

## Abstract

The title of the dissertation thesis: Secular trends in physical fitness of school children in the Liberec region

The main aim of the project is to identify and analyse secular trends in a physical development and motoric performance for the period 1966 to 2010 for boys and girls at age 11-15 in Liberec region. Representative samples were created by 783 boys and 556 girls in pubescent age. Probandes were attending the empirical research that contained: a) seven motoric tests – 50 m run, 300 m run or 500 m run (according to the age), standing broad jump, throwing the 2kg ball, pull-up repeatedly, sit-ups repeatedly, endurance shuttle run; b) measurements of three basic somatic characteristics: measuring height, body weight and subcutaneous fat. Was proved, according to the results of the research an unchanged performance in speed abilities and also in dynamic endurance strength abilities of abdominal muscles and iliopsoas flexors in the pubescent children. Indicators of short-term endurance abilities show negative secular trends in both genders at age 11-15. The results of the standing broad jump, indicator of explosive strength abilities of lower limbs, showed negative secular trends in 11-12 year boys and girls of all age categories. Positive secular trend was seen in explosive strength abilities of upper limbs in 11-14 year boys and 11 year girls. In dynamic strength abilities of upper limbs there was proved an importance of the difference value of proving a negative secular trend of the research period only in 15year girls. Long-term trends of the basic somatic characteristic (corporal height and corporal weight), showed positive trends in all age categories of boys and girls. Within realized research into secular trends in physical fitness, we found negative conclusions regarding especially the persistently declining levels of endurance abilities. This is a negative fact from the health point of view, because the decrease is related to a possible increase in the incidence of risk factors in lifestyle diseases in a child and later in the life.

Key words: secular trends, physical fitness, pubescent, somatic characteristics, motor abilities