PARTICIPATION OF COORDINATION SKILLS ON THE LEVEL OF SWIMMING CAPABILITY OF PRESCHOOL CHILDREN

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ABSTRACT

In our paper we present the partial results, which aim was to extend the knowledge about the participation of coordination skills on swimming capability of children at preschool-age. We assessed the present level of coordination skills of preschool-age children at the start and at the end of the swimming course using test "Obstacle course in water", Jump into water, Level of diving, Orientation under water, Floating, Swimming across distance Crawl kicking with board. The level of the swimming capabilities was evaluated by swimming across distances. Based on the tests results, we can determine a significant correlation between the evaluated indicators. After the completion of the swimming course, children with higher levels of coordination abilities demonstrated significantly higher levels of swimming competence. The used tests were adapted to children at preschool age and it is possible to recommend them for testing of coordination skills in the water in this age category.

Key words: Swimming, swimming capability, dynamic balance, obstacle course in water, preschool-age

INTRODUCTION

The hallmark of swimming tuition is to teach a non-swimmer to swim. It is vitally important physical skill that should be adopted by everyone. To be able to swim means to feel safe while moving in the water environment. It also means to acquire the swimming skills to the level of ability to adequately respond in unusual situations and swim across the distance needed for lifesaving.

Swimming skills are acquired in the process of motor learning in the water environment and along with genetic predisposition they condition the process of learning to swim. The time needed for mastering swimming skills is dependent on adaptation to the water environment and the quality of coordination abilities (Macejková – Viczayová, 2007). The aim of the study is to extend the knowledge about relations between coordination ability- dynamic balance and the level of the swimming capability of preschool-age children.

METHODS

The research group involved 280 children in the age range of 5 - 6 years from 9 nursery schools in Bratislava. The basic swimming course within the range of 13 training lessons was realized in springtime in 2013 with frequency one training lesson a week.

The level of dynamic balance was found out at the beginning and at the end of the basic swimming course by the obstacle course in water (Benčuriková, 2009). The 3 metres long course was built by joining 5 swimming mats with aqua noodles (fig. 1). The performance in the test was assessed by the time of children after running across the pontoon (s).

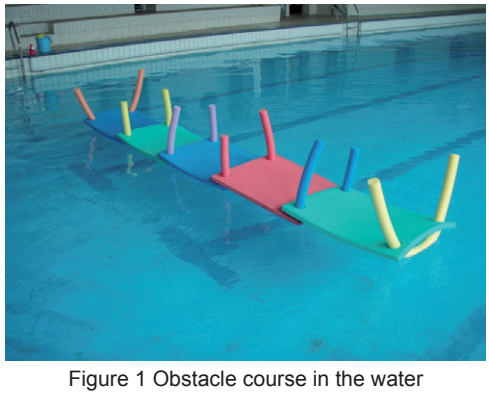

Figure 1 Obstacle course in the water

We investigated the level of the swimming capability at the beginning and at the end of the basic swimming course by using tests convenient for preschool aged children in the water level of 1 meter (Benčuriková, 2008).

We assessed all tests alternatively (Successful/Unsuccessful). The first test „Jump into Water" assessed the first reaction of the child to the water. The second test „The Level of Diving" assessed qualitatively diving or non-diving the head into the water. The third test „The Orientation Under Water With Fishing the Puck Out" assessed if the child is able to dive into water, orient and fish the puck out. The forth test „Floating" assessed if the child is able to float on the water surface in a horizontal position with held breath (minimum 5 seconds). The fifth test „Swimming across Distance" assessed the length of swum 0-12 metres by flutter kick with swimming board that the child managed after completing the basic swimming course. We created a competitive atmosphere while during the measurement as motivation for children to perform well. The differentiated performance was noticed in the test „Swimming across Distance". According to the measured length of the swum meters by flutter kick with swimming board after completing the basic swimming course, the distance to 10 m achieved 56 per cent of the children and the distance 12 meters 43 per cent of the children (fig. 4).

RESULTS AND DISCUSSION

On the basis of the received results assessed by the obstacle course in water we found out the differences between the performance in the test in the higher level of dynamic balance at the beginning and at the end of the basic swimming course in the final measurement. The analysis of the obtained data points out the positive differences in the performance of the entire group after completing the basic swimming course. All children improved in average of 2.5 per cent. ($t = 21{,}54^{**}$; $p<0{,}01$). The biggest difference between the entrance and the final measurement was noticed in a boy (Ž.G.), who had improved by 11.4 s and the lowest in a girl (Š.P) by 0.1 s (fig. 2, tab. 1).

Table 1 Level of coordination skills of preschool children at the beginning and at the end of the swimming course - test "Obstacle course in water"

Basic statistic characteristics	at the start of the swimming course [s]	at the end of the swimming course [s]
Average [x]	8,7	6,2
Minimum value [Xmin]	3,0	2,6
Maximum value [Xmax]	23,9	13,8
STDV [s]	3,292	2,383

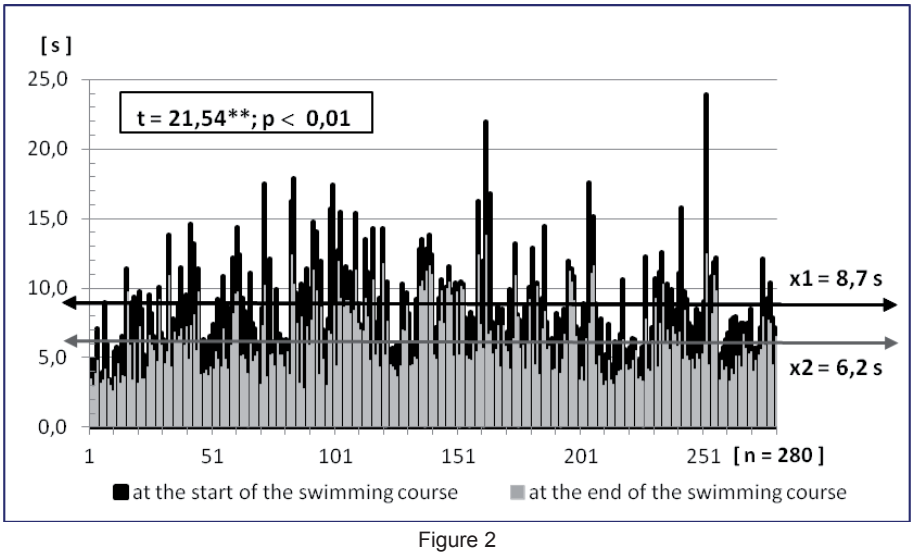

Figure 2
Level of coordination skills of preschool children at the start and at the end of the swimming course - test Obstacle course in the water [n=280]

We illustrate the results of the level of the swimming capability in the group of 280 children in the figure 3. The results show positive changes in the levels of all particular swimming skills that were observed after completing the course. At the end of the swimming course the swimming skills were managed by children in the test „Entrance to the water" by nearly 90 per cent and in the test „The Level of Diving" by 88.9 per cent, in the test „The Orientation under the Water with Fishing the Puck Out" by just under 74 per cent and in the last test „Floating" by 83.9 per cent. The results have almost the same trend. After completing the swimming course the success rate of the children has increased in the observed tests of the swimming skills in average by 47.2 per cent. After completing the basic swimming course the changes in the tests were in our group statistically highly significant. We can say that the content of the basic swimming course created on the basis of the long-time experience with training and organizing the courses has positively affected the level of the swimming skills of the children assessed at the end of the course.

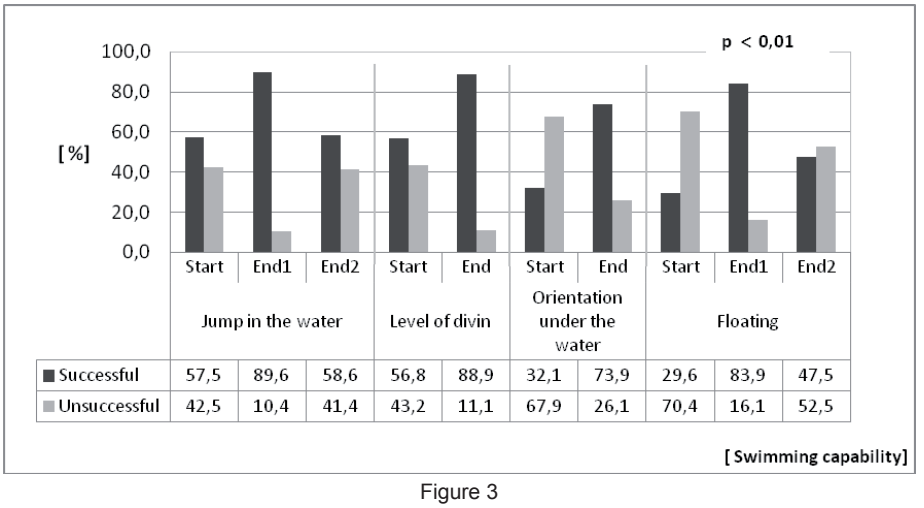

Figure 3
Level of swimming capability of preschool children and its changes after participating in the swimming course

The relation of coordination abilities in the level of the swimming capability of preschool children was found out by the correlation between running across the obstacle course time [s] and swimming across distance by the flutter kick with the swimming board assessed by the length of the swum metres [m]. We found out that the higher level of coordination skills represented by better time has positively influenced the quality of the swimming capability by the length of swum metres ($r = -0.9421^{**}$; $p < 0,01$). Our hypothesis was confirmed by this result. The children, who ran across the obstacle course faster, had better coordination of movement and higher level of the swimming capability. The number of the swum metres has increased linearly depending on better level of the coordination skills tested in the water. The research shows that nearly 44 per cent of children, who managed to swim 12 m at the final measurement at the end of the swimming course, ran across the pontoon in average fastest (5.1s) contrariwise 11.4 per cent of the children who were not able to swim more than 2 m, ran across the pontoon in average 8.1 s, what means 3 s slower (fig. 4, 5).

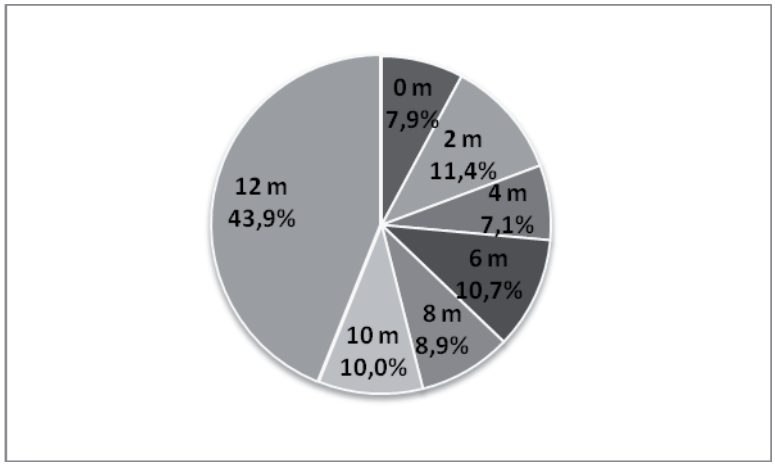

Figure 4
Percentage of children by swimming across distances [n = 280]

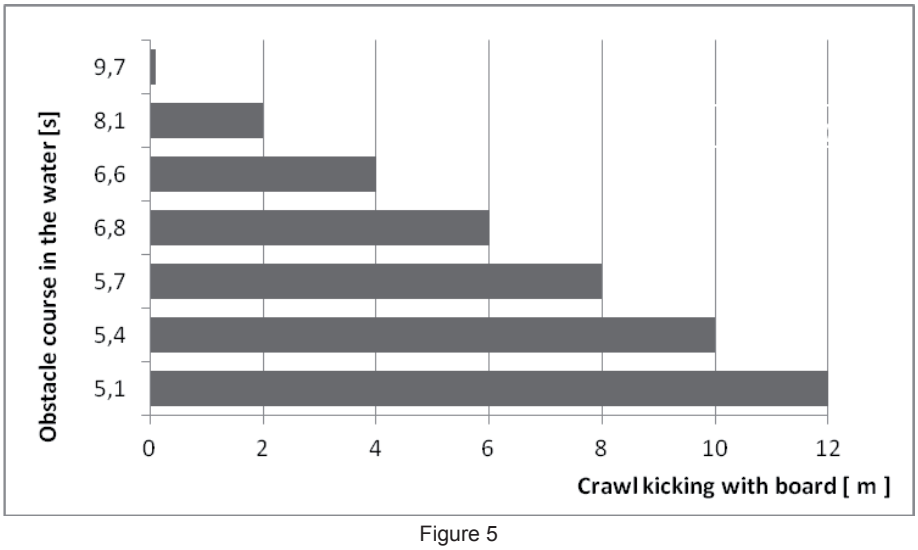

Figure 5
Participation of coordination skills in water and swimming capability

CONCLUSIONS

The results of the research present the original pilotage of the assessment of the motor predispositions of preschool- children in the phase of a pre-swimming training. The research brought updated knowledge of relationship between dynamic balance and the level of the swimming capability of preschool children. We noticed that the children with the higher level of the dynamic balance showed higher quality of learning swimming skills and higher level of the swimming capability.

From the practical point of view we can say that the assessment of the dynamic balance modified by the test "Running across the obstacle course" has been successful and can be used as a suitable diagnostic test for this age group where are this kind of tests very rare (Benčuriková, 2011). There for this reason it is important to design new tests which would enable to identify the predispositions of children in the water environment in the specific conditions and to use them in the initial stage of swimming lessons to make them more effective.

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