Methods The cases were 101 obese (BMI over 30 kg/m²) and controls were 101 non-obese (BMI 18,5–24,9 kg/m²) subjects matched by age and sex over the age of 50 years. There was not significant difference between cases and controls regarding the other main risk factors for osteoporosis (time spent from menopause, diabetes, hyperthyroidism, alcohol and coffee intake, smoking, drugs causing osteoporosis). All probands in the case-control study were examined by radiographic investigation, vertebral morphometry, densitometry and by interviewer administered questionnaire. Radiographs were taken according to standardised protocol and hyperostosis was classified using Resnick criteria. Vertebral deformity was diagnosed with the McClosky-Kanis algorithm. Bone mineral density was measured by DEXA.

Results In the case-control study obesity was significantly associated with hyperostosis of the spine ($p \geq 0,05$) with higher mean values of bone mineral density of the femoral neck ($p \geq 0,000$), trochanter ($p \geq 0,000$), and lumbar spine ($p \geq 0,014$).

Conclusion According to their result obesity was associated with hyperostosis of the spine and with higher bone mineral density but not with fractures and osteoporosis in the past history.

AB0176 INFLUENCE OF NUTRITION ON BONE MINERAL DENSITY IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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Background A sufficient alimentation of vitamin D and calcium is essential in the prevention and treatment of osteoporosis. Patients with ankylosing spondylitis have osteoporosis to a various degree.

Objectives The aim of our study was to look at the influence of nutrition on bone mineral density in our patients with ankylosing spondylitis.

Methods We examined 180 patients with ankylosing spondylitis fulfilled the modified New York criteria. The bone mineral density was measured with DEXA (QDR 4500) at the lumbar spine (LS) and right hip.

Factors of nutrition were examined by a standardised questionnaire.

Results Positive correlations with bone mineral density were only found with wine consumption. However, this correlation was weak but was confirmed for both hip and LS bone mineral density measurements.

Abstract AB0176 Table 1

	N =	r =	p =
Milk	180	0,082	0,277
Sausage	180	0,051	0,051
Coffee	180	0,038	0,614
Cheese	180	-0,019	0,795
Wine	180	0,217	0,003

Correlation BMD-hip total with consumption of

Conclusion No significant correlations between milk and cheese intake with bone mineral density were found in patients with ankylosing spondylitis. Dietetic factors do not seem to influence much bone mineral density in patients with ankylosing spondylitis. Only wine consumption was found to have an influence on

bone mineral density as is correlated with bone mineral density in our patients with ankylosing spondylitis.

AB0177 SOME DETERMINANTS OF BONE MASS AND BONE GEOMETRY IN WOMEN OVER 50

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Background The exact influence of different risk factors of osteoporosis on bone need to be assessed.

Objectives The aim of this study was to assess the influence of some anthropometric and lifestyle factors on bone parameters of forearm in women over 50.

Methods This was a cross-sectional study included 117 women of 50–79 y.o. Volumetric BMD (trabecular, tBMD, and cortical, cBMD) cortical bone area (CBA) and strength sustained indices (SSI) of radius were measured using pQCT (Stratec-XCT960). The relationship among several factors influencing the bone parameters was assessed using a multiple regression analysis.

Results The age was the independent determinant of cBMD and CBA. BMI positively influenced tBMD. SSI depended on age and height. The years since menopause were not significant after controlling for other covariables. Dietary intake of calcium and smoking contributed a little to variation in bone parameters. Strong predictor of tBMD was professional physical activity in youth (negative correlation), and cBMD, CBA and SSI were influenced positively by current professional physical activity.

Conclusion Thus, different mechanisms might be involved in compact and trabecular bone loss and geometric parameters.

AB0178 ON THE DIAGNOSTICS OF POSSIBLY INHERITED OSTEOPOROSIS

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Background Osteoporosis (OP) is a disease of high occurrence in the older-aged population. Early diagnosis may trigger an efficient medication, which could slow down or even stop the decrease of bone mineral density (BMD), leading so to a noticeably decrease of the risk for bone fracture in old age. Reducing the incidence of osteoporosis is of utmost importance for both the individuals and the society, so it is not only of medical importance to identify individuals with a higher-than-average risk of developing osteoporosis.

Objectives The aim of this work is to investigate the role of inheritance in osteoporosis as mirrored by basic diagnostic methods. It is also of practical interest to establish the applicability of the by now routinely applied dual energy X-ray absorption (DEXA) method for early diagnostics of BMD for patient groups with a suspected tendency to inherited osteoporosis.

Methods The patient study group consisted of 28 mother-daughter pairs. The mothers (age group: 60–85 y) were suffering in a severe form of osteoporosis as shown for each of them by crush fractures of the vertebrae. The study of the BMD values was directed to the group of daughters of mothers suffering from osteoporosis (DMO). For the daughters (29–58 y, average

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.