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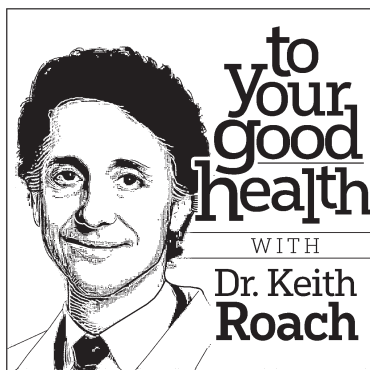
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TO YOUR GOOD HEALTH

FOR RELEASE AUG. 24, 2026

By Dr. Keith Roach



Explaining the Significance of Z- and T-Scores in DEXA Scans

DEAR DR. ROACH: I'm a woman of 54 with somewhat limited mobility due to back pain. Perhaps for this reason, my primary care physician ordered a DEXA scan in 2023 and again in 2026. I was alarmed when the recent scan showed osteopenia in five of the six areas that were tested.

I thought the 2023 scan was normal, but when I revisited it, I saw that I had osteopenia then as well. But in the 2023 report, they had only looked for a Z-score of less than -2 as an indicator of a problem, whereas in 2026 they used the T-score.

Had I realized that I had osteopenia three years ago, I'd have started taking calcium (I get plenty in my diet and struggle with large pills) and weighed the risks of more vigorous exercise differently. (Perhaps I should be more willing to risk short-term flare-ups in the pursuit of long-term bone health.)

I'm not sure if this reporting method is standard, but perhaps physicians and patients should look at the T-score for an indication of osteopenia if the radiologist doesn't do so.
— J.F.

ANSWER: There are three numbers I look for when reviewing a patient's bone density scans. (DEXA, or dual-energy X-ray absorptiometry, is the standard screening and diagnostic test for bone loss.)

The first is the T-score, which compares my patient to a person of the same sex at peak bone mass. A T-score of zero means the person who's being scanned has the peak bone mass of a healthy young adult. (It's very unusual to see a positive T-score.) If a person has peak bone density, their T-score will be zero. A T-score of -1.0 is one standard deviation

below peak bone mass; -1.1 to -2.4 is considered low bone mass or osteopenia; and -2.5 or less is considered osteoporosis.

The Z-score compares a person to the average score within their age group and sex. An older person might have a T-score in the osteopenia or even osteoporotic range, yet have a normal Z-score. The Z-score is most useful for alerting the clinician if a patient's bone density is lower than expected for their age.

A very low Z-score suggests a secondary reason for osteoporosis. This can include medications such as prednisone or anti-epilepsy drugs; celiac or other malabsorptive diseases; or hormonal conditions like excess thyroid hormone, hyperparathyroidism, or low sex hormones.

Finally, most DEXA scans now include the FRAX score, which is critical in communicating a person's risk of fracture and deciding whether to start them on medication to prevent a fracture.

DEAR DR. ROACH: Your column on hemicrania continua sounds a lot like cluster headaches, which are often described as the most excruciating headache. Are they the same?
— W.M.

ANSWER: There are definite similarities between hemicrania continua and cluster headaches. Both affect one side of the face and are associated with eye tearing and nasal congestion. However, cluster headaches happen in clusters — brief but intense pain that occurs multiple times, then disappears entirely for weeks, months or years. I've seen people literally bang their head into the wall during an episode. Breathing 100% oxygen will often make the pain go away and is a useful diagnostic test.

Hemicrania continua is continuous. The pain is constant, although not usually as intense as with cluster headaches. The pain can wax and wane during the day but is never gone. Most people respond to indomethacin, but some people can't tolerate it. One reader wrote in that with a relatively new medication called galcanezumab-gnlm (Emgality), they truly got their life back.

Dr. Roach regrets that he is unable to answer individual questions, but will incorporate them in the column whenever possible. Readers may email questions to ToYourGoodHealth@med.cornell.edu.

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