

SUMMARY

Subject

In professional literature progressive development of postural stability related to the age during the childhood is documented which is characterized by decline of amplitude and speed deviations. The postural stability becomes similar to adults by primary school children, specifically in the age of 7 to 10 (Shumway-Cook, Woollacott, 2001) and children switch to more accurate strategy of postural control. The period of primary school is described as positive for motor development. Performance in this period is most considerably influenced by biogenetic factors which include growth factors as for instance body height, weight and body composition. An appropriate movement routine with an adequate amount and quality of movement activity is important for development of children's organism by primary school children.

Objective

The aim of this work is to describe the changes of chosen parameters of postural stability which are related to the age and gender of primary school children and to submit to analysis the changes in chosen parameters of postural stability in connection with somatic characteristics, movement abilities and movement activity.

Methods

The summarizing statistical research took place at a primary school where 154 children (85 boys, 69 girls) in the age of 7 to 11 were tested. Analysed parameters were somatic indexes, motor tests, postural stability and extracurricular movement activity. Somatic indexes: body height, weight, body mass index (BMI), percentage of body fat and fat free mass (FFM). Motor test: shuttle run (4x10 meters), long standing jump, endurance pull-up, depth of forward bend, walk up test. Postural stability was measured with FOOTSCAN in standing position with open eyes, closed eyes and in standing position on one leg for 30 sec by a scanning frequency of 33 Hz. Evaluated parameters were: standard deviation of fluctuations of COP from the mean value in the x-axis direction (SD X), standard deviation of fluctuations of COP from the mean value in the y-axis direction (SD Y), average speed of COP and standard deviation of speed of COP. Extracurricular movement activity was tested through a questionnaire (Bunc et al., 2000a). Statistic research compared measured variables of different age groups of boys and girls and mutual relation of variables.

Results and conclusions

All the measured parameters of postural stability in standing position with open eyes, closed eyes and in standing position on one leg tend to decrease with the age of children. We confirm the differences in development trends of the measured parameters of stability in standing position with open eyes, closed eyes and in standing position on one leg by boys and girls. Considerable differences are noticeable to the age of 9 years.

We have not found a dominating factor which would influence the postural stability of children. The postural stability is influenced by a complex of inner factors from which the most important ones proved to be the age and speed disposition of lower extremities.

Key words

primary school children, postural stability, somatic indexes, movement abilities