age: 49 y), medication and coexistence of other diseases influencing BMD were excluded.

The control group consisted of healthy reference persons, matched to persons in the DMO group.

BMD values were determined by DEXA measurements on the lumbar spine (L2–4) and on the femoral neck, employing a Norland XR-26 densitometer, with an excellent coefficient of reproducibility (0.77%) over the 1.5 y of the investigations.

Data significance was established by the t-probe analysis.

Results BMD values referring to L2–4 were significantly lower for the DMO ($0.86 \pm 0.15 \text{ g/cm}^2$) as for the control group ($1.02 \pm 0.16 \text{ g/cm}^2$), whereas BMD results for the femoral neck were ($0.76 \pm 0.11 \text{ g/cm}^2$) and ($0.90 \pm 0.14 \text{ g/cm}^2$), respectively. The difference of the BMD values for L2–4 was about 20%, whereas for the femoral neck it amounted to 21%. There is an indication that the peak BMD values for the DMO group remain lower than those for the control group.

Conclusion These findings point strongly to the role of inheritance in the epigenesis of osteoporosis.

It is concluded that for individuals with increased genetic risk of osteoporosis an appropriate strategy, combining increased calcium uptake with an educated application of physical exercise, should be worked out.

Such a complex treatment could also increase the BMD values before menopause.

AB0179 BONE MINERAL DENSITY MEASUREMENTS IN OBESE PATIENTS

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Background Obese patients are prone to develop many medical conditions, including musculoskeletal problems. Obesity seems to have a protective effect on bone explained by metabolic mechanisms. Further studies will lead to better understanding of the impact of the weight on bone mineral density (BMD) measurements.

Objectives The aim of this study was to evaluate the relationship between obesity and lumbar and femoral BMD measurements.

Methods The study population consisted of 71 female patients from our outpatient clinics. Clinical assessment and anthropometric measurements (height, weight, abdominal circumference, waist circumference, triceps skinfold thickness) were performed by the same physician. Body mass index (BMI) was calculated as kg/m^2 and cut-off points defined by World Health Organisation (WHO) were used to identify obesity. Cut-off values are as follows: 18.5–24.99: normal, 25.0–29.99 grade 1 overweight, 30.0–39.99 grade 2 overweight, > 40.0 grade 3 overweight. Lumbar and femoral BMD measurements were obtained using dual energy X-ray absorptiometry (DEXA) (Hologic QDR 4500A). Subjects were divided into two groups: subjects with $\text{BMI} \leq 29.9$ and subjects > 29.9 , and statistical analysis were carried out accordingly. $p < 0.05$ was considered to be statistically significant.

Results The mean age of the subjects was 52.96 ± 10.87 years (range: 25–78 years) and mean BMI was 31.40 ± 5.62 (range: 21.91–47.27). According to WHO criteria: 12 subjects (16.9%) were within the normal range, 16 subjects (22.5%) were grade 1 obese, 39 subjects (54.9%) grade 2 obese and 4 subjects (5.6%) grade 3 obese. BMD measurements in all areas examined

(lumbar total, L1, L2, L3, L4, intertrochanteric, neck, trochanteric and femoral total) were correlated with anthropometric measurements. BMI was positively correlated with lumbar and femoral bone mineral density measurements in all regions evaluated. BMD measurements in all areas examined (lumbar total, L1, L2, L3, L4, intertrochanteric, neck, trochanteric and femoral total) were compared according to two groups ($\text{BMI} \leq 29.9$, $\text{BMI} > 29.9$). In all areas there was a significant difference between the two groups in favour of the obese group.

Conclusion In accordance with the previous studies, our study indicates the positive relationship between obesity and bone mineral density measurements.

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AB0180 FOLLOW UP STUDY TO DETERMINE THE ACHIEVEMENT OF THE PEAK BONE MASS AT 18–25 YEARS OLD YOUNG PEOPLE

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Background The aim of our study was to follow up and determine the achievement of the bone mass in young age. We wanted to study, what can influence the growth of the bone mass.

Objectives We began our study 3 years ago. We made examinations among 18 years old young men and women, who begun the first class in two military academies just then. The physical education is an important part of the programme of the military academies, that's why these groups are ideal to establish the statement, that the sport results the increasing of the bone mass in this age. We organised a control group too, in a civil university, where sporting not obligatory. The participation was voluntary.

Methods Every participant filled a questionnaire about his/her earlier diseases, good and bad habits (e.g.: sport, smoking), and about his/her alimentary habits (e.g. milk and dairy products). We measured the bone density in their arms and ankle. We made anthropometrical and staying power examinations too. Finally we made laboratory tests to determinate the elements of the calcium household. The examinations were repeated two times.

Results We found, that according to the osteodensitometry the bone mass have grown in all of the groups. At the soldier men's group the increase was more significant, than at the others. The degree of bone mass growth connected with the body mass index, exactly with the growing of the body weight. According to the anthropometrical examinations the growth of the body weight came rather from the growth of the muscle mass than bone mass. Though the bone density grew, its weight did not grow significantly.

Conclusion It seems that, neither the nutrition, nor the bad habits cannot influence the bone mass significantly in this young age. But the moving, sporting play important roles in the achievement of the peak bone mass.