A fizikai aktivitás testformára és testösszetételre gyakorolt hatása
Effects of physical activity on body build and body composition in children (in Hungarian)

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Abstract: The purpose was to study the effect of habitual activity on body build and composition in a sample of prepubertal, pubertal and postpubertal cohorts. We hypothesized that habitual exercise intensity would have a significant effect on body build as well as on body composition, in particular on the amount of body fat. Such effects may be more conspicuous around puberty, because youth of this age are likely to have already acquired a fixed lifestyle inclusive of sport activities and leisure-time passions.

The subsample of 2nd Hungarian National Growth Study (Bodzsár et al. 2003–2006). discussed in this paper is representative of Middle-Hungarian children age between 7–18 years only. The sample (n=1896) was taken from primary schools, as well as from different types of secondary schools and vocational training schools. Individual somatotypes were estimated by the Heath–Carter anthropometric method (1967). Body composition was assessed by Drinkwater–Ross four component model (1980). Quantity of absolute fat was appreciated by 5–5 skinfolds on trunk and extremities. Habitual physical activity was estimated by questionnaire.

Distribution of the individual two-dimensional somatopoints for the active and inactive youth among the Carter categories of somatotype differed by physical activity in all of the age intervals of the two sexes. In non-active boys (in the ages of prepuberty and postpuberty) and non-active girls (in puberty) the endomorphy is significantly higher than in active ones. In prepuberty active boys' relative fat is significantly lower than those of non actives. In puberty such differences can be only shown in relative muscle and in postpuberty in muscle and fat. In girls the only difference is the inactive girls' higher relative fat in puberty. Analysing the changes in the quantity and distribution of body fat can see that prepuberty and postpuberty non-active boys and puberty girls have significantly higher values.

The study shows that differences in lifestyle and physical activity have the main effect in the body fat. More active lifestyle doesn't facilitate the development of bone and muscle but lowers the accumulation of fat. The reason of this fact on the one hand is that the groups, based on the differences in physical activity, are not enough distinct (the active group doesn't contain professional sportsman). On the other hand there are no elementary differences in the nutrition of the groups, both have a convenient nutritional stage that's why the differences in the body fatness is due to the differences of energy balance, the use of the intake. Estimating the effect of physical activity on the body composition in the context of nutrition would be an aim of a further research.

Keywords: Physical activity, Leisure-time passions, Somatotype, Body composition.