the second degree. Bone mineral density (BMD) was determined by means of Dual-energy X-ray absorptiometer "Prodigy" (GE Medical systems). Index quality of bone (Trabecular Bone Score, TBS) was determined by programs Medical Imaging Processing System (GE Medical).

Results: The results showed decrease TBS in group III aged 40-59 years compared to women in only osteoarthritis (1.18 ± 0.01 and 1.17 ± 0.02 respectively p < 0.05). This indicates an earlier violation bone quality in comorbid pathology, possibly due to influence of hypertension on bone metabolism. In group III aged 60-80 TBS was decreased and did not depend on the disease. It shows the influence of the duration of menopause on bone quality.

Conclusion: The results point to necessity prescribe early treatment of violation bone metabolism in women in group III aged 40-59 years.

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ANTHROPOMETRIC CHARACTERISTICS OF POSTMENOPAUSAL WOMEN DEPENDING ON APPENDICULAR SKELETAL MASS
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Objective: The aim of our study was to evaluate the anthropometric characteristics of the postmenopausal women depending on their appendicular skeletal mass.

Materials and methods: We've examined 8882 women aged 20-89 years (mean age 74.32 ± 0.14 yrs; mean height — 162.4 ± 0.07 cm; mean weight — 73.48 ± 0.16 kg), taken anthropometric measures of 97 postmenopausal women aged 40-82 yrs (mean age — 63.53 ±1.08 yrs, mean height — 157.54 ±0.79 cm, mean weight —74.75 ±1.68 kg). Appendicular skeletal mass (ASM) was measured at all the four limbs with DXA. We've also calculated the appendicular skeletal mass index (ASMI) according to the formula: ASM/height (kg/m2). During the quartile analysis, depending on their ASMI parameters, the examined women were divided into the following groups: Q1: ASM —< 6,38 kg/m2 (n = 20), Q2 — ASM = 6,38-8,63 kg/m2 (n = 20), Q3 — ASM = 8,64-17,36 kg/m2 (n = 20), Q4 — ASM > 17,36 kg/m2 (n = 19). Anthropometric characteristics of the women were evaluated according to the V.V.Bunak’s method (1941) modified by P.F. Shaparenko (1994). Lean and fat masses were measured using DXA using a Prodigy densitometer, GE. Statistical analysis was performed using the «Statistica 6.0» software.

Results: Frequency of sarcopenia in the group of women aged 65 yrs and older was 7%. Quartile analysis of women taking into account their ASMI revealed that the women of Q1 and Q2 groups had the following anthropometric characteristics significantly reduced: weight (Q1 — 70.90 kg, Q2 — 70.25 kg, Q3 — 74.75 kg, Q4 — 85.53 kg; F = 5.24; p = 0.002), neck circumference (Q1 — 350 mm, Q2 — 357 mm, Q3 — 376 mm, Q4 — 393 mm; F = 5.68; p = 0.001), abdomen circumference (Q1 — 846 mm, Q2 — 936 mm, Q3 — 1008 mm, Q4 — 1106 mm; F = 11.52; p < 0.001), shoulder width (Q1 — 903 un., Q2 — 963 un., Q3 — 1029 un., Q4 — 1078 un.; F = 2.22; p = 0.09), narrow tibia circumference (Q1 — 221 mm, Q2 — 227 mm, Q3 — 244 mm, Q4 — 248 mm; F = 6.44; p = 0.0006). We also observed a significantly lower thorax circumference in the Q1 group (Q1 — 903 mm, Q2 — 963 mm, Q3 — 1029 mm, Q4 — 1079 mm; F = 3.82; p = 0.01). In comparison with the women of Q4 group (Q1 — 903 mm, Q2 — 963 mm, Q3 — 1029 mm, Q4 — 1079 mm; F = 3.82; p = 0.01).

Conclusion: In women with a lower ASMI (Q1 and Q2 groups) the following anthropometric characteristics were significantly lower: weight, neck circumference, abdomen circumference, shoulder width, narrow tibia circumference. Thus, we can use anthropometric measures to determine groups with an increased risk of sarcopenia and its complications.

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BONE MINERAL DENSITY, SPINAL MICRO-ARCHITECTURE (TBS DATA) AND BODY COMPOSITION IN THE OLDER UKRAINIAN WOMEN WITH VERTEBRAL FRACTURE FRATURES
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Introduction: Osteoporosis and sarcopenia are the most frequent musculoskeletal disorders affecting older people. Fracture incidence as well as the number of fractures increase with population ageing. A low skeletal muscle mass is associated with the poor structural bone parameters and impaired balance in elderly people. The aim of this study is to evaluate the bone mineral density (BMD), trabecular bone score (TBS) and body composition in women taking into account the presence of vertebral fragility fractures (VFF).

Materials and methods: We’ve examined 171 women aged 65-89 years (mean age — 73.12 ± 0.39 yrs; mean height — 1.58 ± 0.004 m; mean weight — 72.54 ± 0.99 kg). The patients were divided into groups depending on presence of vertebral fracture: A — no VFF; B — 1 VFF; C — 2 or more VFF. 

Results: The results showed decreased TBS in group III aged 40-59 years compared to women in only osteoarthritis (1.18 ± 0.01 and 1.17 ± 0.02 respectively p < 0.05). This indicates an earlier violation bone quality in comorbid pathology, possibly due to influence of hypertension on bone metabolism. In group III aged 60-80 TBS was decreased and did not depend on the disease. It shows the influence of the duration of menopause on bone quality.

Conclusion: The results point to necessity prescribe early treatment of violation bone metabolism in women in group III aged 40-59 years.

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IS TBS DIFFERENT IN HEALTHY EUROPEAN CAUCASIAN MEN AND WOMEN?: CREATION OF NORMATIVE SPINE TBS DATA FOR MEN
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Introduction: Trabecular Bone Score (TBS, Med-Imaps, France) is an index of bone microarchitectural texture extracted from antero-posterior spine DXA. In this cross-sectional analysis from two facilities in Ukraine and Spain, we have investigated the age-related changes of the lumbar vertebrae microarchitecture assessed by TBS in a cohort of Caucasian men and compare the results to TBS reference data for Caucasian women.

Methods: Subjects in the study were Ukrainian and Spanish men aged 40 and older with a BMI Z-score at spine L1-L4 within ±2 SD. Individuals were excluded if they had fractures, were on any osteoporosis treatment and/or had any illness that would be expected to impact bone metabolism. All data have been obtained from GE-Lunar DXA devices (Prodigy and Idxa, Madison, WI, USA). Cross-calibration between the two centers was performed for TBS. TBS was evaluated at spine L1-L4 but also for all possible vertebrae combinations.

Results: A database of 368 men aged 40 to 90 years was created. TBS and BMD values at L1-L4 were poorly correlated with BMI (r = 0.16 and 0.22), TBS was poorly correlated with weight (r = 0.1) and height (0.03) whereas higher correlations were obtained for BMD (r = 0.3 and 0.2). TBS values obtained for all lumbar vertebral combinations decreased significantly with age. There was a linear decrease of 1.55% (~1.75 T-score) in TBS at L1-L4 between 40 and 90 years of age in men while a decrease of 16.7% (~2.58 T-score) was observed in women (Dufour et al., OI 2012). As opposed to women, there is no change in the rate of TBS decrease after 65 years in men.

Conclusion: This study established for the first time TBS age related curve in European men in the lumbar spine. The decrease seen in lumbar TBS reflects age-related micro-architecture texture changes at spine. Within the 40-65 age range, similar TBS decrease was observed in both Caucasian men and women (p = 0.8). After 65, TBS decrease was significantly higher in women than men (p = 0.01). This study confirms the need to use gender specific reference data.

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TRABECULAR BONE SCORE (TBS) IN THE ASSESSMENT OF BONE MICROARCHITECTURE IN ACROMEGALY
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Abstracts
Objective: Previous studies suggested that leptin has profound effects on bone metabolism and growth. Abnormal leptin and soluble leptin receptor (sOB-R) levels and their correlation patterns with bone mineral density and trabecular bone micro-architecture were recently found to be distinct in girls with adolescent idiopathic scoliosis (AIS). Structural Model Index (SMI) and data derived from Finite Element Analysis (FEA) are important HR-pQCT parameters that can provide important information on the rod/plate-like configurations in the trabecular bone and bone strength respectively. This study aimed to compare the differences and correlations between SMI, bone strength indices and leptin and sOB-R between AIS and controls.

Material and Methods: 104 AIS girls aged 12 to 14 (Cobb angle 22.7° ± 6.4°) and 82 age and gender-matched healthy controls were recruited. Subjects with BMI > 23.0 kg/m² were excluded. Anthropometric measurements including body height, body weight, sitting height and arm span were recorded. Sexual maturation was assessed with Tanner stages. SMI and bone strength parameters from FEA were determined at the non-dominant distal radius using HR-pQCT. Serum total leptin and sOB-R levels were measured with ELISA.

Results: Compared with controls, AIS subjects had higher sOB-R level (p = 0.006), higher SMI value (p = 0.020) reflecting more rod-like structures within the trabecular compartment, and numerically lower stiffness (-2.03%) and estimated failure load (-3.07%). Significant negative correlation was found between SMI and serum total leptin level in AIS (r = -0.325; p = 0.003) but not in controls (p = 0.533). Significant positive correlations were found between stiffness, estimated failure load, and serum total leptin in both AIS (r = -0.278; p = 0.003; r = -0.268; p = 0.004 respectively) and controls (r = -0.462; p < 0.001; r = -0.468; p < 0.001 respectively).

Conclusion: The higher SMI and numerically lower FEA derived bone strength parameters both reflecting decreased bone strength in AIS. The negative correlation between SMI and serum total leptin level was distinctly only detected in AIS, which indicated possible disturbance in leptin signaling affecting the trabecular bone of AIS. The results of this and previous studies provided strong evidences of deranged bone quality and bone strength and its association with abnormal leptin bioavailability and signaling in AIS.