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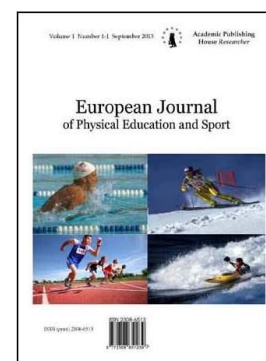
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The Intervention Movement Programme for Rhythmical Gymnastics and Dance in Practice

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Abstract

In this contribution the authors present partial results of their research relating to the influence of an intervention movement programme for rhythmical gymnastics and dance on the physical fitness of younger students as well as the verification of physical methods with respect to their appropriateness in practice. This experiment was conducted with fourth grade primary school students. The authors used the Sporttester diagnostics to determine the load intensity on a randomly chosen sample from the experimental group. The results showed that the methods chosen for physical fitness development of younger students were appropriate. The movement programme being tested in practice can be applied at schools.

Keywords: rhythmical gymnastics and dance, load intensity, younger students.

1. Introduction

The Government Policy Statement of the Slovak Republic 2016 – 2020 includes an aim for the continuous improvement of Slovak citizens' quality of life connected with the growth of their living standards. The school policy specified within this section involves, among other things, sport and healthy lifestyle of children and youth. In the near future, the school policy will be focused on increasing the physical activity performed by children and youth, an improvement in the quality of physical education and support of leisure time activities for children and students.

It follows from the above that the content of educational activities should be directed towards a healthy lifestyle and therefore, when drawing up school educational programmes at all school levels this fact should be taken into consideration.

The Slovak National Educational Programme for Primary Education (ISCED 1) which is the source for school educational programmes, is targeted at the content of physical education majoring in physical, functional and physical improvement thereby contributing to health improvements, physical fitness and physical performance. Physical education should provide elementary theoretical and practical knowledge of movement and sport as well as contribute to the mental, social and moral development of students and to the formation of a positive attitude towards physical activity. Physical education utilizes a wide spectrum of physical methods which contribute to personality development with an emphasis on fine and gross motor activity and also with positive impact on students' state of health (ISCED 1).

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In general, physical fitness is an important condition for effective functioning of the human organism at an optimal efficiency and is conditioned mainly by the physiological functions of the body. The physical fitness of children and youth was and remains a main topic for the ranks of experts. An optimal level of physical fitness demonstrably contributes to the quality of life. It enables a person to perform common and more demanding activities as well as decreasing health risks connected with hypokinesia (Frömel et al., 1999; Malina et al., 2004; Plowman, 2005; Bunc, 2008; Sigmund et al., 2009; Kyröläinen, 2010; Bendíková, 2011; Cepero et al., 2011, Bendíková, Kostencka, 2013; Mikláňková, 2013, Smoleňáková, 2015).

Rhythmical gymnastics and dance are currently less utilized for students' physical activities at the primary education level. In reference to their focus, they belong to the thematic programme of Music-movement and dance activities with an aim of giving competence in age-appropriate basic sensory, motor (movement), intellectual, cultural-artistic and creative capacities and an ability to be able to apply them during life and in sport by means of cultivating natural movement (ISCED 1).

They are also an important motivational factor in physical activity with the influence on physical and functional development, the still developing music-movement sense, movement coordination, spatial orientation and movement memory.

After several years of research, Trunečková (2005) has confirmed the positive impact of dance on the functional state of the human body. In Croatia, Vujović (2012) undertook a study of rhythmical gymnastics methods and their influence on the movement capacities of younger girls. He has confirmed in the research that this type of exercise has a positive impact on movement capacities. Werner, Williams and Hall (2012) also confirmed the development of affective and cognitive abilities caused by the performance of different types of dance within a teaching programme. Palmer Heater (2003), who focused his interventional movement programme on the development of creativity, fantasy, physical condition, and natural performance, pointed out the great importance of the connection between music and a gymnast's movement with respect to age-related distinctiveness. All the above mentioned experts emphasize the importance of instrumental accompaniment whilst undertaking movement activities.

These findings are partially included in the grant VEGA 1/0377/08 "The Intervention Motion Program BUBO and development of physical abilities of basic school pupils.

Aim. The goal of the research was to verify the effectiveness of a physical intervention programme for rhythmical gymnastics and dance on the subjects' physical fitness. We tried to make the diagnostics of load intensity more objective whilst remaining in school teaching and at the same time we verified the appropriateness of the chosen physical methods for rhythmical gymnastics and dance within the experimental group.

2. Materials and methods

The research focused on the verification of the effectiveness of an intervention movement programme for rhythmical gymnastics and dance with two classes of fourth grade students (n= 67 students), i.e. 36 girls at the decimal age of 10.28 and 31 boys at the decimal age of 10.23. The lessons were taught by a qualified teacher for primary teaching with twenty – years experience. In reference to the goal we used a pedagogical experiment within natural conditions. An experimental factor representing the intervention movement programme for rhythmical gymnastics and dance was established on the basis of Trunečková's long-time experience and her publication *Hudobno-tanečné hry: metodická príručka k MGK s nahrávkami hudobných predloh tanečných hier* (1996). This publication was approved by the Ministry of Education of the Slovak Republic under the number 680/2001-41 as an auxiliary didactic teaching material. To make the diagnostics of the students' load intensity objective we monitored pulse rate on randomly chosen students using Sporttester during the school teaching. According to Olšák (1997) and Rychtecký – Fialová (2004), whilst monitoring pulse rate we are able to find out not only load intensity but also its volume. Following scientifically based empirical research, the above mentioned authors consider the method of watching the pulse rate changes as the most accurate, yet the most simple. The analysis of the load intensity within the experimental group represents only a partial result of the whole experiment focused on the increase of the primary school students' movement capacities.

3. Results

While assessing the effectiveness of the intervention movement programme for rhythmical gymnastics and dance, we reviewed the diagnostics of the load intensity observed on the sample of students during school teaching and thereby verified the appropriateness of the chosen physical methods. The main criterion for the effectiveness assessment of physical education is its content, i.e. physiological exercise character reflected in the heart rate. According to Židiš (1994), physical means are effective only in those cases when the values of the pulse rate among tested students range between aerobic and anaerobic threshold during 60% of training time. Figure 1 shows a physiological curve of a randomly chosen student A.K. from the experimental group during one lesson. An ideal load intensity in a span of 130-180 pulses/min. represented 58.5 % of training time. This is characteristic for the aerobic activity zone of the body. The tested student spent 33.6 % of the time in a zone of weak load and 7.9% of training time in a zone of maximum load, as it is showed in the Table 1.

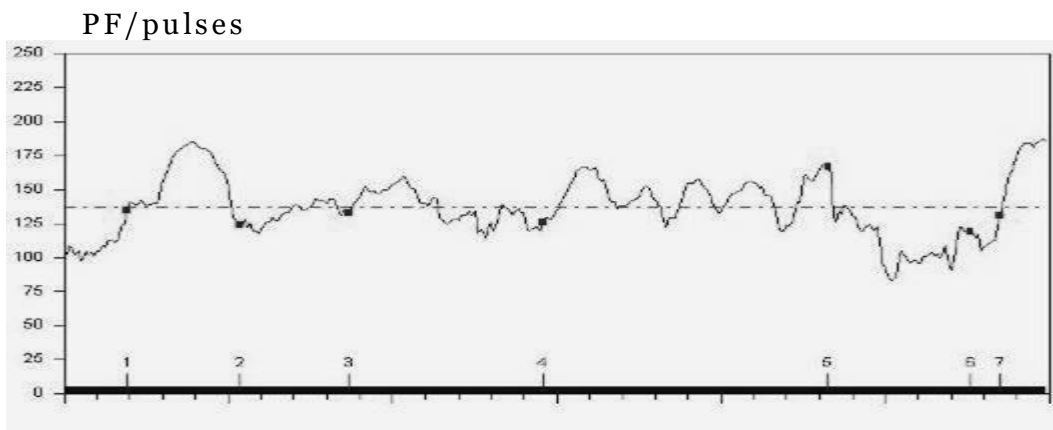


Figure 1. Student A.K.: graphical representation of heart rate curve during the lesson

Table 1. Student A.K. showing training time by zone, expressed as a percentage

PF	Within 130 pulse/min	From 130 to 180 pulse/min	Over 180 pulse/min
Training time	33.6 %	58.5 %	7.9 %

Figure 2 shows the physiological load of student D.T. during physical education. Table 2 represents their training time in the defined zones expressed as a percentage. The student D.T. spent 33.6 % of training time in a zone of weak load, 61 % in aerobic zone and 5.4 % in a zone of maximum load during the lesson modified by the experimental factor.

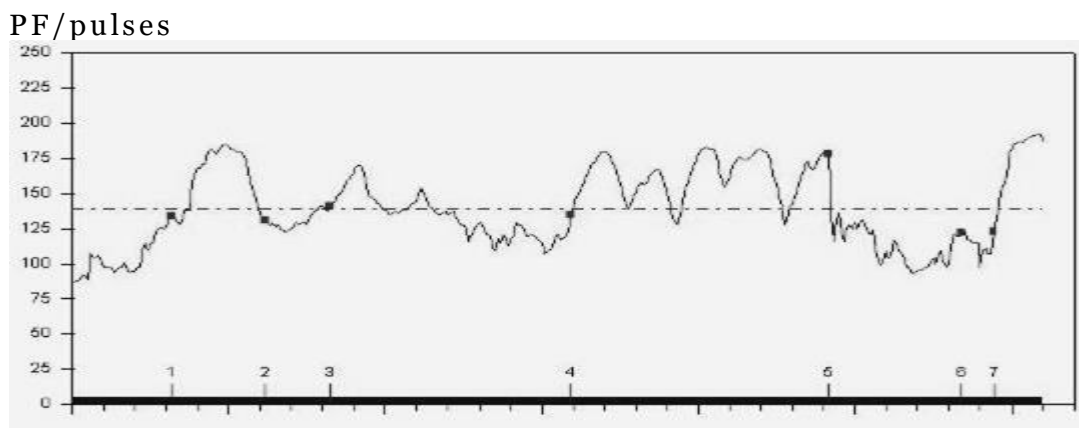


Figure 2. Student D.T. graphical representation of heart rate curve during the lesson

Table 2. Student D.T. showing training time by zone, expressed as a percentage

PF	Within 130 pulse/min	From 130 to 180 pulse/min	Over 180 pulse/min
Training time	33.6%	61%	5.4%

In [Figure 3](#), there is a record from Sporttester relating to the student M.S. Their pulse frequency curve shows training time during physical education in a zone from 130 to 180 pulse/min-52.7 %. An experimental programme during physical education was applied.

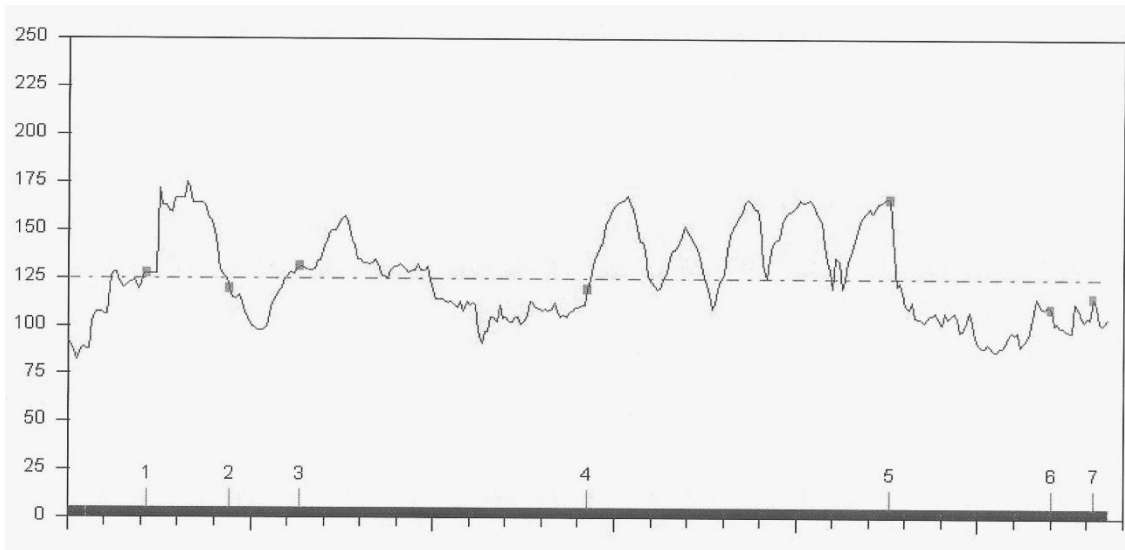


Figure .3. Student M.S.: graphical representation of heart rate curve during the lesson.

Table 3. Student M.S. showing training time by zone, expressed as a percentage

PF	Within 130 pulse/min	From 130 to 180 pulse/min	Over 180 pulse/min
Training time	47.3%	52.7%	-

In the three of randomly chosen students, we found that their heart rate ranged between 130–180 pulses/min., 57.4 % of training time on average. Therefore, we can consider the methods used during the experiment appropriate.

4. Conclusion

Physical education provides more space for teaching methods, mainly the physical activity which plays not only an important role in primary education but also is irreplaceable when teaching a child in individual or group form. It also offers conditions in which a child can behave naturally and without stress.

According to our results, we can agree with non-traditional and varied types of physical education undertaken using rhythmical gymnastics and dance and mainly by the use of games. They are one of the most natural activities typical for this age group. A child fulfils its desire for physical activity. When they are properly adjusted they can offer many options to increase the level of physical activity during physical education whilst respecting individual students' needs and contribute to their personal and intellectual development at humanistic school.

Provided a teacher chooses proper methods during physical education, the programme is applicable not only while warming up and limbering up but also as the main content of the lesson and last but not least at the end of the lesson for loosening and compensation exercises.

The results of the Sporttester measurement technique confirm the above mentioned statement and cover not only load intensity but also its volume. Exploring the load intensity we came to the conclusion that the time spent in the various zones of load intensity is only approximate because the experiment was conducted on general population and therefore a teacher has to take the student's age and individual peculiarities into consideration. We have to be aware of the fact, that nowadays some people do exercise regularly, others randomly and some people do not do exercise at all. The same situation is true for the intensity of exercise.

In reference to the above mentioned conclusions, the experts recommend changing levels of load intensity during the physical education lessons. It is also recommended to change the maximum load with active relaxation when the heart rate approximates the initial values.

Taking this fact into consideration, we found that the load intensity values of randomly chosen students are adequate and the physical methods as applied to younger students are optimal.

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