

## Bone Mineral Density and Trabecular Bone Score in Ukrainian Men with Obesity

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**Abstract :** Osteoporosis and obesity are widespread diseases in people over 50 years associated with changes in structure and body composition. Higher body mass index (BMI) values are associated with greater bone mineral density (BMD). However, trabecular bone score (TBS) indirectly explores bone quality, independently of BMD. The aim of our study was to evaluate the relationship between the BMD and TBS parameters in Ukrainian men suffering from obesity. We examined 396 men aged 40-89 years. Depending on their BMI all the subjects were divided into two groups: Group I &ndash; patients with obesity whose BMI was  $\geq 30 \text{ kg/m}^2$  (n=129) and Group II &ndash; patients without obesity and BMI of  $< 30 \text{ kg/m}^2$  (n=267). The BMD of total body, lumbar spine L<sub>1-4</sub>, femoral neck and forearm were measured by DXA (Prodigy, GEHC Lunar, Madison, WI, USA). The TBS of L<sub>1-4</sub> was assessed by means of TBS iNsight<sup>®</sup>; software installed on DXA machine (product of Med-Imaps, Pessac, France). In general, obese men had a significantly higher BMD of lumbar spine L<sub>1-4</sub>, femoral neck, total body and ultradistal forearm (p < 0.001) in comparison with men without obesity. The TBS of L<sub>1-4</sub> was significantly lower in obese men compared to non-obese ones (p < 0.001). BMD of lumbar spine L<sub>1-4</sub>, femoral neck and total body significantly differ in men aged 40-49, 50-59, 60-69, and 80-89 years (p < 0.05). At the same time, in men aged 70-79 years, BMD of lumbar spine L<sub>1-4</sub> (p=0.46), femoral neck (p=0.18), total body (p=0.21), ultra-distal forearm (p=0.13), and TBS (p=0.07) did not significantly differ. A significant positive correlation between the fat mass and the BMD at different sites was observed. However, the correlation between the fat mass and TBS of L<sub>1-4</sub> was also significant, though negative.

**Keywords :** bone mineral density, trabecular bone score, obesity, men

**Conference Title :** ICO 2017 : International Conference on Obesity

**Conference Location :** London, United Kingdom

**Conference Dates :** May 25-26, 2017