

Understanding Bone Density

Your bone density or DEXA tells you how much mineral per (area)² you have in your bones. For example, a metal ladder has a higher density than a brand new wooden ladder, which has a higher density than a rickety wooden ladder that has been outside in the rain and suffered some rot. Bone density is reported in the DEXA reports as a *t-score*, which is a comparison of your bone density to a young person of your same sex at peak bone mass (about age 30). If your bone density is “0” you have the same bone density as the average 30 year old American. If your t-score is -2.0 then you have less mineral/(area)² in your bone than 66% of women in their 30s. This does NOT mean you’ve lost two-thirds of your bone mass! When you get to a t-score more negative than -2.5 then by definition you are considered to have osteoporosis or medically-significant low bone density, putting you at risk for fractures.

While baseline bone density is an important determinant in your risk of fracture there are many other factors that play into the formula, with some of the most significant being age. A woman with a t-score at -2.5 who is 80 has approximately a 7 times greater risk of fracturing in the next 5 years than a 55 year old with the same bone density. Note that the 55 year old has a much higher chance of having some underlying cause such as a metabolic problem, medication or underlying chronic illness that increased her risk of bone loss since this is an unusually high (negative) T-score for a younger woman. (See z-score discussion on reverse.)

What is a z-score?

What if I have osteoporosis already **and I am still young?**

Bone densities usually give 2 measurements (you may not have gotten the copy with the second “z” score measurement but a z-score compares your bone density with other individuals of your same age and sex). If your z-score is less than (more negative) -1.5, you are more than one and a half standard deviations away from average for your age and you should have a work-up to find you why you are having more rapid bone/mineral loss than most people. Perhaps it is because you had a hysterectomy at a young age and were not on any hormones or bone-preserving agents, or have been on steroids or other medications affecting your bones, or you could have a metabolic problem that can present with osteoporosis such as low vitamin D, problems with calcium metabolism, thyroid problems and even certain digestive diseases and rare cancers that can present with bone loss.

If you fall into this category of having a z-score <-1.5 then you need a work-up to evaluate for metabolic and other causes of accelerated bone loss. This can be done by a primary care physician with a special interest in osteoporosis or an endocrinologist or rheumatologist.