



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT OF RADIOGRAPHY AND IMAGING TECHNOLOGY

COURSE NAME : EQUIPMENTS OF ADVANCED IMAGING MODALITIES

TOPIC : DUAL ENERGY X-RAY ABSORPTIOMETRY



INTRODUCTION



- DEXA means Dual Energy X-ray Absorptiometry.
- DEXA scan is an instrument which is used to measure the density of bones.

INDICATIONS

- Osteoporosis (decrease bone mineral density possibly due to menopause, malnutrition and various other factors)
- Evidence of vertebral abnormalities
- Long term steroid use
- Hyperparathyroidism
- People with bone disease
- Lymphangiomatosis(Children with complex lymphatic anomalies (lymphangiomatosis) develop fluid-filled cysts called lymphangiomas in their lymphatic system. These noncancerous cysts can grow into and damage bones, tissue and organs)



CONTRAINDICATION

- It is not performed in pregnant women unless there is an urgent medical reason.

PATIENT PREPARATION

- All metallic objects in the body are removed and hospital gown is worn.

TECHNIQUE

- In DEXA the photons are produced from a low dose energy source.
- Two X-ray beams with two different energy peaks are passed through the body, one peak gets absorbed by the soft tissue and the others by the bone.
- It generates two dimensional image.



- Soft tissue is subtracted from the total area, giving the bone mineral density.
- These measurements are then composed with the normal ranges matched for Chronological age.(T and Z score)
- The scan usually takes about 10 minutes.

T – SCORE

- It shows the amount of bone that is compared with a young adult of the same gender with peak bone mass.
- The T score is used to estimate the risk of developing a fracture.
- T score above -1 is considered normal.
- T score between -1 and -2.5 is considered as Osteopenia
- T score below -2.5 is considered as Osteoporosis.



Z score

- It shows the amount of bone which is compared with other people in your age group and of the same size and gender.
- Z score mainly diagnose the risk of having fracture.

BENEFITS

- Quick and non – invasive procedure
- No anaesthesia required
- Accurately measures the fracture risk
- Less radiation exposure



T-Score

Compares your results to a healthy young adult age 20-35.

Z-Score

Compares your results to a person of the same gender and age as yourself.

Expressed as standard deviations from the mean. 0 means you're equal to the norm.
Compare your T-score and Z-score to these numbers to see what they mean.

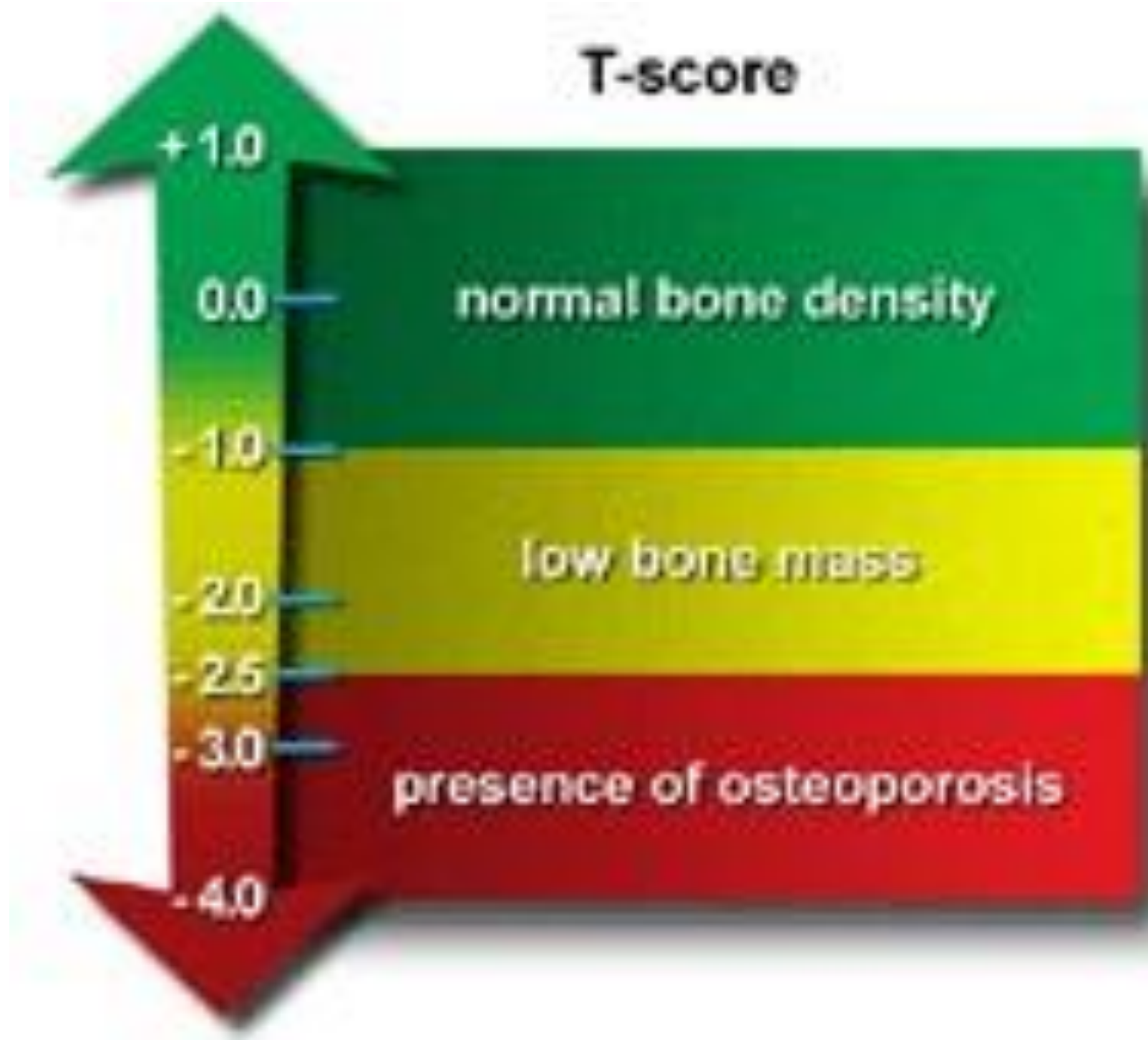
-1.5 to -2.4

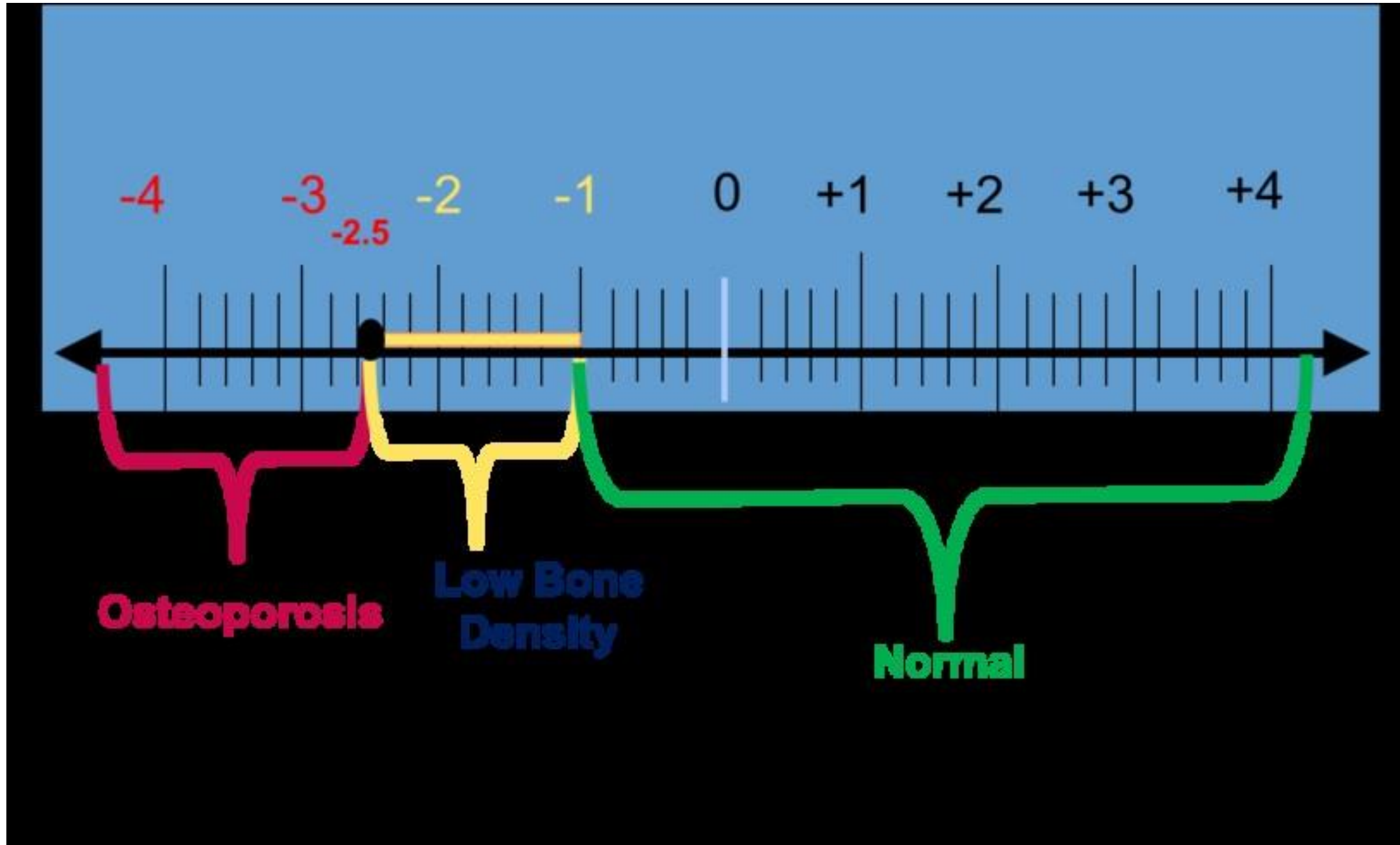
may indicate osteopenia



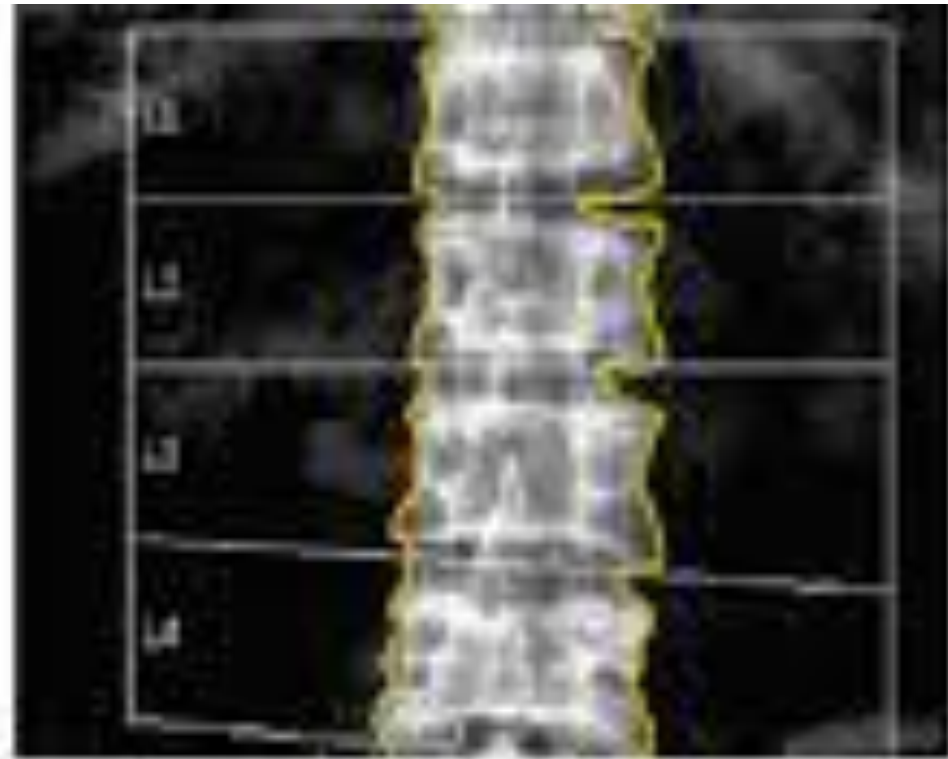
less than -2.5

may indicate osteoporosis

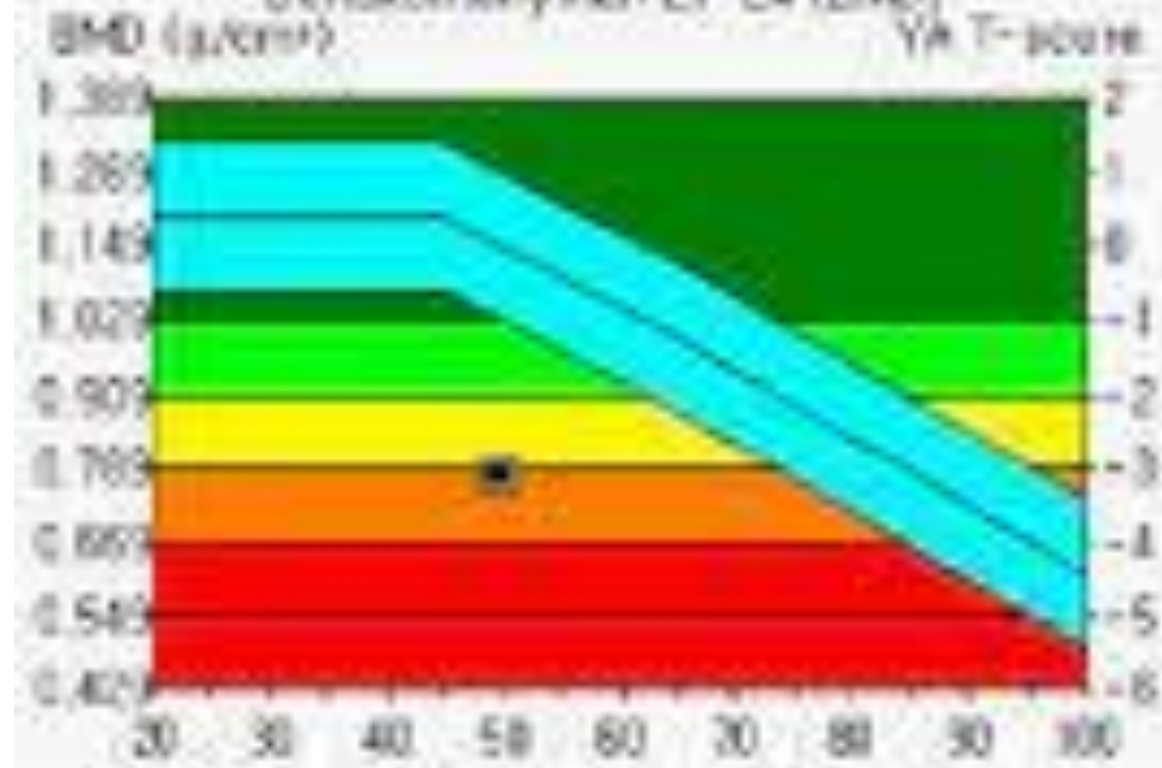




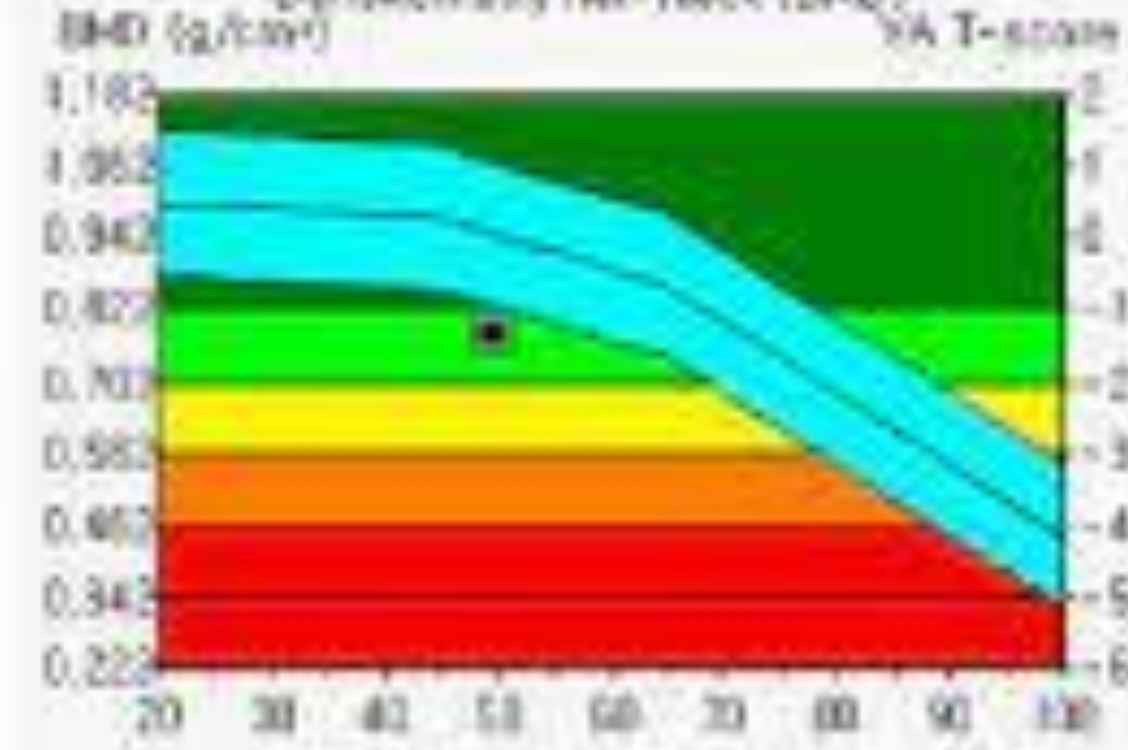




Densitometry Ref: L1-L4 (BMD)



Densitometry Ref: Neck (BMD)





THANK YOU