



T-scores in African American Women

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## T-scores in African American Women

### Abstract

Many older bone densitometer (DXA) machines are programmed to calculate T-scores for African-American patients using peak African-American bone mass as reference standard.

This presents a problem because most data regarding fracture risk has been derived using Caucasian data (Binkley 2002). If the T-score for an African-American woman is calculated using a race-adjusted reference, the same absolute bone density will yield a lower T-score for an African-American than for a Caucasian woman. For this reason, the International Society for Clinical Densitometry has recommended that T-scores for all women, regardless of ethnicity, be calculated from Caucasian reference standards (ISCD 2007).

### Keywords

African American women; Bone densitometry; Fractures; Osteoporosis in women

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## T-scores in African American Women

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An African-American patient was referred to our clinic because of an abnormal bone density study. Her DXA measurements (gm/cm<sup>2</sup>) and the reported T-scores are shown in Table 1. We suspected these calculations were done using the African-American reference standard and asked that the T-scores be recalculated on the same machine, entering the patient as Caucasian. The results are shown in the 3rd column of Table 1.

**Table 1. Density and T-scores for a 64 year-old African-American Woman**

| Site           | Bone mineral density (g/cm <sup>2</sup> ) | Race-adjusted T-score | Non-race-adjusted T-score |
|----------------|---|-----------------------|---------------------------|
| Spine          | 0.824                                     | -3.0                  | -2.0                      |
| R total hip    | 0.865                                     | -1.1                  | -0.6                      |
| R femoral neck | 0.740                                     | -1.5                  | -1.0                      |
| L total hip    | 0.932                                     | -0.6                  | -0.1                      |
| L femoral neck | 0.728                                     | -1.6                  | -1.1                      |

Using the initial calculations, the patient has a diagnosis of osteoporosis and is therefore a candidate for bisphosphonate therapy. Using the recalculated values and the World Health Organization fracture risk assessment tool FRAX<sup>®</sup> pharmacologic therapy is not recommended.

Clinicians who treat African-American women should ascertain whether bone density T-scores for these patients are being calculated with African-American or with Caucasian peak bone density as the reference standard. Older machines that report T-scores based on an African-American reference standard can be replaced or updated with software available from the manufacturer.

## REFERENCES

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