Trabecular bone score validated as standalone predictor of fracture risk

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One of the most recent and extensively studied determinants of fracture risk is trabecular bone score (TBS). TBS, which is assessed by lumbar spine dual-energy X-ray absorptiometry (DXA) imaging, provides information about the micro-architectural deterioration of bone tissue. Previous studies have shown that TBS predicts fracture in postmenopausal women and older men. TBS is currently used in conjunction with BMD values to enhance the predictive ability of the widely used Fracture Risk Assessment tool (FRAX), a calculator used to assess an individual's 10-year risk of major osteoporotic fracture.

In the largest such study to date, a team of international researchers have now validated the predictive ability of TBS using individual-level data of 17,809 men and women from 14 studies worldwide. They aimed to validate the contribution of TBS to fracture risk prediction, independent of FRAX, and to examine the impact of applying TBS adjustment to FRAX probabilities.

The study authors found that:

- TBS was consistently an independent contributor to the assessment of fracture risk and that the relationship with other risk factors was robust across sex, diverse races, fracture incidences, and geographical regions.
- The combination of TBS with the clinical risk factors (including BMD) showed enhanced gradients of risk for hip and non-hip major osteoporotic fractures compared with TBS or the FRAX

risk factors alone.

Co-author Professor John A Kanis, Emeritus Professor in Human Metabolism, University of Sheffield, stated, "The findings of this study support the use of TBS, not only as a standalone assessment of fracture risk but also, more importantly, as an independent contributor to a more global risk assessment that could permit its use alongside established risk assessment tools such as FRAX."

More information: Eugene V McCloskey et al, A meta-analysis of trabecular bone score in fracture risk prediction and its relationship to FRAX, *Journal of Bone and Mineral Research* (2015). DOI: 10.1002/jbmr.2734

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