

North American Male Reference Population for Speed of Sound (SOS) in Bone at Multiple Skeletal Sites

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This study describes the establishment of the North American Male Reference Database for the Omnisense device.

Study Design

In this study, the speed of sound (SOS) was measured at four skeletal sites in healthy North American Caucasian men, aged 20-90, with the Sunlight Omnisense™ 7000S. To establish the Omnisense reference database curve, 588 healthy Caucasian males (age range 20-90) were recruited.

Subjects

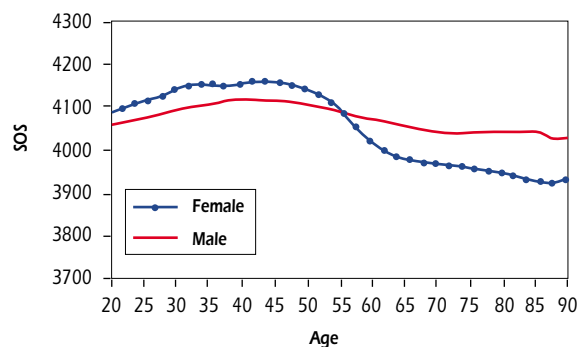
To be eligible for the study, the subjects had to meet the following criteria:

- No history of osteoporotic fracture or chronic condition affecting bone metabolism.
- No exposure for more than a year within the preceding three years to medication affecting bone.

Results

SOS of all sites, except the tibia, increased to a peak between the ages of 42 and 46. Comparison to the female SOS demonstrates that the female SOS is higher from age 20 to 39, with a significant difference between male and female at the radius and phalanx. Between the ages of 45 and 59, the radius, phalanx, and metatarsal SOS declines in females at a greater rate than in males. The reference curves cross at around 60 years of age. Female SOS remains lower than male SOS for the remainder of life at the radius, phalanx, and metatarsal.

Male and Female Reference Database SOS as Measured at the Radius



Conclusion ►►

This study established the reference curves for male SOS in North America, to be used for the calculation of Z-scores with the Sunlight Omnisense™ 7000S bone sonometer. Omnisense is the only QUS device today that provides a male reference data base.