

RADIOLOGICAL SAFETY

DXA/DEXA - DUAL ENERGY XRAY ABSORPTIOMETRY - REPORTING DEMYSTIFIED IN ADULTS



Authored by John Kalabat, MD
Henry Ford Medical
Group/Henry Ford Macomb
Chair Radiological Safety
Committee of MRS

Why is osteoporosis diagnosis important?

1/2 of women and 1/4 of men over age 50 will break a bone from osteoporosis.
24% of hip fracture patients age 50 and over die in the year following the fracture.
6 months after hip fracture only 15% are able to walk across a room without help.

How do I make sense of the data?

Important elements include total hip, femoral neck, L spine (1-4) and sometimes the nondominant forearm (1/3 radius)
For post menopausal women and men over 50 the t scores will be the primary means of diagnosis.
T scores of -2.5 or less (more negative) indicates osteoporosis
T scores <-1 and >-2.5 are osteopenia
T scores of >-1.0 are normal
Of the above body parts, the worst t score makes the diagnosis.
For example, if the femoral neck is -1, total hip -1.5 and L spine -2.5, the final diagnosis is osteoporosis.
A t score compares a patient's bone density to that of an average 30 yr adult

Guidelines for medical treatment for osteoporosis:

- Hip or vertebral fracture in the past
- Osteoporosis by t score (if secondary causes are excluded)
- Osteopenia with abnormal FRAX
- Clinician judgement and patient preference

FRAX is often obtained in patients with a final diagnosis of osteopenia as a sort of tie breaker for whether to treat or not. Most newer scanners can offer the FRAX percentages. An online calculator is also available by clicking the button below.

The FRAX combines clinical factors with the bone mineral density of the femoral neck to come up with 10 yr probability of a hip fracture and 10 year probability of a major osteoporosis related fracture. If the hip fracture probability is 3% or more or if the major osteoporosis related fracture is 20% or more, treatment may be indicated.

Z scores compare bone density to average bone density of a patient with same age and gender cohort. In post-menopausal women or men above 50 with osteoporosis and a z score of <-2 the possibility of secondary cause of osteoporosis should be worked up.

In premenopausal women and men <50 yrs old, the z score is usually the primary means for diagnosis. The impression should indicate whether the BMD is "within the expected range for age" (z score > -2) or "below the expected range for age" (z score = or < -2)

References:

<https://www.bonehealthandosteoporosis.org/wp-content/uploads/Osteoporosis-Fast-Facts-2.pdf>
<https://iscd.org/learn/official-positions/adult-positions/>

**Fracture Risk
Assessment Tool**

