

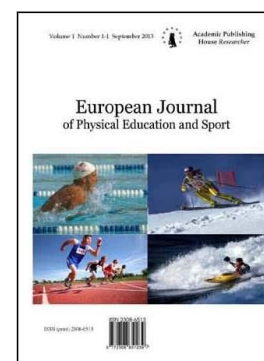
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Leisure Time Physical Activity of Fourth Grade Pupils as One of the Determinations of Health

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Abstract

Physical activity is considered to be the most important determinant of a healthy lifestyle. This article examines the results of an experiment that evaluated the effect of a leisure-time physical activity's curriculum on the level of motor skills of pupils of lower school age in a selected school. The experiment results showed that the curriculum of physical activity did not affect the general motor skills of pupils of the experimental group. The authors recommend paying attention to the development of all motor abilities equally by creating more attractive content for leisure time physical activities that are organized by the school.

Keywords: health, physical activity, pupils of younger school age.

1. Introduction

Physical activity is an important factor affecting human health. Daily, or in other words regular physical activity has a beneficial effect on the prevention of disease. It also provides several advantages for life, for example: increased athletic performance, better sleep, social interaction with friends, entertainment and so on. According to several studies, the recommended daily physical activity should be an average of 30 - 60 minutes. Physical activity carried out within this range reduces the risk of diseases and disorders which are often the result of its deficiency (Bobřík, Ondřejková, 2006).

The prevalence of lifestyle-related diseases and the hypokinetic lifestyle (Helm, 2001, Masoli et al., 2004), of children and youth are currently reflected by the health of both primary and secondary school pupils. Physical activity and exercise of not only adults (Labudová, Ramacsay, 2000), but children and youth as well (Bendíková, 2009, Soos et al., 2010) has declined significantly over the past two decades.

Miklánková et al. (2013) dealt with the level of physical activity of children in the first grade of primary schools within the Czech Republic. In this research the authors took into account the developmental specifics for this age group. The results showed a reduction in daily physical activity compared to children from kindergarten during weekdays and weekends as well. The authors explain that this is due to the change of children's daily routine through the absence of morning walks and physical activities typical for children in kindergarten. The authors also note that compulsory education is a limiting factor in children's physical activity, which is supported by the

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observation that during the weekend the physical activity of children is significantly higher than during weekdays, which is why they recommend a higher level of leisure-time physical activity.

Regular physical activity is essential for acquiring healthy habits that contribute to healthy growth and development. The opposite of regular physical activity is a sedentary lifestyle. A team of authors in Finland investigated the volume of physical activity and sedentary activities and their impact on health. It was found that, 54 % of the day, children spend sitting and carrying out sedentary activities and 9 % of the day they spend completely immobile. Physical activity was accounted for 37 % of the day, of which 18 % was gentle physical activity and 19 % moderate to heavy physical activity. The results further showed that younger respondents or more precisely boys are more active. When evaluating the relationship between physical activity and health status when respondents evaluated on their own, showed that those who have more physical activities, assess their health more often as excellent or very good (Husu et al., 2016).

One of the indicators of the effect of school and leisure-time physical activity on the health of children is an appropriate level of their physical ability, which is reflected in general physical performance. When choosing the best way for the development of various motor abilities, we rely on the knowledge of physical, biological and motor development in the ontogenesis of children and youth. Some interesting research was conducted by Adamčák, Bartik, Nemeč (2014), who followed the attitudes in Slovakia towards physical activity of primary school pupils, especially to physical games. They found that physical games as a means of developing motor skills and motor abilities are the most popular activities both in school physical education and sports, and also during leisure-time physical activities of primary school pupils.

Based on theoretical knowledge from addressing this issue, the aim of the research, which was carried out in the school year 2015/2016, was to determine the change in the level of general physical performance of students attending leisure-time physical education and compare the results with the research of Krull et al. (2015). We assumed that leisure-time physical activity would positively affect the level of selected motor skills, and we expected statistically significant changes in performance in individual tests.

2. Materials and methods

The research was conducted in a selected primary school in the district of Ružomberok. The elementary school offers an interesting physical education through sports clubs, the content of which is general movement training in athletics, gymnastics and movement theatre. The weekly time allocated was 90 min. To determine the level of general motor performance, we used selected tests from EUROFIT (Moravec, et al., 2002):

- standing long jump
- sit – up in 30 seconds
- endurance in pull ups
- endurance shuttle run
- seated forward bend

During the research we worked with two groups of students. Group 1 (G1) consisted of fourth year students from the selected primary schools in the district of Ružomberok, who attended after-school physical activities (with a focus on sports). There were 58 students engaged in this research, of which 27 were girls and 31 boys.

Group 2 (G2) consisted of students from the research of Krull et al. (2015), from which we chose the fourth grade students who did not attend an after-school activity with a focus on sport at school or beyond. 67 students from the fourth grade took part in the research, 34 were girls and 33 were boys.

There was no significant difference in the measured value of the physical parameters (height and weight) in the examined sample of the fourth grade's pupils from the average values of Čillík et al. (2015) research. We can say that the examined sample does not differ from the general population of the same age group in the terms of physical indicators.

Table 1. The frequency of the pupils in the focus group

N=125	girls	boys	together
Group 1	27	31	58
Group 2	34	33	67
Together	61	64	125

For the characteristics of the performance obtained by testing we used basic statistical characteristics of central tendency and dispersion, and standard deviation, arithmetic average, minimum and maximum measured values. The values obtained were between quantitative variables and we used an interval scale. Values were reported in numerical and graphical form and in the first case we used the basic characteristics of the position of the centre (mean) and variability (standard deviation, maximum and minimum). For a graphical representation we used whisker plots. Statistical significance (the effect's size) we describe by the differences from the median.

3. Results

Changes in the level of general physical performance of pupils of fourth grades

The seated forward bend test

In the examined group 1 we recorded regression in the test of flexibility by both boys and girls. The average values at baseline testing were 18.75 ± 5.79 cm and at final testing 15.58 ± 6.50 cm, which means a deterioration of 3.17 cm. According to the measured values in the study group 1, we can conclude that there had been statistically significant changes in the average values of both sexes (-3.17 cm) and by boys (-4.23 cm) of deterioration in the flexibility of the body with a 1% level of statistical significance ($p < 0.01$).

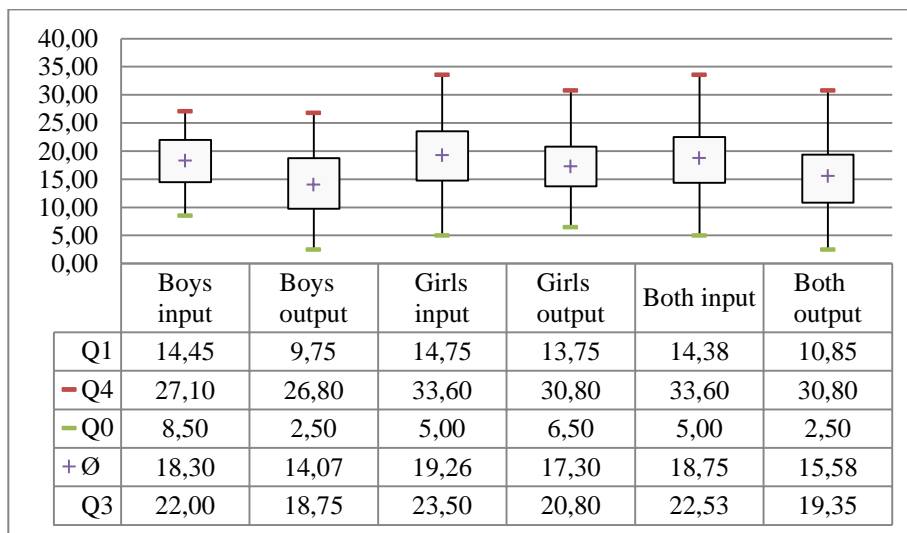


Fig. 1. Changes between input and output measurement in a seated forward bend test in G1 (cm)

We have recorded a greater deterioration in the test results of boys. Boys from group 1 achieved an average value of 18.30 ± 4.92 cm at the admission testing and 14.07 ± 6.25 cm at the output testing, which represents a deterioration of 4.23 cm. Girls from group 1 had an average value of 19.26 ± 6.71 cm in the admission testing and 17.30 ± 6.45 cm in the output testing, which means a deterioration of 1.96 cm. When comparing our testing results with the results of Krull et al. (2015), we must conclude that the participants of group 1 have fallen even behind the second tested group in the development of flexibility. Boys from the group 2 reached an improvement when the average values at baseline testing were 15.63 ± 7.32 cm and at final testing it was $15,66 \pm 6.36$ cm. In girls in group 2 an improvement of 1.51cm was observed between baseline and final testing. From the above we can assume that flexibility development during physical education has not been adequately addressed (Fig. 1).

Test of a standing long jump

The participants of group 1 observed the average value of 134.26 ± 20.17 cm in the input measurement of this test and 135.41 ± 21.08 cm at the output testing, which represents an increase of performance of 1.16 cm. Girls achieved an average improvement of 2.63 cm between the input testing (123.30 ± 17.28 cm) and the output testing (125.93 ± 20.72 cm). Compared to the group 2, where deterioration of 2.12 cm was recorded, this change can be seen as positive. Boys of group 1, compared to girls worsened when they achieved an average value of 143.81 ± 17.66 cm at the input testing and 143.68 ± 17.90 cm at the output testing that represents a deterioration of 0.13 cm. Krull et al. (2015) in his research, on the contrary, showed a positive value increase by the fourth grade boys from the input testing 139.91 ± 18.46 cm to 141.03 ± 21.09 at the output test. Comparison of changes of the average performance of girls and boys of the whole group 1 was not statistically significant (Fig. 2).

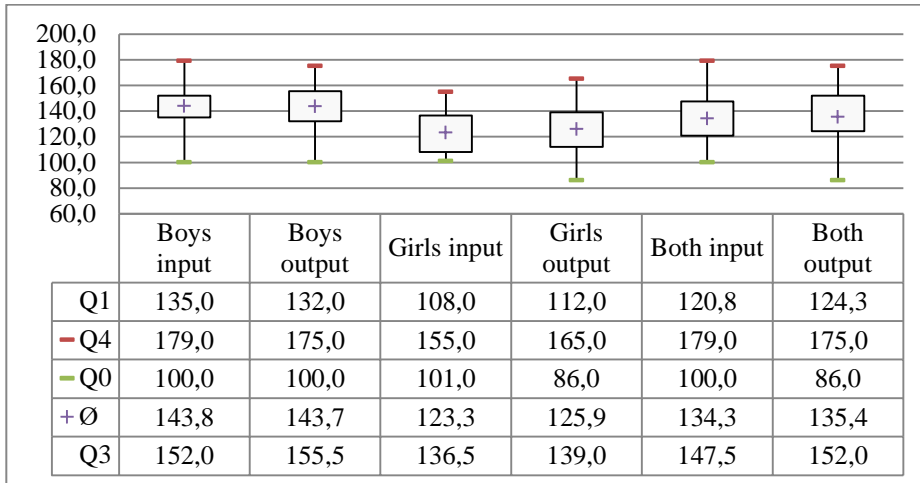


Fig. 2. Changes between input and output measurement in a standing long jump G1-test (cm)

The sit – up in 30 seconds test

When testing the strength of the abdominal muscles and hip-lumbar muscles, we measured the average power at the input 20.40 ± 6.37 in the group 1. In boys of the followed group 1 we recorded the average performance of 22.81 ± 4.04 of repetitions and at the output testing 24.10 ± 4.59 of repetitions. Therefore we recorded an improvement of 1.29 of repetitions in the output testing. For comparison, the boys from group 2 also reached an improvement but of only 0.61 in repetition. In girls of group 1 the improvement reached 2.63 in repetitions between input and output testing (input 17.67 ± 4.63 in repetitions, and more precisely 20.30 ± 4.04 of repetitions in the output). The comparison with group 2 showed a higher performance than in group 1. The changes to the performance of the group 1 participants were statistically significant at the 1 % level in girls, as well as on average of both sexes ($p < 0.01$) (Fig. 3).

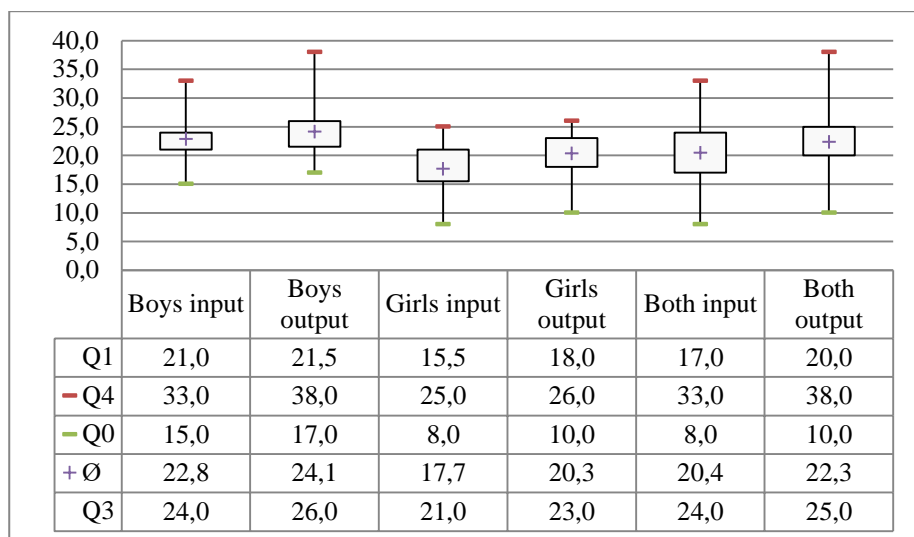


Fig. 3. The display of changes between input and output measurement in sit-up in 30 seconds test (number of repetitions)

Test of endurance in pull-ups

The average values of the endurance in pull-ups test of the group 1 were 22.88 ± 19.60 in the input testing and 22.86 ± 21.03 in the output testing. So we recorded at worsening of 0.02 s. of the whole group 1, where there was a larger share of girls than boys.

The girls in the endurance test of pull-ups worsened by 0.48 by input testing of (18.37 ± 17.85 s) and output testing of (17.89 ± 16.55 s). In group 2 girls reached the lower average values at input test (16.14 ± 12.40 s), as well as in the output test (16.02 ± 11.46 s) and their performance also deteriorated. Boys of the surveyed group 1 on the contrary, recorded an improvement of 0.37 s. At the entrance test they achieved an average value of 26.82 ± 20.47 s and at the output testing the value of 27.19 ± 23.69 s. A worsened performance of 4.01 s was recorded by both sexes (the average values at input testing was 25.10 ± 21.98 , and 21.09 ± 16.47 sat output testing) that was worse than in group 1. In the test of endurance in pull-ups we have not recorded statistically significant changes in performance in either sex (Fig. 4).

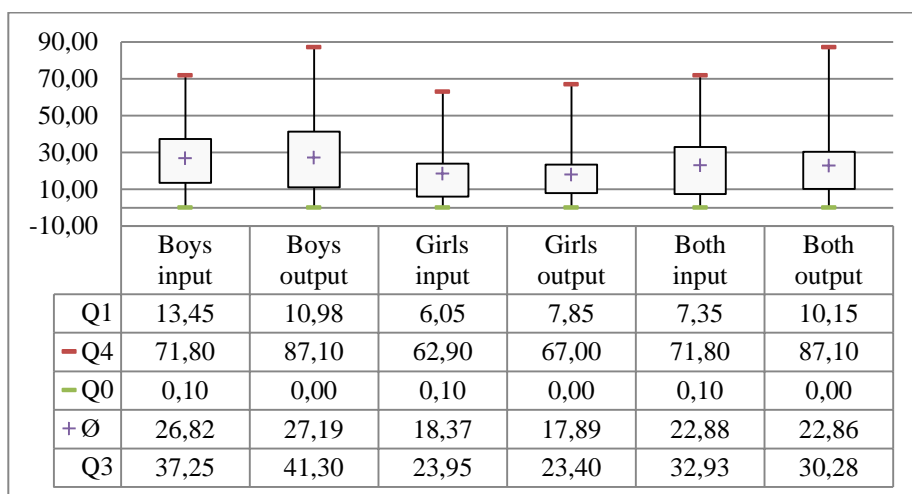


Fig. 4. View of changes between input and output testing in G1's test of endurance in pull-ups (s)

The endurance in shuttle run test

In the test of endurance the participants achieved of group 1 achieved an average value of 29.17 ± 15.03 sections and in the output testing it was 30.38 ± 13.76 sections, which represents an improvement of 1.21 sections. In group 2, the participants achieved an average improvement up to

2.25 sections when comparing the input and output testing. The boys of group 1 achieved at least an improvement of 0.10 sections between the input testing (34.97 ± 16.32 sections) and output testing (35.06 ± 16.55 sections), while in the group 2 the boys achieved an improvement of 2.33 sections. The girls in group 1 reached an improvement of 2.48 sections from input testing (22.52 ± 10.10 sections) and (25.00 ± 6.55 sections) at output testing. The girls in group 2 reached lower values than in group 1, when the average at input testing was 20.29 ± 7.75 sections and 22.47 ± 7.61 at output testing, which represents an improvement of 2.18 sections. Any changes that we found in the testing of endurance in both groups were not statistically significant (Fig. 5).

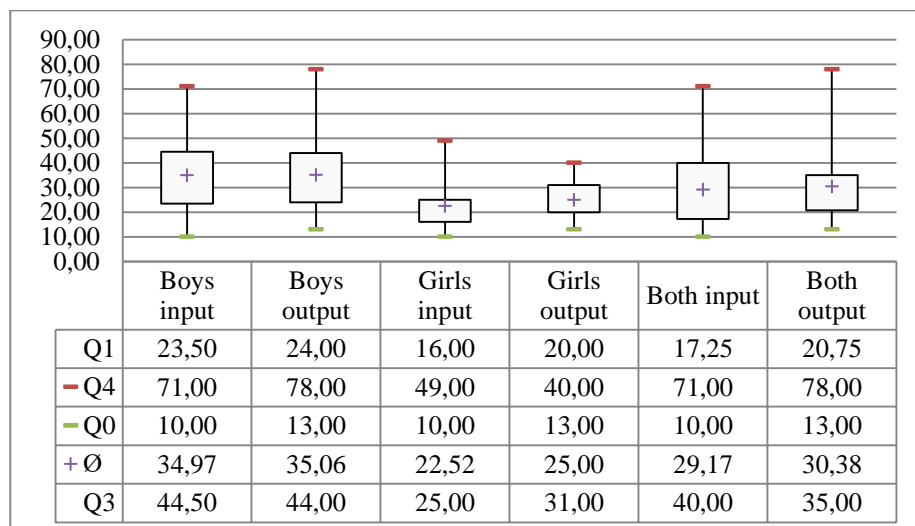


Fig.5. The display of changes between input and output measurement in G1- endurance test of the shuttle run (number of sections)

3. Discussion

Movement and physical activity are the "means of familiarization with the environment, learning how to control our bodies, how to deal with their environment and thereby gain necessary experience. Movement is a means of expressing oneself and communicating with others, it is also a means of gaining self-confidence, of self-assessment, peer comparisons, helping your rivalry and cooperation" (Dvořáková, 2002: 13). In order to achieve a level of movement through which the effect on the above mentioned will be fulfilled we consider it necessary to pay attention to the development of motor abilities.

Based on our research we concluded that 90 minutes of after school physical education activities per week is not enough to provide development in the monitored indicators. It does not even represent the minimum recommended physical activity according to Bobřík, Ondrejková (2006), and Kučera, Dylevský (1999).

We agree with the opinion of Bašková (2009), that school as an institution where children spend more and more time it is necessary to emphasize the provision of information on a healthy lifestyle and to express the requirement of physical activity for health and the overall development of the individual. The necessary information should be part of the content of teaching of all subjects, not just the teaching hours of physical education and sports. It's good when schools participate in the organization of events, for example The Olympic Day, With Sports to Health, and so on. Our practical experience suggests and is consistent with the research of Miklánková et al. (2013), in view of the fact that children in the first years of life move most often within their family environment and even after the onset of compulsory schooling family plays a vital role in their lives, that it is necessary to include family members into intervention and prevention programs that are being implemented in schools and physical education departments. Parents should monitor the way in which their children spend their free time and provide a balance to combat sedentary activities (watching TV, playing computer games, reading books and so on.) through physical activities. In addition to a variety of physical activities we consider it necessary to organize

and apply physical activity in such order to achieve with its intensity a significant physiological effect.

Our view is consistent with the statement of Laczo (2013) that this requirement is directly dependent on the selection and organization of physical activities managed on the principle of competition and emotional experience.

4. Conclusion

Evaluation of our research showed that in the examined group 1 of fourth grade students, when testing their general physical performance, we did not record any improvement due to free time physical activity, which reached the level of statistical significance of test performance in:

- standing long jump
- endurance shuttle run
- endurance in pull ups
- seated forward bend

Improvement of 1 % at a level of statistical significance was only recorded by both sexes in the test of sit-ups in 30 seconds.

On this basis, we believe that the content of leisure time physical activities in schools where the research was conducted is not effective for the development of motor abilities.

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