

Bone Densitometry Relative to Normal Young Adult (T Score)

Overview:

The bone mineral density of an adult can be compared to that of healthy young adults.

Sites for measurement:

(1) femoral neck (best site for predicting hip fractures)

(2) vertebra (best site for predicting spinal fractures)

(3) radius

(4) calcaneus

number of standard deviations below mean bone mineral density for normal adult 29-50 years of age =

$$= ((\text{patient bone mineral density in g/cm}^2) - (\text{mean bone mineral density for normal adult 29-50 years of age})) / (\text{standard deviation for normal adult 29-50 years of age})$$

Interpretation:

- bone mineral density not more than 1 SD below the young adult mean value: normal
- bone mineral density 1 to 2.5 SD below the young adult mean: osteopenia
- bone mineral density more than 2.5 SD below the young adult mean but with no history of fragility fractures: osteoporosis
- bone mineral density more than 2.5 SD below the young adult mean but with a history of one or more fragility fractures: severe osteoporosis

Risk for fracture:

- increases for each SD below mean
- risk increases exponentially as decreases below 2 SD from mean

References:

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