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Influence of calorie-restricted diet and systematic physical effort on bone metabolism in obese boys


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The influence of systematic physical activity together with calorie restricted diet on bone metabolism indices were investigated in the serum of obese boys aged 13-18 years. During 28 days the subjects performed 30 min of physical activity on a bicycle ergometer with an intensity of 70% of the maximal amount of oxygen intake (VO<sub>2</sub>max). Simultaneously a diet restricted to 1300 kcal a day was used. Before the therapy and following its completion VO<sub>2</sub>max and body consistency were determined, and levels of osteocalcin, bone specific alkaline phosphatase (bALP), C-terminal telopeptide of collagen I (ICTP), insulin, growth hormone, cortisol, testosterone, total cholesterol, HDL cholesterol and triglycerides were measured in the blood serum. The concentration of LDL cholesterol was calculated using the Friedewald's formula. Following this, the subjects performed the exercise test on the bicycle ergometer with the intensity of 70% VO<sub>2</sub>max. Before the effort and after its completion the capillary blood was drawn for determination of the indices of acid-base balance and lactate levels. The obtained results show that the administered therapy contributed to the reduction of body fat and the increase of the bone resorption to formation ratio.

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