L4	1.823	69	-3.1	72	-2.6
L3-L4	1.877	73	-2.7	77	-2.2

Peripheral tests

specially designed ultrasound machines, are used for screening. heel ultrasound test involves:

- immersing the foot in a bath of warm water
- allowing high frequency sound waves to pass through.

The finger, hand, forearm is placed in a small device that obtains a bone density reading within a few minutes.