

Particulars of Schoolchildren Vertical Body Stability with Special Needs in Physical Education

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Introduction. Current researches in adaptive physical education for hearing-impaired children and adolescents are focused on improving health, corrective, and socialize role of physical education. The latter is the key to healthy development of children, as well as providing the necessary level of motor development and correction of movement functions disorders [3].

A special remedial program is developed to date taking into account the motility of children and adolescents; experimentally substantiated the positive impact of specially selected creative means of adaptive physical education (APE) on the psycho-physical state of hearing-impaired schoolchildren; a play directional method is designed, which takes into account the development appropriateness's of children 8–11 years old with hearing impairments in the organization of mixed-age group [4]; also a technology of programming physical training is developed and tested, which is based on the designed computer control systems of hearing-impaired schoolchildren motility; theoretically proved and tested the technology of correction postural disorders for hearing-impaired school age children in the process of APE [1, 2].

Hypothesis. In the course of the research is supposed to obtain objective data on the indicators of the vertical stability of the body. There is a reason to assume that the state of the vertical stability of children's body who has hearing-impairments will be worse than their healthy coevals.

Objective of the investigation. The study of the vertical stability body state of schoolchildren with hearing impairments.

Research methods. Analysis of special scientific-methodological literature, pedagogical supervision, stabilography, methods of mathematical statistics.

Results of the study and their discussion. To determine the state of vertical body stability of schoolchildren age with hearing deprivation, there was made an assessment function of equilibrium in statics and dynamics using Kisler tenzoplatform followed by a comparative performance analysis in the group of healthy schoolchildren.

The studies were conducted on the basis of biomechanical technology laboratory in physical education and Olympic sport of National University of Physical Education and Sports of Ukraine. We used two tests: a) normal stand position (S.P.) on the fixed support, and b) S.P. on a fixed support with eyes closed. There was given 10 seconds on each test.

During the test, we have obtained such characteristics as: vibrational amplitude of common gravity center (CGC) (mm), vibration frequency (Hz), and the length of the CGC trajectory (mm).

During the studies were evaluated the indices of equilibrium of the subjects body in the complicated conditions.

During the first test, the average result for the amplitude parameters of healthy children was 17,57 mm (vibrations back and forth), and 16,40 mm (vibrations left-right), and in hearing-impairments children the result was 21,16 mm (vibrations back and forth), and 22,37 mm (vibrations left-right).

The average value of the indices frequency in this test was 8,14 Hz (vibrations back and forth), and 7,99 Hz (vibrations left-right) for healthy children, and 6,83 Hz (vibrations back and forth), and 6,57 Hz (vibrations of the left-right) for hearing-impaired children.

We are seeing a difference in two groups on the amplitude-frequency characteristics, but these differences were not significant (Figure 1). The main characteristic determining the vertical stability of the human body is considered to be the vibration frequency.

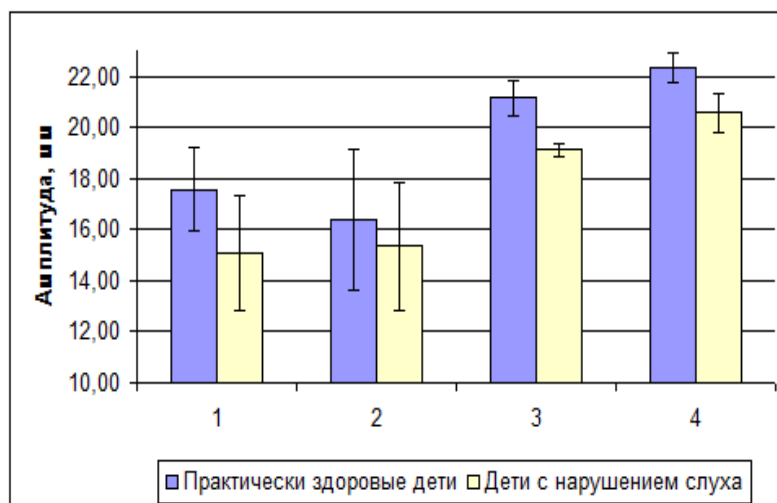


Figure 1. The amplitude characteristics of stabilogram of schoolchildren;
 1 – Vibrations of the body back and forth in the test with eyes open;
 2 – Vibrations in the body from left to right in the test with eyes open;
 3 – Vibrations in the body back and forth in the test with eyes closed;
 4 – Vibrations of the body from left to right in the test with eyes closed

In the second test the average result of the amplitude in healthy children was 15,10 mm (vibrations back and forth), and 15,36 mm (vibrations left-right), and in hearing-impaired children, the result was 19,12 mm (vibrations back and forth) and 20,57 mm (vibrations left-right). The average result of frequency in the same test was 7,88 Hz (vibrations back and forth), and 8,09 Hz (vibrations left-right) in healthy children, and 7,01 Hz (vibrations back and forth), and 6,76 Hz (vibrations left-right) in hearing-impaired children. By the results of the second test can be seen significant differences of amplitude-frequency indices.

As a result of testing we observe a difference in indicators of amplitude and frequency in the two groups of children in both tests. In the first test, we are witnessing the deterioration of the results in the group of children with hearing impairment, but the differences are unreliable.

The results of the second test clearly show a statistically significant difference between the indicators of the amplitude and frequency to the downside of the group with hearing-impaired children relative to their healthy coevals.

Conclusions. A function assessment of static equilibrium in schoolchildren showed, in the test performed with eyes open, no significant difference in the amplitude-frequency characteristics. This can be explained that children with disorders go on compensatory mechanism of the visual analyzer. In the second test performed with eyes closed, when the visual analyzer is turned off, the job is more difficult, which explains the significant differences in indicators of the amplitude and frequency.

The studies found that the experimental technology needs scientific foundation and development for vertical stability of the body for hearing-impaired schoolchildren.

Prospects for future research. To develop and scientific technologies aimed at correcting violations of vertical stability of the body, posture and motor areas of the other parameters of primary school children with hearing impairment.

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Annotations

The article presents data on the vertical stability of the body of children with hearing loss compared to the relatively healthy children of the same age. The study found that the lack of scientific support and the development of experimental technology to correct the vertical stability of the body of hearing students.

Key words: vertical stability, schoolchildren.

Анна Сторожик, Александр Юрченко. Особенности вертикальной устойчивости тела школьников с особыми потребностями в процессе физического воспитания. В статье представлены данные о вертикальной устойчивости тела детей с нарушением слуха по сравнению с относительно здоровыми детьми того же возраста. В процессе исследования установлено, что необходимо научное обоснование и разработка экспериментальной технологии для коррекции вертикальной устойчивости тела слабослышащих школьников.

Ключевые слова: вертикальная устойчивость, школьники.

Ганна Сторожик, Олександр Юрченко. Особливості вертикальної стійкості тіла школярів з особливими потребами в процесі фізичного виховання. У статті наведено дані щодо показників вертикальної стійкості тіла дітей із порушенням слуху, порівняно з відносно здоровими представниками того ж віку. У процесі дослідження виявлено, що потрібне наукове обґрунтування й розробка експериментальної технології для корекції вертикальної стійкості тіла слабочуючих молодших школярів.

Ключові слова: вертикальна стійкість, школярі.