

## TRABECULAR BONE SCORE (TBS) REFERENCE VALUES AMONG IRANIAN HEALTHY POPULATION

G. Shafiee<sup>1</sup>, R. Heshmat<sup>1</sup>, A. Ostovar<sup>2</sup>, F. Sharifi<sup>3</sup>, I. Nabipour<sup>4</sup>, B. Larijani<sup>5</sup>

<sup>1</sup>Chronic Diseases Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, Tehran, Iran, <sup>2</sup>Osteoporosis Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran., Tehran, Iran, <sup>3</sup>Elderly Health Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, Tehran, Iran, <sup>4</sup>The Persian Gulf Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, Iran, Bushehr, Iran, <sup>5</sup>Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran, Tehran, Iran

### **Background:**

Trabecular bone score (TBS) is a recently-developed analytical tool that explores bone quality, independently of bone mineral density (BMD). Low TBS is consistently associated with an increase in prevalent of fractures. Therefore, we need the normal range for TBS to evaluate of bone microarchitecture. The aim of this study was to estimate the reference values of TBS in both genders among the Iranian population to evaluate osteoporotic fracture in future.

### **Methods:**

A total of 691 Iranian adults aged 18-94 years participated in this cross-sectional, population-based study in Bushehr, Iran. The TBS of L1-L4 was assessed by means of TBS iNsight® software installed on our dual x-ray absorptiometry (DXA) machine (Discovery WI, Hologic Inc, USA). To estimate the relationship between the appendicular skeletal muscle mass (ASM) and age in both genders, we used the regression models. The best-fitted model was found using Adjusted R-squared and root MSE. After fitting the best models, the corresponding equations for the fitted curves or lines were constructed; the peak TBS and the age at which the peak TBS was observed, were estimated from the final model. Two standard deviations below the mean TBS of reference groups were as cut-off values of low TBS in Iranian population.

**Results:** The peak TBS scores were  $1.44 \pm 0.08$  and  $1.41 \pm 0.06$ , and the age at peak TBS were 18-22 years for men and women, respectively. Calculated cut-off values of low TBS among the Iranian population were 1.283 and 1.282 among men and women, respectively.

**Conclusions:** This is the first study that has been proposed the normal range for TBS values in both genders in the world. According to our results,  $TBS < 1.28$  is considered to be degraded microarchitecture among both genders in Iranian population.