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Assessment of gross motor skills in primary schools children from the Czech Republic

Authors' Contribution:
A Study Design
B Data Collection
C Statistical Analysis
D Data Interpretation
E Manuscript Preparation
F Literature Search
G Funds Collection

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abstract

Background: Motor skills are very important for socialization, academic achievement, self-concept and adaptation, etc. Physical education should focus on improving this area and increasing the level of motor skills. In the Czech Republic there exists the Framework Curriculum, which sets key competences which pupils should manage. Physical education outputs are not clearly given, so it is not clear which skills and movements should be covered during the first educational period. The aim of the research is to assess gross motor skills in detail in children attending primary schools from 5 regions in the Czech Republic.

Material and methods: The research group was created by 224 (124 boys and 100 girls) children with an average age of 8.32 years (first educational period) from 15 primary schools.

Results: The research results indicate that the level of gross motor skills is rather alarming (no children scored the Superior or Very Superior level). More than a half of the children scored a lower than average level, while only 41% scored an average or higher level of gross motor skills.

Conclusions: It is important to set some standards to curriculum to know what children should manage within physical education at the end of each school year during compulsory school education.

Key words: curriculum, physical education, gross motor skills.

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INTRODUCTION

Motor skills are currently a very common topic that is explored globally from different perspectives [1–4]. This research will introduce the system of the Czech schooling system and the level of gross motor skills which is also partly influenced by compulsory school attendance. But it is clear that also other factors play an important role during acquisition of motor skills, for example aimed intervention or basic sports trainings [5–8]. In the Czech Republic, like in many other European countries, this is within school legislation schooling system based on the so-called Framework Curriculum. The Ministry of Education, Youth and Sports is in charge of creating the Educational Framework Program for Primary Education (RVP ZV), and each primary school can create their own School Educational Program (ŠVP) based on the mentioned Curricular document (RVP ZV). According to RVP ZV [9], in addition to physical education, health education is also included in the education area 'Human and his health'. In ŠVP key competences are set which should pupils manage, expected outputs for the first (from the 1st to the 5th grade) and the second (until leaving primary school) educational periods. But from the point of view of physical education, the outputs are not clearly given, so it is not clear which skills, movements or sports should be covered during the first educational period. The outputs are, for example, stated as follows: children combine regular day-to-day physical activity with health issues and use the offered opportunities, they handle in accordance with the individual's skills simple physical activities of the individual or activities performed in the group and try to improve those skills. Children should also be able to participate in simple team movement activities and competitions, apply the basic principles of hygiene and safety during physical activities and in the school area. According to the outputs, children should also react and respond to the basic instructions and commands on the given physical activity and its organization. It is clear from the mentioned outputs, that current curricular document in the Czech Republic is not precisely and adequately written. Apart from the outputs, there is the content of curriculum, but the evaluation or assessment of given basic skills is also not given. Because motor skills are very important for socialization, academic achievement, self-concept and adaptation on school environment, cognitive skills, etc. [2, 3, 10–12] and physical education should focus on improving in this area and increasing the level of motor skills. Fundamental or gross motor skills are also very important basics for many physical activities and movements and are also connected with children's health, for example cardiorespiratory fitness, body mass index, etc. [13–16]. Some studies mention the necessity of a complex development of motor skills as well as a reason for future participation in sport activities in free time, etc. [17–19]. Based on the mentioned premises, the main aim of the research is an analysis of gross motor skills in primary school children from the Czech Republic.

MATERIAL AND METHOD

The research group was created by 224 (124 boys and 100 girls) children with an average age of 8.32 years (the first educational period) from 15 primary schools in the Czech Republic. Those schools were from 5 Czech regions (Olomoucký, Jihomoravský, Vysočina, Královehradecký and Pardubický). No child was handicapped. The research was approved by the Committee from the author's affiliated institutions. Legal representatives (children's parents) were informed about the aims, methods and process of the research before the start of the research. Also, anonymity of the obtained data was declared. All questions about research were answered by researchers. Afterwards,

legal representatives confirmed the agreement for the participation of their children in the research. The obtained data were processed anonymously. Possible questions from children were answered adequately to their age. The participation in the research was voluntary, without rewards or benefits for participants. The pupils could interrupt or leave their participation during the research anytime. The level of gross motor skills was monitored by the Test of Gross Motor Development-2 [20]. The test consists of two subtests: locomotor skills and object control skills. This test assesses children's ability to perform the mature pattern of 12 skills: locomotor (run, gallop, hop, leap, horizontal jump, skip and slide) and object control skills (two-handed strike, stationary ball bounce, catch, kick and overarm throw). The obtained standard scores are converted into percentile and motor quotient [Gross motor quotient (GMQ)]. Based on GMQ, the level of motor skills is assessed in the following categories: very superior (>130 points), superior (121–130 points), above average (111–120 points), average (90–110 points), below average (80–89 points), poor (70–79 points) and very poor (<70 points). Basic statistical values about the research group (number of girls and boys, mean age of probands) are expressed by the mean number and standard derivation number. The standard score and GMQ were assessed based on the current methodology [20]. The differences in the level of gross motor skills between boys and girls were detected by the Mann–Whitney U-test. The level of significant importance was declared on $p < 0.05$. Data were processed by software STATISTICA, version 13.4.

RESULTS

The research results indicate that the level of gross motor skills is rather alarming – no children scored the Superior or Very Superior level (Fig. 1). More than a half of the children scored lower level than average, while only 41% scored an average or higher level of gross motor skills (Fig. 1).

The most pupils achieved scores 9 (14% of pupils) and 8 (12%) and 12 (12%) in locomotion category (Fig. 2), and in object control skills most children achieved scores 7 (13%) and 5 (12%) (Fig. 2) The maximum for our age category is score 14 in the locomotion category. In the object control skills is maximum score for females at this age score 15 and score 13 for boys.

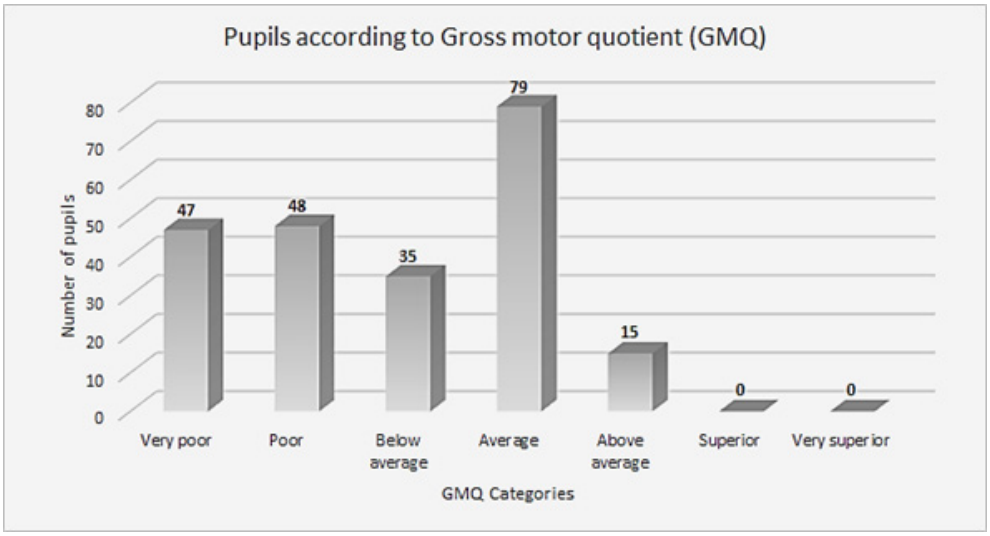

Fig. 1. Number of pupils according to Gross Motor Quotient (GMQ) (n = 224)

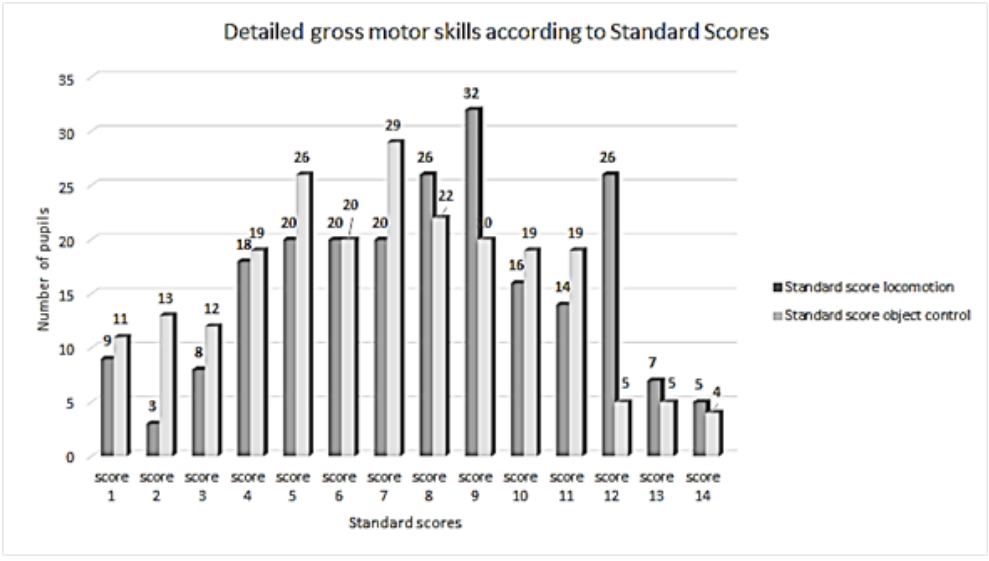

Fig. 2. Number of pupils according to the achieved scores in locomotion skills and object control skills (n = 224)

DISCUSSION

The presented results are even worse than in the research realized in 2017 on different children at an almost similar age category in the Czech Republic [21]. The decline in the level of fundamental motor skills corresponds with lower physical activity in children in the Czech Republic and other countries [22, 23]. If children perform well enough, they can be then not interested in movement and physical activity at all and have rather negative feelings about it. Because none of the children scored the maximum in both categories (locomotion skills and object control skills), it is so alarming that no child achieved superior or very superior level (Fig. 1). Now is the time to change it and improve this situation. The ways and ideas what to do are described in the following section.

CONCLUSIONS

Motor skills are vital and essential parts of everyday lives not only in children. But especially at this age teachers should focus on improvement in this area. According to the research results, children in the Czech Republic do not possess high quality of motor skills. Their gross motor skills are average or rather below average or worse. This could mean that teachers do not focus so much on practicing or training of basic or also fundamental motor skills. This problem could be among other things and reasons caused by non-professionalism of primary school teachers or inappropriately written school legislation (in the Czech Republic – RVP ZV). We presume that if there are clearly given outputs, skills and content which children should manage in the curricular document (RVP ZV), it would be easier also for the teachers to follow the document. Because if children do not manage the fundamental motor skills, they can become rather passive, can be less popular within the classmates, have lower self-confidence and self-esteem, etc. Prevention can be done by improvement in the area of curricular documents on the state level and then on the school levels. Beside the need for curricular improvement, higher time allocation can also help this issue. The Czech Republic is in the lower average among European countries in the time devoted to physical education lessons by state legislation; other countries, for example France, Luxembourg, but also Croatia, have more PE classes than the Czech Republic.

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