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THE EFFECT OF ONE-TIME PHYSICAL THERAPY ON BIOCHEMICAL MARKERS OF BONE METABOLISM

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OBJECTIVES: A number of studies suggest that weight-bearing exercises have beneficial effects on bone and increases in BMD of the skeleton. In Hungary 900,000 people suffer from OP, there are 30,000 vertebral fractures, 51,000 other fractures in a year. The aim of this study was to measure if there is any direct, detected effect of one specific physiotherapy programme on biomechanical markers of bone metabolism. **METHODS:** Total of 50 young, healthy adults (age 25 ± 2) were included without any disease or condition of the calcium and bone metabolism (using laboratory tests and Quantitative Ultrasound). Fifteen men and 15 women carried out specific exercises during 60 min, directed by physiotherapist; and 20 women performed 60 min steady walking in the same time. At the beginning and in the end of training programs laboratory tests were carried out to measure the level of bone-specific alkaline phosphate (BALP) and β -cross-laps value. Data were analysed by Wilcoxon tests applying SPSS statistic programme. **RESULTS:** In both groups a slight, statistically not significant decrease was detected in the value of BALP ($p=0.322$ vs. $p=0.219$; rate of decrease in the target group 3.67%, in control group: 7.16%). Significant decrease was detected in the β -cross laps-values in all groups. In the target group the value of β -cross laps decreased with 23.13% ($p=0.0066$), in the control group with 53.2% ($p=0.0008$). No relationship was found between smoking, rheumatic diseases run in the family and BMD, but a medium relationship between regular exercise and BMD could be detected ($r=0.4392$). **CONCLUSIONS:** This study proved that the 60-minute, middle intensity, appropriate physiotherapy (even one-time) has an immediate effect on BALP level, in contrary β -cross-laps scores decrease significantly measured immediately after the training. So bone loss and at the same time bone formation started due to mechanical overload.