

## Can the WHO Osteoporosis Criteria be Applied to Ultrasound Measurements?

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Severe osteoporosis is defined by axial BMD T-Score of -2.5 or less, and the presence of one or more fragility fractures in post-menopausal women. In this study, we have evaluated these criteria on a group of 67 women with osteoporotic fractures (either vertebral or hip), mean age 73 years. Bone speed of sound (SOS) was measured at three skeletal sites by Axial Transmission Ultrasonography (Sunlight Omnisense<sup>®</sup>), and bone mineral density (BMD) of L2-L4 and femoral neck were measured by DEXA (DPX-IQ, Lunar).

**Results:** T-scores were calculated for each measurement, and the number of subjects with T<sup>?</sup>-2.5 out of the total number of subjects is given in the following table:

	T <sup>?</sup> -2.5/All (%)
Radius (QUS)	40/67 (59%)
Tibia (QUS)	20/67 (33%)
Phalanx (QUS)*	15/27 (56%)
Lumbar (DEXA)	40/67 (60%)
Hip (DEXA)	30/66 (46%)

\*Not all subjects had their phalanx measured

A similar fraction of fractured women were classified as having T<sup>?</sup>-2.5 by SOS of the Radius and the Phalanx and by DEXA of the Lumbar and the Hip. The possibility to combine SOS results recorded from different skeletal sites will definitely enable us to increase the sensitivity of the QUS measurement even further.

**Conclusion:** Considering the simplicity and ease of the QUS measurement performed by Sunlight Omnisense<sup>®</sup> and the accurate classification of osteoporosis as shown here, it could become a substitute to BMD measurements.

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