

DEXA

Dual-energy x-ray absorptiometry

x-ray beams of 2 (dual) different energies absorbed in different proportions by bone & soft tissue

Routinely measured: lumbar spine
proximal femur

Although it is a measure of density it is expressed as g/cm³

$$T\text{Score} = \frac{\text{measured BMD} - \text{young adult mean BMD}}{\text{young adult population SD}}$$

$$Z\text{ Score} = \frac{\text{measured BMD} - \text{age matched mean BMD}}{\text{aged matched population SD}}$$

Suggestive of pathology independent of age

WHO definition:

Osteoporosis T score ≤ -2.5 BMD 2.5 SD
below mean value of a young referenced (sex)
& ethnically matched population

Osteopenia T score $-2.5 < \text{t score} < -1.0$

Other measures:

Quantitative CT Separate Ax of cortical & cancellous
volumetric g/cm³ - w/o radiation

" US Peripheral bones: calc, patella, wrist,
tibia