

FORMATION OF SWIMMING SKILLS AMONG BOYS AT THE AGE 6–10

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Abstract:

Acquiring new swimming skills depends on many factors which affect a young man in a different environment like water. The most beneficial period in swimming course is called in ontogenesis the early school period. The aim of study was to assess formation of swimming skills among boys aged 4–10. The assessment was made containing 15 skills test first and the second phase of the first stage of learning to swim. Test was performed on the first and twenties learning to swim classees. Twenty conducted swimming lessons increased swimming skills in the group of children aged 6–10. These differences are statistically significant.

INTRODUCTION

Formation of swimming skills is a complex and long-lasting process. Swimming lessons among children proceed very individually. Acquiring new swimming skills depends on many factors which affect a young man in a different environment like water. Water classes which include all kinds of playing, games, learning and improvement of already acquired skills have a positive influence on organism and mentality of a young man. Swimming improves general physical efficiency of organism, working of circulatory and respiratory systems improves, muscular and osteoarticular systems are strengthened. Water has a favourable influence on prophylaxis and correcting of all kinds of faulty posture since spine is in constant relief and apparent loss of body mass allows to increase mobility in joints. Thanks to water classes general resistance to all kinds of infections increases. A crucial advantage of swimming is slight occurrence of injuries associated with doing that form of physical activity. In swimming joint overloads do not occur because all movements take place in relief[3]. The most beneficial period in swimming course is called in ontogenesis the early school period. During that time children are able to focus their attention on orders and their motor skill is much better in comparison with previous periods. The early school period falls at the age of 7 and lasts until about 10–11 year of life. During that time the second apogee of motor activity occurs and their movements become harmonious and more coordinated. That period is very favourable for teaching new motor functions such as swimming.

AIM OF STUDY

The aim of study was to assess formation of swimming skills among boys aged 4–10 learning how to swim in a swimming school under supervision of a qualified coach staff.

Effects of teaching swimming and speed of assimilating new motor functions in water have been evaluated with the use of swimming skills test.

MATERIAL AND METHODS

The process of swimming lessons has been divided into stages due to difficulty of teaching particular swimming skills. This process covers III stages of teaching swimming combined into one coherent whole[5,9].

Stage I – stage of adaptation to water and mastering basic swimming moves by pupils. Stage II – teaching and perfecting sports techniques of swimming; this stage also covers teaching of starts and returns. Stage III – training and specialization in a particular swimming method[5].

The studies have been conducted in the group of children who were at the first stage of swimming course.

Stage I of swimming course, also called introductory stage, can be divided into 3 phases, which cover the range of new activities a child should acquire to be able to start the next stage of swimming course. The first phase of stage I of swimming course includes adaptation to water and mastering simple motor functions in water e.g. plunging the head under water, learning exhales in water or lying on the back and chest. The second phase of stage I contains more complex locomotive moves in water in comparison with those from the first phase; children learn work of legs and arms for front crawl and backstroke, they learn simple jumps into deep water. It is very important to combine newly-learnt elements with those acquired in the first phase. An example can be breaststroke with work of legs and its combination with exhalation into water. In this phase children carry out simple jumps into deep and shallow water, unassisted performance of jumps is confirmation of lack of fear of water. The third phase of stage I consists of actions within coordination of work of legs and arms in front crawl and backstroke swimming, mastering slides into water and diving elements. The last, third phase of stage 1 of swimming course should finish with a test of swimming skills[5,9].

29 boys aged 4–10 who attended swimming classes twice a week for 45 minutes each were examined twice. The lessons took place at a swimming pool of 11th Primary School in Jelenia Gora. The course was conducted by a qualified coach staff. As for the skill level all the subjects revealed skills at the first stage of swimming course; after performance of the first test most of them were at the first phase of stage 1. The first test took place during the first lesson, the second after 20 lesson units. The same skill test which was fulfilled by a teaching instructor was carried out twice. The test included skills from three phases of the first stage of swimming course anticipated for mastering within 40 lesson units. Because of the time of conducting the second task – after 20 lesson units, evaluation of skills of the third phase of stage 1 was omitted.

The test included 15 skills of the first and second phase of stage 1. The coach evaluated each skill during classes. At the first phase of stage 1 of swimming course the following items were assessed: plunging the head in water, exhalation into water, free position on the back in water, free position on the chest in water, jump into shallow water, slide on the chest in water, slide on the back in water. At the second phase of stage 1 the following items were assessed: 25m backstroke swimming with the use of work of legs and arms, 12,5m breaststroke swimming with the use of work of legs(with hands extended and linked), 25m breaststroke swimming with the use of work of legs(with hands extended and linked), 25m backstroke crawl crossover swimming, 12,5m breaststroke crawl crossover swimming, 25m breaststroke crawl crossover swimming, jump into deep water, fishing out an object from shallow water. The above mentioned skills were assessed according to categories: performed on their own, with the instructor's help, unperformed task.

Difference significance in category frequencies(exercise performed on their own, with the instructor's help, unperformed) between the first task before swimming lessons and the second after 20 lessons has been evaluated using the Test Chi².

RESULTS AND CONCLUSIONS

The following test results have been obtained:

Tab.1

test	First test on the first lesson	Second test on the twentieth lesson
1.Plunging the head		
yourself	12	25
with the instructor's help	11	4
not performed	6	0
2. Exhaust to the water		
yourself	12	25
with the instructor's help	9	4
not performed	8	0
3.The free placement on the back		
yourself	11	28
with the instructor's help	16	1
not performed	2	0
4. The free placement on the chest		
yourself	11	28
with the instructor's help	12	1
not performed	6	0
5. Jump into shallow water		
yourself	11	28
with the instructor's help	14	1
not performed	4	0
6. Slip on the chest		
yourself	5	23
with the instructor's help	4	5
not performed	20	1
7. Slip on the back		
yourself	5	22
with the instructor's help	4	4
not performed	20	3
8. 25 m on the back		
ourself	0	19
with the instructor's help	12	10
not performed	17	0
9. 12,5 m arrow		
yourself	0	17
with the instructor's help	11	12
not performed	18	0
10. 25 m arrow		
yourself	3	11
with the instructor's help	26	8
not performed	0	10
11. Adding hand 25 m on the back		
yourself	0	7
with the instructor's help	0	7
not performed	29	15
12. Adding hand 12,5 m on the back chest		
yourself	0	3
with the instructor's help	0	11

not performed	29	15
13. Adding hand 25 m on the back chest		
yourself	0	3
with the instructor's help	0	11
not performed	29	15
14. Jump into the deep water		
yourself	0	22
with the instructor's help	14	5
not performed	15	2
15. Tease the subject of shallow water		
yourself	0	10
with the instructor's help	3	12
not performed	26	7

1. Plunging the head

value of test function – $\chi^2 = 7,8$; level of significance – $0,01 < p \leq 0,02$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise or conducted it with the instructor's help whereas in test II significantly more children carried out the exercise on their own.

2. Exhaust to the water

value of test function – $\chi^2 = 6,5$; level of significance – $0,02 < p \leq 0,05$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise or conducted it with the instructor's help whereas in test II significantly more children carried out the exercise on their own.

3. The free placement on the back

value of test function – $\chi^2 = 20,6$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children carry out the exercise or conducted it with the instructor's help whereas in test II significantly more children carried out the exercise on their own.

4. The free placement on the chest

value of test function – $\chi^2 = 16,7$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children carry out the exercise or conducted it with the instructor's help whereas in test II significantly more children carried out the exercise on their own.

5. Jump into shallow water

value of test function – $\chi^2 = 18,7$; level of significance – $p \leq 0,01$

Differences in frequencies significant – in test I significantly more children carry out the exercise or conducted it with the instructor's help whereas in test II significantly more children carried out the exercise on their own.

6. Slip on the chest

value of test function – $\chi^2 = 11,7$; level of significance – $0,001 < p \leq 0,01$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise in test II significantly more children carried out the exercise on their own.

7. Slip on the back

value of test function – $\chi^2 = 10,7$; level of significance – $0,001 < p \leq 0,01$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise in test II significantly more children carried out the exercise on their own.

8. 25 m on the back

value of test function – $\chi^2 = 19,2$; level of significance – $p \leq 0,01$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise or conducted it with the instructor's help whereas in test II significantly more children carried out the exercise on their own.

9. 12,5 m arrow

value of test function – $\chi^2 = 17$; level of significance – $p \leq 0,01$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise in test II significantly more children carried out the exercise on their own or conducted it with the instructor's help.

10. 25 m arrow

value of test function – $\chi^2 = 14,1$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children carry out the exercise with the instructor's help whereas in test II significantly more children carried out the exercise on their own or children did not carry out the exercise.

11. Adding hand 25 m on the back

value of test function – $\chi^2 = 14$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise in test II significantly more children carried out the exercise on their own or conducted it with the instructor's help.

12. Adding hand 12,5 m on the back chest

value of test function – $\chi^2 = 14$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise in test II significantly more children carried out the exercise on their own or conducted it with the instructor's help.

13. Adding hand 25 m on the back chest

value of test function – $\chi^2 = 14$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise in test II significantly more children carried out the exercise on their own or conducted it with the instructor's help.

14. Jump into the deep water

value of test function – $\chi^2 = 26,3$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise or conducted it with the instructor's help whereas in test II significantly more children carried out the exercise on their own.

15. Tease the subject of shallow water

value of test function – $\chi^2 = 15,4$; level of significance – $p \leq 0,001$

Differences in frequencies significant – in test I significantly more children did not carry out the exercise whereas in test II significantly more children carried out the exercise on their own or conducted it with the instructor's help.

DISCUSSION

Age 4–10 falls on two periods in ontogenesis. The first period is pre-school period where the first motor apogee also called the golden period of motor activity occurs, the second period is an early school period which is the first phase of school period. In the early school period i.e. from 6 until 11 year of life a young man learns his new rules resulting from school duties imposed on him. A change of lifestyle is drastic for a young man, the pre-school period was characterized by constant fun, getting to know the surroundings, learning new motor functions without limitations which occur in the early school period. Children at that age also acquire new motor functions fast but it usually happens during compulsory PE lessons or extra-school classes. School duties limit child's mobility very much, therefore it is so important to organize free time for a young man and make him spend it very actively and dynamically and make his psychomotor growth develop at an appropriate pace[8].

The pre-school age covers the period from the third year of life until the moment of starting school education. During that period improvement of general organism efficiency is

visible; it is associated with the increase of body mass, proportions of limb length to trunk length are subject to change. Development of heart and lungs is conducive to improvement of organism efficiency, muscular mass increases and spinal curvatures are formed. Changes occurring in physical development lead to growth of child's motor activity, coordination improves and as the result precision of performed moves as well. Children in that period are very physically active and can combine particular activities into one coherent whole e.g. combine run and throw, run and jump. During that period – when children acquire new motor functions very fast – one can demand from them accuracy and ease of performed exercises.

The period of around the fifth year of life is called the golden period of motor activity or in other words it is the first motor apogee. During that time intentional and oriented learning of new motor functions is not very problematic for child. New complicated activities are easily acquired. A high level of motor development allows children to get involved in games and playing and therefore they can continuously develop psychomotorically. At the end of the pre-school period children grow emotionally and can control their emotions to a large extent. At that age a circle of child's interests broadens and memory, attention and logical thinking are formed[8].

The early school age is one of school age stages which falls on the period between 6 and 14 year of life. The early school age starts from taking up school duty by child and it lasts until 10–12 year of life, however it is hard to exactly define its end since it is shaped very individually. That period falls on first years of school education which strongly affect a young man. Since the moment of starting school education school duties have an advantage over fun in child's life. At the beginning of that period child learns how to separate work from fun and can subordinate to rules prevailing at school. That period falls on a stable phase of organism growth characterized by increased motor efficiency. During that time the second apogee of motor activity appears, moves of a young man become flexible and elastic, agility and suppleness improve and all that is the result of better innervation of muscles. In that period one can easily learn new motor functions; child does not have problems with acquiring new motor tasks and can carry out orders, adapt to rules valid at lessons, during games or extra-school classes[8].

Swimming course, which takes place in a different environment such as water, also requires different means and methods than those used ashore. In a complex process like swimming course one should take into account many factors which have a significant impact on teaching efficiency. Those factors are very crucial and can make the course of swimming lessons easier. Swimming lessons should be adjusted to age of participants, their number and skills of a particular group.

The biggest effects in swimming courses are achieved with children at junior school age(year I and II)and often with six-year-old children as well. Experiences of many European countries reveal that exactly in that period child's psychomotor development makes group-work classes possible and it allows to realize determined educational and pedagogic plans.

Activities taken by coach before and during first classes in water have also an influence on effectiveness of the swimming course process. A group learning how to swim should have swimming skills at the same level or very similar; their age also ought to be close because it affects conducting lessons, constructing orders and keeping discipline. Inability of establishing a group with similar skills and age causes difficulties in swimming course. Younger children aged 4 and 5 require special exercises and games, constructing orders should be simple and based mainly on demonstration; auxiliary equipment i.e. all kinds of boards, water wings, balls or toys should be colourful and interesting enough for children to make them feel safe and satisfied with their stay in water. It has a big influence on achievement of an intended goal which is teaching swimming or even adaptation to water. A supporting instructor who stays with children in water has a very favourable influence on

children's sense of security. Older children who do not display a high level of fear and are already adapted to water can easily carry out instructions from a coach ashore. Therefore, a large facilitation in conducting lessons with a group of various age and different swimming skills or even a group of similar age but with children afraid of water is help of the supporting coach from water.

Some factors facilitating an efficient organization of the teaching process might include: place of lessons, auxiliary equipment, organization of classes[5,7,9]].

Formation of swimming skills among children at the age 4–10 is a complex process which proceeds very individually. Acquiring new skills by children such as swimming stimulates the organism of a young man to an increased effort and it results in general improvement of organism efficiency.

Swimming education can start at any age, however the best age for formation of swimming skills is the age 7–10. Children can already be disciplined, they carry out instructions of a coach carefully and they can focus their attention on an instructor as well as on instructions. Younger children aged 4–6 also easily acquire new skills but the process of swimming education usually extends in time. It is connected not only with their mental development but also with motor development. Children at that age are very excitable; they are interested in everything going on around them; a different environment such as water distracts their attention itself. At that age child cannot fully control its movements; lack of coordination and smoothness of moves are visible; motor efficiency cannot be seen yet like among older children aged 9–10. Therefore, swimming education, more precisely the first phase of the first stage prolongs in time; older children acquire new functions faster. With younger children games are only used during adaptation to water and while learning skills included in the first phase of the first stage of swimming course. However, neither age nor motor development has a significant impact on effectiveness of swimming education; one of the biggest obstacles which can be faced by teacher, coach or parent is occurrence of fear of water. During first few lessons at a swimming pool most children revealed a high level of fear. It is a natural thing because a child finds himself in a different environment, buoyancy causes that it is hard for child to keep balance; breathing while swimming is different – it is not involuntary but must be controlled by swimmer. First lessons might be very stressful for children, therefore the coach should be along with them in water during first classes. It increases their sense of security. As time goes on, fear of water ought to decrease and ultimately disappear completely. Swimming education has its own determined order. We can distinguish III stages during the course and perfection of swimming skills. It is necessary to remember that the order of particular stages cannot be changed as well as it will not bring any positive effect. Since it is impossible to teach children how to swim by omitting teaching how to plunge the head. If in the educational process there are some difficulties in teaching new motor functions it is worth and even necessary to devote more time for education than move further to teaching next skill [1,2,4,6].

CONCLUSION:

1. Twenty conducted swimming lessons increased swimming skills in the group of children aged 6–10. These differences are statistically significant.

BIBLIOGRAPHY:

1. Bielec G., Klajman P. (2006) Zabawy w wodzie głębokiej dla dzieci na początkowym etapie nauki pływania. *Wychowanie Fizyczne i Zdrowotne*, 2, 6-9
2. Chmielewski D. (2009) Doskonalenie pływania- wykorzystanie gier i zabaw ruchowych w wodzie. *Wychowanie Fizyczne i Zdrowotne*, 4, 59-62
3. Dybińska E., Ostrowski A.(2003) Lęk u dziesięcioletnich dzieci uczących się pływać. *Wychowanie Fizyczne i Zdrowotne* 3, 33
4. Gedl-Pieprzycka I., Kisielewska A.(2008) Kontuzje, urazy i schorzenia spowodowane pływaniem- zapobieganie ich powstawaniu. *Wychowanie Fizyczne i Zdrowotne* 8, 16-20
5. Karpiński R. (2003) *Pływanie. Podstawy techniki. Nauczanie*. Katowice
6. Nowak M., Muszkiet R., Cieślicka M i wsp. (2013) Poziom zdolności motorycznych u dzieci w wieku przedszkolnym, a uczestnictwo w zajęciach pływania *Journal of Health Sciences* 3(12) 137-154
7. Okuszek M. (2007) Czy dzieci boją się wody- zależność od poziomu umiejętności pływackich. *Wychowanie Fizyczne i Zdrowotne*, 10, 51-54
8. Przewęda R. (2005) *Rozwój motoryczny*. W Biologiczne i medyczne podstawy rozwoju i wychowania: (red) Janczewski A. Warszawa Wyd. Akademickie Żak
9. Wiesner W. (1999) *Nauczanie - uczenie się pływania*. AWF Wrocław