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MOTIVATION FOR PRACTICING SWIMMING IN CHILDREN AGED 9-10 YEARS FOR ACHIEVING SPORTS PERFORMANCE

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CONCEPTUAL LANDMARKS OF THE RESEARCH

Relevance of the topic and importance of the addressed issue

The issue of motivation in the sports field in general, and in swimming in particular, represents a highly relevant and majorly important topic because it is crucial for involvement, success, and performance. Athletes' motivation develops through the complex interaction of external and internal factors, including a deep passion for the sport, the desire to demonstrate skills and talents, the aspiration to achieve personal and collective goals, as well as the search for recognition and satisfaction through sports success. Combined, these elements contribute to creating a solid and effective motivation, necessary for overcoming difficulties and achieving excellence in sport. This approach contributes to developing a solid foundation for sports success and the realization of athletes' personal goals [1, 6, 17, 19, 39, 40].

By researching the scientific literature in the field, specifically the theories of motivation in general, we can state that motivation:

- represents one of the main factors in practicing swimming;

- has a positive impact on the efficiency of sports activity, self-confidence, and the personality development of athletes;

– identifies the internal potential for personality formation and development. Motivation is a catalyst that brings out the inner resources of the child [8, 12, 31].

Description of the situation in the research field and identification of problems

In Romania, the issue of children's motivation for swimming and performance was researched by Baniaș P. [2], while aspects of motivation in sports can be found in the works of the following authors: Teodorescu A.S. [24], Epuran M. et.all [10], Popenici Ș. [22], Epuran M. et.all [11], Antoniale A., Antoniale L. [1], Cornianu D.R. [7], Popa C. et. all [23], Turcu T.C. [28]. They highlighted the importance of an integrated and sustained approach to encourage children to practice sports in general. They argue that motivation is an essential construct of performance and development, which requires a strategic and sustainable psychopedagogical intervention from all actors involved in the sports process.

Despite notable progress in understanding motivation, there are a number of problems and gaps in the research field that require increased attention, especially in the specific context of the 9-10 age group. Although general studies on motivation in youth sports exist, an in-depth understanding of the specific motivators for this age group, with its psychological and emotional particularities, is still needed. What exactly truly motivates 9-10 year old children to achieve performance in swimming? What are the motivational factors? Research must also identify the factors that lead to a decrease in motivation and, implicitly, to dropouts, and propose effective strategies to maintain medium and long-term commitment.

The important scientific problem solved in the research lies in the insufficient understanding of the motivational factors that influence the performance of 9-10 year old swimmers, as well as the lack of a specific program integrating these factors into the sports training process. This problem can be solved by identifying motivational factors and developing a pedagogical training model aimed at increasing motivation and performance levels, thereby offering

a new praxiological basis for youth training.

The purpose of the research: consists in identifying and analyzing motivational factors and their influence on 9-10 year old children who practice swimming, highlighting how motivation contributes to engagement, progress, and performance.

Research objectives:

1. Analysis of the specialized literature regarding the motivational factors that influence the practice of swimming at the age of 9-10 years and the achievement of sports performance.

2. Analysis of the perception of children, specialists, and parents regarding the factors that motivate or demotivate 9-10 year old children from practicing swimming and achieving sports performance.

3. Researching the level of general physical and specific training, as well as the motivational level of the children.

4. Experimental argumentation of the effectiveness of applying the program based on motivational factors for practicing swimming and achieving sports performance.

Research hypothesis: The implementation of a pedagogical program focused on motivation-specific activities within the swimming training routine will lead to a significant improvement in the motivation and sports performance of 9-10 year old children who practice swimming.

Synthesis of research methodology and justification of research methods:

The research was based on a series of studies in the field of motivation, such as: Baciu E. [3], Buzea C. [5], Cornianu D. [7], Gongearuc S., Calugher V. [14], Muste D. [18], Pânișoară I., Pânișoară G. [20], Hanțiu I. [15] Gavriluță C., Gavriluță N. [13].

Motivation is explained through various theories, such as Maslow's hierarchy of needs, Herzberg's two-factor theory, or Deci and Ryan's self-determination theory, each offering different perspectives on the factors that influence individual involvement and performance.

The research methods used are as follows: analysis of specialized literature, sociological survey, testing method, statistical-mathematical method, graphical and tabular method, and experiment.

The theoretical significance of the work consists in developing and substantiating the use of activities aimed at developing the motivation of 9-10 year old children who practice swimming. Practically, these activities contribute to increasing sports performance, self-confidence, and developing children's physical, psychological, and social skills.

The novelty and originality of the work: consists in analyzing the motivational factors and their impact on swimming practice in 9-10 year old children, as well as in developing a training program based on activities that stimulate motivation.

The applied value of the work consists in capitalising on the research results and the developed program, namely including the motivational component in the swimming training of 9-10 year old children. The research results can be used as a guide model within children's swimming clubs, for swimming coaches and teachers.

Implementation of scientific results: The results of the scientific research were disseminated through a series of articles published in the collections of national and international specialized

conferences organized in Romania and the Republic of Moldova. Also, the results obtained from the research can be optimally used as scientific-methodical material in the training process of young swimmers in sports clubs and schools by coaches or specialists in the field of swimming. Capitalizing on these data can bring significant practical benefits and support the development of sports performance in this sport.

Structure and volume of the thesis: introduction, three chapters, general conclusions and recommendations, bibliography consisting of 197 sources, annotation in Romanian, English, and Russian, 153 pages of core text, 28 tables, 51 figures, and 12 Appendices. The obtained results are published in 10 scientific works.

1. THEORETICAL SUBSTANTIATION REGARDING THE MOTIVATION OF 9-10 YEAR OLD CHILDREN FOR PRACTICING SWIMMING

Currently, motivation transcends an exclusively psychological approach, becoming an interdisciplinary construct used to elucidate the dynamics of human behaviors in various contexts, such as education, management, marketing, and sport. Its contemporary relevance is amplified by new perspectives offered by neuroscience, which investigates underlying neural processes and mechanisms to understand the biological foundations of the drive to action. The complexity of the concept of motivation as a psychological phenomenon has sparked the interest of several researchers, such as: Maslow A. H. [37, p. 381], Hellriegel [35, p.89], Gorman P. H. [34, p.98] Bologa M., Gherghişan D. [4, p.120], Teodorescu S. [26, p.140]. Each of them brings a valuable and distinct contribution to understanding the complexity of motivation.

Specialists in the sports field have highlighted a correlation between a child's attitudes and motivation, emphasizing that internal subjective states, such as feelings and beliefs, direct and energize the entire activity of the human being, thus influencing how children engage in educational and training activities [8, p.121]. The motives for practicing swimming identified by Michel Bouet [31, p.23] are: the need for movement, energy consumption, self-assertion, seeking compensation, social tendencies (the need for integration and affiliation), interest in competition, the desire to win, the aspiration to become a champion, competitiveness, a taste for risk, and attraction to adventure.

In addressing the issue of motivation, we brought into discussion the constitutive-associative components that contribute to the formation, maintenance, and direction of the motivational process. They do not act independently but interact and influence each other to sustain goal-oriented behavior [15, 22, 28, 36, 42]. Among these, we mention:

1. *Psychophysical components* such as energy level, coordination, health status, and adaptability are essential in swimming because they influence both the mental attitude and physical capacity of children.

2. *Regulative-volitional components* such as self-control, focus, attention, effort regulation, perseverance, self-discipline, decision-making capacity, etc., play a crucial role in motivation.

3. *Cognitive components* of motivation are essential for performance development in swimming because they influence self-perception, goal stability, training planning, and the use of

feedback, helping children regulate their behaviors and maintain an optimal motivational level [36].

4. *Affective and emotional components* of motivation influence how individuals manage emotions such as fear, joy, anxiety, or frustration, etc. Self-esteem begins to form during this period, and success and recognition from adults and peers can have a significant impact on motivation.

5. *Communicative and social components* influence the individual's ability to interact effectively with others, express needs and desires, and collaborate in groups, which can enhance the sense of belonging, support, and trust, thereby stimulating involvement and performance in shared activities. By developing these components, athletes can achieve performance and maintain stable motivation over the long term.

Studies focusing on the development of self-confidence through swimming [34, p.67] have highlighted that the emotional benefits entailed by swimming are very important, especially given that, from a psychological perspective, a child at the age of 9-10 is in a developmental stage [26, p.102]. Swimming can improve emotional well-being, contribute to reducing anxiety, and is a major factor in increasing self-confidence. Additionally, technology can be a powerful stimulant [14, 17, 30, 31]. For example, fitness apps create clear goals and offer immediate rewards, which can be highly motivating for the younger generation accustomed to rapid feedback.

In recent years, coaches have begun using educational videos as part of athlete training, including at the children's level. Whether for tactical explanations, technical demonstrations, or motivation, these video materials are integrated into the training process with the aim of increasing sports performance [30].

In conclusion, motivation represents a key factor for involvement and success in practicing a sport. It not only supports the development of physical skills but also contributes to personal growth, mental health, and personal fulfillment. When they feel motivated, athletes can acquire a sense of personal achievement and development.

2. METHODOLOGICAL FRAMEWORK OF THE RESEARCH ON THE MOTIVATION OF 9-10 YEAR OLD CHILDREN FOR PRACTICING SWIMMING

Research methodology

To achieve the research objectives, the following research methods were used: analysis of specialized literature and synthesis of information, pedagogical observation, questionnaire-based survey method, testing method, pedagogical experiment method, statistical-mathematical methods for data processing and interpretation, and graphical and tabular methods.

Research sample:

- 30 children aged 9-10 years who practice swimming (20 male subjects and 10 female subjects) from the Târgoviște Swimming Complex and the Târgoviște Sports School Club Swimming Pool;
- 50 swimming coaches (a cohort consisting of 16 female subjects and 34 male subjects);
- 50 parents whose children practice swimming (29 female subjects and 21 male subjects).

Research stages:

Stage I - carried out during the 2021-2022 period, analysis of specialized literature.

Stage II - **Pre-testing**, carried out from October 2022 to January 2023. In this stage, the following activities were performed:

1. Processing and systematization of results obtained from physical and specific tests and questionnaires.
2. Application of the "Motivation for Swimming" Test:
3. Evaluation of physical and specific preparation: physical training tests: 7x5m shuttle run (sec), 3'30" timed run (m), standing long jump (cm), squats for 1 min (number of repetitions); and specific training tests: 50m backstroke (sec), 50m freestyle (sec), front crawl legs with hands on a kickboard for 25m (sec).

Stage III: February-July 2023 – application of the Training Program using motivational factors "I want and I can achieve performance!".

Stage IV - **Post-testing** – August 2023

In this stage, the test "Motivation for swimming of 9-10 year old children" (adapted from the N. Luskanova method) was applied again for both the control group and the experimental group.

Post-testing Phase

Children from the two investigative groups were subjected to the same tests during the post-test phase.

Data analysis and interpretation

In order to carry out the experiment, in the first phase we applied research methods through which we planned to obtain concrete data regarding the level of motivation for swimming in 9-10 year old children. We resorted to the application of the Test for Studying Motivation for Swimming, adapted from the N. Luskanova method, consisting of 8 questions, administered to a total of 30 children (20 boys and 10 girls) from the two groups subjected to the experiment: the control group and the experimental group.

For each question, we asked the children to choose only one out of three response variants. A series of relevant indicators for motivation and swimming performance were evaluated, including the level of interest, commitment, and satisfaction regarding swimming. The scoring for each response variant is as follows: a) 3 points; b) 1 point; c) 0 points. According to the sum of the accumulated points, children's motivation for practicing swimming is assessed as follows: 25-30 points – very high motivation; 20-24 points – good motivation; 15-19 points – positive motivation; 10-14 points – weak motivation; below 10 points – disinterest.

Analyzing the results in Table 1, we observe that on Level I, with a very good motivation, two subjects from the experimental group are ranked: S.C. with 26 points and C.R. with 25 points, and from the control group, subject M.R. with 25 points. On Level II (good motivation), 3 subjects from the experimental group and six subjects from the control group are ranked, 3 with 23 points each and 3 with 21 points each. We notice that in the experimental group, the number of subjects ranked on Level II is relatively small compared to the control group.

Table 1. Motivation level for swimming in children aged 9-10 years (n=20 boys), initial testing

No	Experimental group	Control group	Level	Points	Motivation
1.	SC-26 p CR- 25 p	MR-25 p	I	25-30	Very good motivation
2.	I.I-24p AN-23 p AT-20 p	BM-24 p NA-23 p RN-23 p CI-21 p A I-21 p VE-21p	II	20-24	Good motivation
3.	DF- 19 p MG-18 p BL- 17 p IA-17 p GI-15 p	BG-19 p RO-18 p DC-15 p	III	15-19	Relatively good motivation
4.			IV	10-14	Poor motivation
5.			V	<10	Very poor motivation

On Level III (relatively good motivation), there are 5 subjects from the experimental group: D.F. with 19 points, M.G. with 18 points, B.L. and I.A. with 17 points, G.I. with 15 points, and three subjects from the control group: B.G. with 19 points, R.O. with 18 points, and D.C. with 15 points.

Table 2. Motivation level for swimming in children aged 9-10 years (n=10 girls), initial testing

No	Experimental group	Control group	Level	Points	Motivation
1.	GM -26-p		I	25-30	Very good motivation
2.	AF-22 p BM-20 p	DV-22 p AN-20 p IF-20 p	II	20-24	Good motivation
3.	EL-19 p MT-18 p	BP-18 p NO-18 p	III	15-19	Relatively good motivation
4.			IV	10-14	Poor motivation
5.			V	<10	Very poor motivation

The results analyzed after applying the initial test indicate an average level of motivation for practicing swimming for both the experimental and the control groups.

Table 2 highlights the individual results obtained in the initial testing of the motivation level for the girls' experimental and control groups. On Level I, with very good motivation, sits a single subject from the experimental group, G.M. with 26 points. On Level II, with good motivation, there are 2 subjects from the experimental group: A.F. with 22 points and B.M. with 20 points, and 3 subjects from the control group: D.V. with 22 points, A.N. and I.F. with 20 points each. On Level III (relatively good motivation), there are 2 subjects from each group: E.L. with 19 points and M.T.

with 18 points from the experimental group, and B.P. and N.O. with 18 points each from the control group.

The analysis of the results obtained in the initial testing does not indicate significant differences between the two groups subjected to the experiment. The level of children's motivation for swimming stands at an average baseline for the entire sample (girls and boys, from both groups). This uniform baseline (average motivation) constitutes the optimal methodological premise for the subsequent implementation of the experimental program, eliminating the confounding factor related to an unequal distribution of motivation at the initial testing.

Analysis of the questionnaire results administered to children

The majority of children (68%) indicated that the main motivational factor was the desire to acquire technical knowledge and develop specific skills within this sports discipline; extrinsic motivation for self-assertion in the field was chosen by 12% of respondents; recommendations from parents or other significant persons constituted the option chosen by 8% of participants; another 8% considered swimming to be an activity that generates pleasure and relaxation, while 4% of the sample exhibited exploratory motivation or simple curiosity toward a new sports activity.

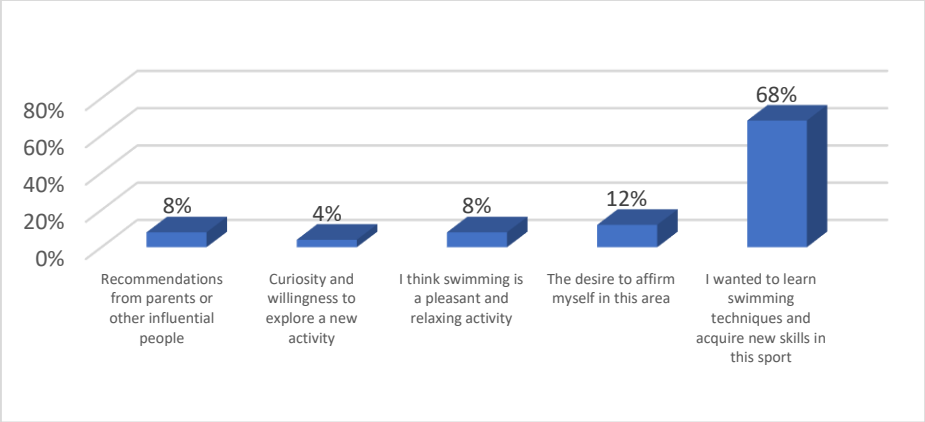


Fig. 1. Motivational factors for swimming – children's responses

Analysis of the results shows that a lack of support or encouragement from coaches is the main obstacle to maintaining motivation for swimming for 64% of the subjects, followed by a lack of visible progress mentioned by 14% of subjects, difficulties in performing correct technique by 10%, and issues related to equipment or training conditions reported by 8% of children (Figure 2).

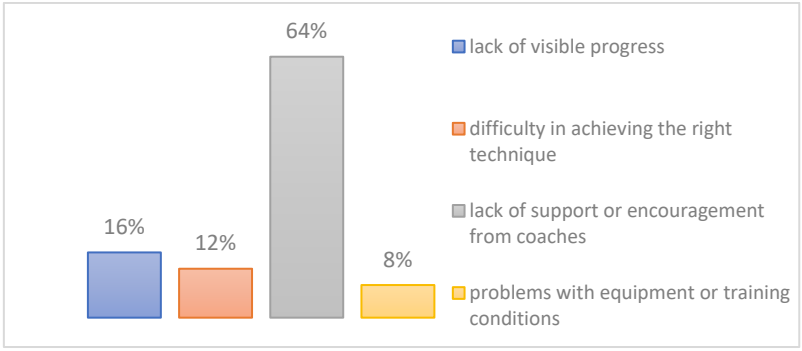


Fig. 2. Obstacles in maintaining motivation

Analysis of specialists' opinions on the influence of motivational factors on swimming and performance

In the opinion of coaches, the atmosphere during training sessions represents the main motivating factor for achieving performance in swimming for 9-10 year old children, accounting for 38% of responses. The skills and qualities of the coach are mentioned as a motivating factor by 18% of specialists, self-confidence by 22% of them, parental support and encouragement at 14%, while rewards and praise account for 8% in the hierarchy of motivational factors. Success in swimming at this age depends not only on physical training but also on a holistic approach to motivation that combines building children's confidence with a stimulating training environment and effective leadership from coaches (Figure 3).

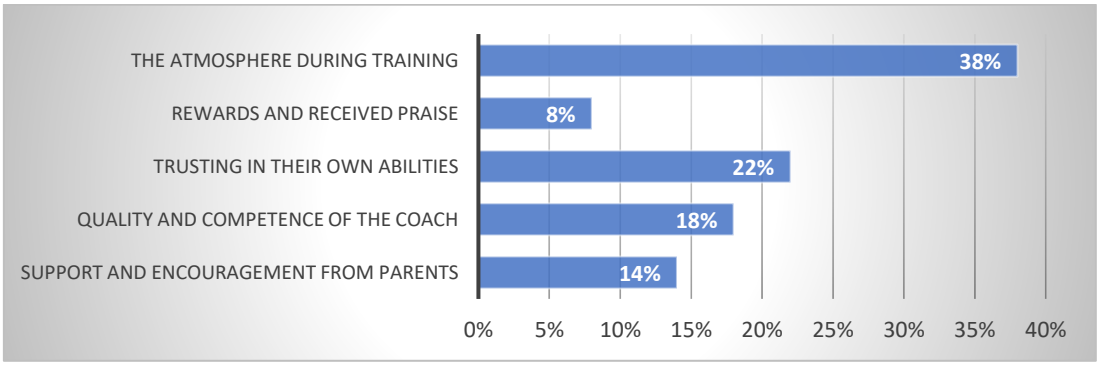


Fig. 3. Motivational factors for swimming and performance at the age of 9-10 years

Regarding the use of rewards as motivational factors, the results of the sociological survey show that 40% of the interviewed coaches consider symbolic prizes, such as medals and diplomas, to be the most important motivating factors for children; 24% mention financial rewards, while celebrating successes, recognition, and praise were mentioned by 26% of specialists. The opportunity to choose future activities that are part of the training routine and provide autonomy in training planning was checked by 10% of specialists (Figure 4).

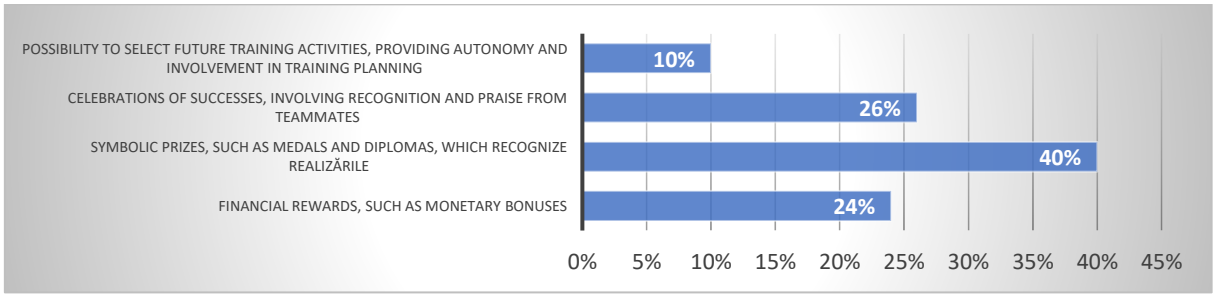


Fig. 4. Use of rewards as motivational factors

Coaches give the highest importance to symbolic rewards and social recognition in motivating children. Financial rewards are considered less relevant, and the athlete's autonomy in the training process is notably underestimated as a motivational factor, which could represent an area of development for coaching practices.

Demotivation of children for success and sports performance in swimming, in the opinion of 72% of the interviewed coaches, is generally influenced by low self-esteem; 16% state that parents

do not support their children enough; 10% mention a lack of rewards and praise, while 2% mention inefficient coach-parent or coach-child communication (Figure 5).

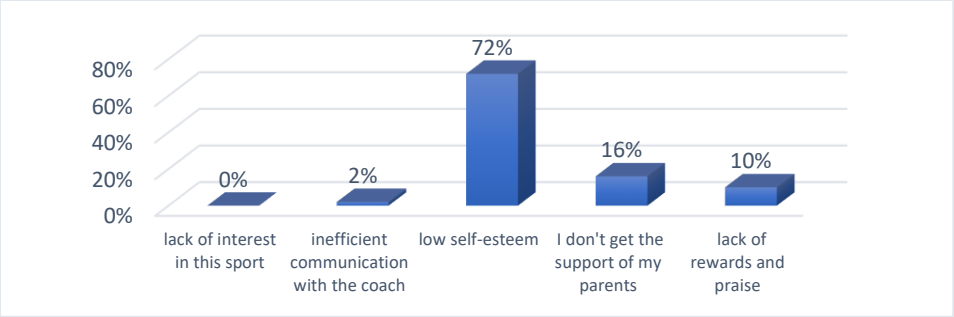


Fig. 5. Demotivating factors for practicing swimming at the age of 9-10 years

Regarding the correlation between team performance and motivation for practicing swimming, the following distribution of scores can be highlighted: 58% of coaches appreciate this correlation to a large extent, 24% to a very large extent, 12% to a moderate extent, and 6% to a small extent.

A positive atmosphere and the coach's competencies contribute to an environment supporting autonomy and relatedness, while rewarding constant effort reinforces the sense of competence.

Analysis of parents' opinions regarding the influence of motivational factors on children's swimming and performance at the age of 9-10 years

Analyzing parents' opinions is important because they are directly involved in the care, education, and development of their children. In addition, parents can more accurately state the reasons that led their children to choose swimming as a sports activity, as they know them best.

At 28%, parents indicated the child's desire to learn how to swim as the main reason; recommendation from family and friends was mentioned by 16% of parents, while 24% associated swimming with a relaxing activity. Health benefits were mentioned by 22% of parents, and 10% mentioned obtaining performances in swimming. Overall, the obtained data highlight that the reasons children choose swimming steer toward the general well-being of the child (desire, relaxation, health), factors that take precedence over reasons targeting performance.

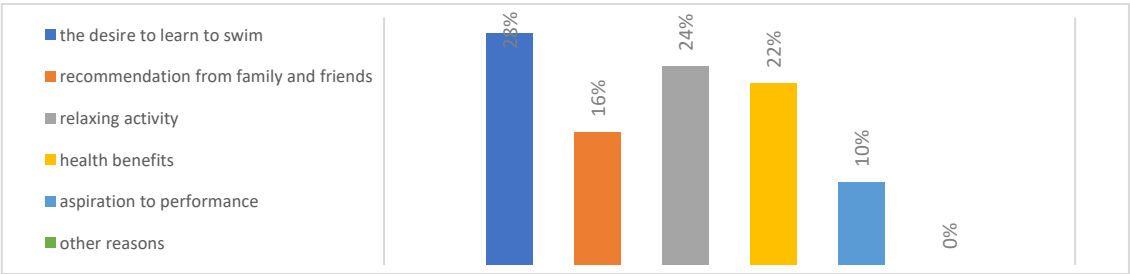


Fig. 6. Motivational factors mentioned by parents

Regarding the aspects considered most relevant for obtaining sports performance, the following results were recorded: 14% of parents mentioned confidence in personal abilities, 28% highlighted the quality and efficiency of training sessions, 8% mentioned the importance of effective communication with the coach, 20% checked support from parents, and 22% considered

that personal effort and perseverance are the most important factors. Other aspects were also mentioned: conditions within the swimming complex (10%) or the child's motivation for swimming (6%). These results show that a multitude of relevant factors sustain children's motivation for swimming (Figure 7).

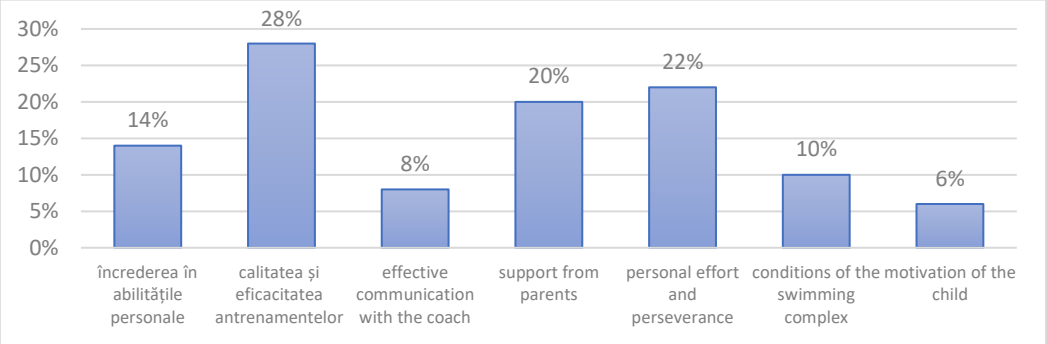


Fig. 7. Aspects contributing to achieving performance in swimming

On the other hand, as observed in Figure 8, the relevant aspects influencing the child's motivation for swimming are: the atmosphere and team dynamics, mentioned by 46% of respondents, training methods (38%), and 12% consider that parental involvement and support are crucial for increasing the child's motivation. Only 4% of respondents consider that rewards represent an important component in stimulating the child's motivation, showing that internal motivation is what drives the child to practice swimming.

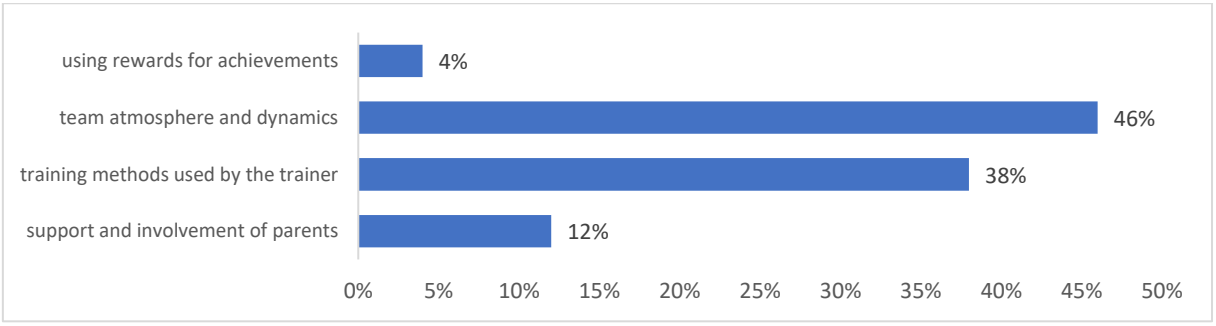


Fig. 8. Relevant factors influencing the child's motivation for swimming

The analysis of factors contributing to success and performance in swimming reveals complementary perspectives, but with a different emphasis, from coaches and children. In the coaches' opinion, key factors leading to success and performance are predominantly linked to the athletes' intrinsic attitudes and qualities. They emphasize children's constant effort and perseverance (42%) as the most important determinant. This reflects the coaches' understanding that discipline, sustained work, and the capacity to overcome obstacles are fundamental for long-term progress. In addition to effort, swimming skills (36%) are considered a major factor. This indicates recognition of natural talent and physical predispositions that can facilitate learning and performance. Practically, coaches value both the work put in and the native potential of the athletes.

From the children's perspective, the importance of results and performance is a motivating factor. An overwhelming 74% of children considered that performance (in the sense of

achievements, results, or reaching certain goals) influences their success in swimming to a very large extent.

Analysis of the physical and specific preparation level of 9-10 year old children

To demonstrate the efficiency of the proposed program, we turned to analyzing the level of general physical and specific preparation of the children who participated in the pedagogical experiment. As mentioned previously, children from both the experimental and control groups were subjected to a set of tests according to the age standards recommended by the Romanian Swimming Federation.

The analysis of descriptive indicators presented in Table 3 for the motor tests at the initial testing highlights an initial advantage of the control group compared to the experimental group. Overall, in the motor tests, the control group recorded slightly higher average values in the 7x5m shuttle run with a time that was 0.28 sec better, and in the standing long jump with a difference of 5.4 cm compared to the experimental group. Similar average values were recorded in the squat test for 1 min, with 20.4 reps/min for the experimental group and 20.3 reps/min for the control group. In the 3'30" timed run test, subjects in the experimental group demonstrated a better reaction speed, covering an average of 25.2 m more than the control group.

Analyzing all these parameters in an integrated manner, we can state that the research subjects form a standard study group. The fact that all tests indicate P>0,05 at the initial testing transforms the study into a rigorously controlled experiment, where the independent variable (the experimental program) is the only factor capable of bringing about changes at the final testing.

Table 3. Comparative analysis of initial results defining the training level of the experimental and control groups (n=20, boys)

No	Tests	Groups	x	±m	Cv %	s	min	max	Sign. diff.
1	**Shuttle run 7x5m, sec**	E	15,42	0,84	3,03	0,46	15,4	16,2	**t-0,239**
		C	15,14	1,17	3,60	0,54	14,8	16,1	P>0,05
2	**Timed run 3`30``, m**	E	746,7	9,95	4,21	31,48	705	795	**t-0,961**
		C	721,5	7,00	3,06	22,13	695	760	P>0,05
3	**Standing long jump, cm**	E	146,1	3,49	3,23	4,72	140	152	**t-1,090**
		C	151,5	3,51	3,16	4,79	145	160	P>0,05
4	**Squats, nr. reps/min**	E	20,4	0,47	7,38	1,50	19	23	**t-0,161**
		C	20,3	0,42	6,58	1,33	19	23	P>0,05
5	**50 m backstroke, sec**	E	44,09	0,33	2,38	1,07	43,28	46,93	**t-0,421**
		C	44,36	0,55	3,92	1,73	42,02	48,75	P>0,05
6	**50 m freestyle, sec**	E	39,03	0,52	4,19	1,65	37,01	42,39	**t-0,500**
		C	38,63	0,61	5,01	1,93	35,02	41,28	P>0,05
7	**Front crawl legs, hands on kickboard, 25m, sec**	E	30,86	0,63	6,54	2,01	28,31	35,18	**t-0,941**
		C	30,06	0,58	6,11	1,83	28,02	34,11	p>0,05

Note. *For n=20, f- 199, he critical value of Student's t-criterion will be: 2,093; 2,861; 3,883. P<0,05; 0,01; 0,001.*

From Table 4, the analysis of results for the motor tests in the case of girls shows that the experimental group achieved an average value of 16.02 s in the shuttle run test, compared to 15.85 s for the control group. In the 3'30" timed run test, the average value for the experimental group is

697,8 m and 701.4 m for the control group. The difference between these values is 3.6 m in favor of the control group. The statistical values P>0,05 highlight this aspect.

Measurements taken for the standing long jump test at the initial testing indicate that the average value in the experimental group is 144.2 cm, and in the control group is 144.6 cm, with a very small difference between groups of only 0.4 cm. The importance of P > 0,05 resides in the fact that it gives us certainty that future progress in the water (in the crawl legs test) will not be due to a raw increase in muscle strength, but to the way the experimental methodology managed to convert this dry-land strength into hydrodynamic efficiency. In the motor tests, there are no significant differences between the two groups of children subjected to the experiment. The slightly higher results recorded by the control group are not pronounced enough to influence the course of the experiment.

Based on data recorded for the 50m backstroke test, we observe the following: the average value is 47.23 s for the experimental group and 46.71 s for the control group, indicating that the control group had a slightly higher performance. The difference between the groups is 0.52 s. The indicators for minimum values (45.81 s experimental group and 45.80 s control group) and maximum values (49.81 s experimental group and 48.80 s control group) show that results in both groups are relatively similar for this test as well.

Table 4. Comparative analysis of initial results defining the training level of the experimental and control groups (n=10, girls)

No	Tests	Groups	x	±m	Cv%	s	min	max	Sign. diff.
1	**Shuttle run 7x5m, sec**	E	16,02	0,11	0,16	0,02	16,01	16,07	**t-0,253** P>0,05
		C	15,85	0,67	6,71	1,51	15,07	16,15	
2	**Timed run 3`30``, m**	E	697,8	4,56	7,67	10,20	685	710	**t-0,770** P>0,05
		C	701,4	1,02	8,34	2,30	690	715	
3	**Standing long jump, cm**	E	144,2	3,32	5,15	7,42	136	155	**t-0,098** P>0,05
		C	144,6	2,35	15,05	0,78	135	158	
4	**Squats, nr. reps/min**	E	21,8	0,37	3,83	0,83	21	23	**t-0,789** P>0,05
		C	22,4	0,67	6,71	1,51	21	24	
5	**50 m backstroke, sec**	E	47,23	0,72	3,40	1,61	45,81	49,81	**t-0,419** P>0,05
		C	46,71	1,02	8,34	2,30	45,80	48,80	
6	**50 m freestyle, sec**	E	38,24	0,49	2,88	1,10	36,88	39,78	**t-1,433** P>0,05
		C	37,38	0,35	15,05	0,78	35,81	39,04	
7	**Front crawl legs, hands on kickboard, 25m, sec**	E	30,36	0,40	2,99	0,90	29,09	31,23	**t-0,780** P>0,05
		C	30,27	0,67	6,71	1,51	29,43	31,22	

Note. *For n=10, f- 9, the critical value of Student's t – criterion will be: 2,262; 3,250; 4,781. P <0,05, 0,01, 0,001.*

Results for the 50m freestyle test indicate a small difference between the experimental group and the control group in terms of performance. The experimental group had an average of 38.24 s, while the control group had an average of 37.38 s, a slightly better time recorded by the control group by 0.85 s. Both groups recorded good minimum times (36.88 s experimental group and 35.81 s control group), and maximums show a score of 39.78 s for the experimental group and 39.04 s for the control group.

In the case of the front crawl legs with hands on a kickboard for 25m test, the average values recorded by the two groups subjected to the experiment are: 30.36 s for the experimental group and 30.27 s for the control group, a better time for the control group by 0.09 s. The difference between the minimum values per group (29.09 s experimental group and 29.43 s control group) and the maximum values (31.23 s and 31.22 s) is small; this difference is negligible and, from a statistical point of view, is not significant P>0,05. Both the group that will benefit from a specific intervention (experimental group) and the group that will continue with standard training (control group) start from an equivalent level of motor skills.

The level of motivation is of particular importance in optimizing and developing children's motor and swimming capacities. At the same time, developing motivation for sports and swimming is a priority for improving performance because it directly influences effort and perseverance in sports. The motivational component is just as important as physical and technical training, constantly contributing to maintaining long-term engagement [31, 34].

Methodological landmarks of the Training Program using motivational factors "I want and I can achieve performance!"

The program utilizes a combination of activities grouped into four main categories, which complement each other to create an environment conducive to motivation and performance:

1. **Sports games with prizes** – a category of activities that contribute to developing motivation for success and self-assertion, directly addressing the need for recognition and performance.

The activity **"Swimming Demonstration"** takes place in two distinct stages, each contributing specifically to increasing children's motivation.

Content I: Demonstration with prizes (included in mesocycle 4). Children demonstrate their swimming skills by executing three specific tests (50m freestyle, 50m backstroke, 25m backstroke legs with kickboard).

Content II: Swimming demonstration by advanced level children. Placed in mesocycle 6 (recovery), this activity, through the observation of advanced techniques, speed, and fluidity of movements, can help young swimmers set long-term goals for their own development.

The activity **"Cupa Cetății" (Fortress Cup)**, organized annually at the Târgoviște Touristic Swimming Complex (05.05.2023), is the most important activity in the developed program. The results and experiences from "Cupa Cetății" will be used for subsequent discussions (for example, for "Focusing on positive experiences") to consolidate the experience and establish new goals for the future, encouraging the continuation of swimming practice.

2. Activities for self-confidence development – a category of activities that directly address low self-esteem and lack of encouragement, cultivating a positive attitude and autonomy.

Applied contents:

"The I Can Ladder!" breaks down large goals into small, easy-to-reach steps, an aspect that increases confidence and maintains motivation by celebrating every small victory, ensuring step-by-step progress.

"Building affirmations used for competitions or physical preparation" helps with positive mental programming. Affirmations like "I am strong!" reduce anxiety, reinforce confidence, and maintain focus during training and competitions, improving technical execution.

"Setting clear and realistic goals" provides a precise direction and avoids demotivation caused by unrealistic expectations. Well-defined goals guide specific and efficient training, leading to measurable physical and technical progress.

"Highlight the positive and improve the negative." Balanced feedback builds confidence through the recognition of successes and transforms mistakes into learning opportunities. This approach maintains motivation and allows for the continuous correction of technique without being discouraging.

"Meeting a champion" is an activity where champions can give practical advice regarding training, specific techniques, managing pressure, and the mindset required to succeed. This is highly valuable information and can positively influence involvement in training sessions and participation in competitions.

3. Fun games – a category of activities focusing on skill development and learning new techniques in an attractive manner, ensuring a positive atmosphere and mitigating perceived difficulties in performing correct techniques.

Applied contents:

"The Seals" – an individual game that helps children adjust their position to maintain stability and develop the skills necessary for executing swimming techniques. This exercise strengthens leg muscles and perfects kick coordination, which are fundamental aspects for speed and efficiency in swimming.

"The Swimming Contest" – an activity that emphasizes pushing one's limits in a relaxed way, contributing to the consolidation of swimming strokes and the development of motivation for success in a non-formal setting.

"Marco Polo" and *"Capture the Flag in the Pool"* are classic, dynamic group games integrated into training sessions to develop cooperation, physical, and emotional skills, and to maintain a positive and energetic atmosphere.

"Coin Hunt" is a game that develops endurance and muscle strength (especially in the legs), contributing to general physical conditioning. Technical learning games (e.g., *"Butterfly Race", "Dolphin Relay"*) contribute to overcoming difficulties in performing correct techniques

4. Recreational and relaxation activities – target the health and well-being of children, contributing to a positive atmosphere and consolidating self-confidence through complementary experiences.

Applied contents:

Swimming for health, a group activity including a meeting with a physical education specialist and a picnic, extends motivation beyond the pool, promoting swimming as a healthy lifestyle and developing self-confidence by understanding long-term benefits.

Interesting training sessions with cheerful races are achieved through a variety of team games (swimming with bags, underwater with rolls, with plastic balls, with jumps). The program keeps

motivation high during routine training, developing physical and emotional skills and the desire for group integration. The games contribute to developing various physical skills (coordination, balance, strength, endurance) and swimming skills (propulsion, underwater orientation, body control) in varied and dynamic contexts.

"I can help others – adapted Aqua Gym". Each child plays the role of a "mentor" or "helper", interacting directly and supporting children with disabilities during swimming sessions or specific water exercises.

Watching motivational videos are group activities that offer an inspiring perspective, developing motivation for swimming and performance through examples of success (such as David Popovici) and through messages about managing emotions and perseverance, contributing to children's emotional development and self-esteem. This activity is integrated periodically, once a month, at the end of training sessions.

3. EXPERIMENTAL ARGUMENTATION OF THE TRAINING PROGRAM USING MOTIVATIONAL FACTORS "I WANT AND I CAN ACHIEVE PERFORMANCE!"

Although general and specific physical preparation are indispensable for athlete development, motivation is an essential element in maintaining interest and children's involvement in the training process. It not only stimulates effort and perseverance but also contributes to overcoming obstacles, favoring exceptional sports performances.

The data in Table 5 demonstrate that the experimental group (boys) recorded an index value of 20.4 points at the initial testing, and 27.6 points at the final testing, with a difference of 7.2 units. The value P<0,05 indicates a significant increase in the motivational level of the experimental group. The control group (boys) did not show significant changes. The group's average value increased slightly from 21,0 ±2,86 at the initial testing to 21,4±2,07 at the final testing, with a difference of only 0.4 units. P>0,05 indicates that the motivational level of the group recorded only a slight, statistically non-significant increase.

Comparative analysis of the results of the test "Motivation for swimming of 9-10 year old children" (adaptation after the N. Luskanova method)

Table 5. Comparative analysis of the motivation level for practicing swimming by 9-10 year old children, (n=20 boys; n=10, girls)

No		Groups	Initial indices x ±m	Final indices x ±m	Statistical significance	
					t	P
1.	**Boys Sample**	E	20,4±3,63	27,6±2,88	**2,440**	<0,05
		C	21,0±2,86	21,4±2,07	**0,173**	>0,05
		t	**0,130**	**1,781**	-	-
		p	>0,05	<0,05	-	-
2.	**Girls Sample**	E	21,0±2,82	27,6±2,30	**2,830**	<0,05
		C	19,6±1,49	19,8±2,28	**0,109**	>0,05
		t	**0,438**	**2,408**	-	-
		p	>0,05	<0,05	-	-

Note n=10 f- 9 t 2,262, 3,250, 4,781 P <0,05 0,01 0,001
n=20 f- 19 t 2,093, 2,861, 3,883 P <0,05 0,01 0,001

In the case of girls in the experimental group, the average value increased from 21±2,82 at the initial testing to 27,6±2,30 at the final testing, with a difference of 6.6 units. P<0,05 reflects a significant improvement in the motivational level. For girls in the control group, the average value increased slightly from 19,6±1,49 initially to 19,8±2,28 finally, with a difference of 0.2 units. Thus, P>0,05 shows that there is no statistically significant improvement between the two testing sessions, initial and final. The results of the statistical analysis validate the research hypothesis, confirming the existence of a significant causal relationship between the application of the pedagogical intervention program and the considerable increase in the motivation level of subjects in the experimental group.

Analysis of results in motor tests and swimming tests, experimental group and control group

Through the comparative analysis of results obtained in motor tests and specific swimming tests, for both the experimental and control groups, we will evaluate the impact of the motivational component on the performances recorded by children, aiming to identify differences between initial and final testing. Table 6 illustrates these differences.

The values < 0,0, P < 0,001, P <0,05 indicate an extremely significant statistical difference in performance improvement for the experimental group from initial to final testing. For example, in the 7x5m shuttle run test at the final moment (post-intervention), there is a statistically significant difference between the performance of the experimental group (12,74±0,80) and that of the control group (15,14±1,17).

Table 6. Comparative analysis of the general and special physical preparation level of the subjects participating in the pedagogical experiment (n=20, boys)

No	Tests	Group	Initial indices x ±m	Final indices x ±m	Statistical significance	
					t	P
GENERAL PHYSICAL TRAINING						
1.	**Shuttle run 7x5m, sec**	E	15,42±0,84	12,74±0,80	**3,671**	<0,01
		C	15,14±1,17	15,14±1,07	**0**	>0,05
		t	**0,195**	**1,804**	-	-
		P	>0,05	>0,05	-	-
2.	**Timed run 3`30``, m**	E	746,7±9,95	800,1±8,08	**6,488**	<0,001
		C	721,5±7,00	725,1±6,99	**0,576**	>0,05
		t	**2,072**	**7,022**	-	-
		P	>0,05	<0,001	-	-
3.	**Standing long jump, cm**	E	146,1±3,49	162,2±3,56	**5,111**	<0,001
		C	151,5±3,51	151,8±3,54	**0,094**	>0,05
		t	**1,090**	**2,071**	-	-
		P	>0,05	>0,05	-	-
4.	**Squats 1 min, nr. reps.**	E	20,4±0,47	23,4±0,42	**7,500**	<0,001
		C	20,3±0,42	20,7±0,33	**1,212**	>0,05
		t	**0,158**	**5,113**	-	-
		P	>0,05	<0,001	-	-
SPECIAL PHYSICAL TRAINING						
5.	**50m backstroke, sec**	E	44,09±0,33	43,01±0,38	**3,343**	<0,01
		C	44,36±0,55	44,33±0,54	**0,061**	>0,05
		t	**0,421**	**2,000**	-	-
		P	>0,05	>0,05	-	-

6.	**50m freestyle, sec**	E	39,03±0,52	37,04±0,42	**4,638**	<0,001
		C	38,63±0,61	38,80±0,57	**0,321**	>0,05
		t	**0,500**	**2,588**	-	-
		P	>0,05	<0,05	-	-
7.	**Front crawl legs, hands on kickboard, 25m, sec**	E	30,86±0,63	29,02±0,67	**3,228**	<0,01
		C	30,06±0,58	30,04±0,58	**0,038**	>0,05
		t	**0,934**	**1,159**	-	-
		P	>0,05	>0,05	-	-

Note: n=10 f=8 t 2,306, 3,355, 5,041 P<0,05, 0,01, 0,001
n=20 f=18 t 2,101, 2,878, 3,922 P <0,05 0,01 0,001.

The stagnation of the control group (average 15.14s at both testings) demonstrates that traditional swimming training does not implicitly develop agility and reaction speed on dry land. In the 3`30`` timed run test, P>0,05 shows that the initial results of the two groups are comparable. Final results show that the experimental group also recorded progress in this test. The average values of the group at initial testing were 746.7 m, and at final testing 800.1 m, with a progress of 53.4 m per group. The control group initially recorded an average value of 721.5 m, and at the final testing 725.1 m, with a slight progress of 3.6 m per group. The experimental group recorded visible progress, while in the control group progress was very small, with a value of P >0,05.

The high motivational level and games involving rapid changes of direction, accelerations, and repeated decelerations, often under the pressure of friendly competition, contributed to the progress of children in the experimental group.

In the swimming tests, the results recorded by the experimental group are as follows: in the 50m backstroke test (sec), a progress of 1.08 s was recorded at the final testing; in the 50m freestyle test, a progress of 1.99 s; and in the front crawl legs with hands on a kickboard for 25m test (sec), the recorded progress is 1.60 s, highlighted by P<0,01 and P<0,001. In the control group, the recorded results show that in the 50m backstroke test the difference is only 0.03 s; in the 50m freestyle test (sec) only 0.17 s between the two testings, and in the front crawl legs with hands on a kickboard for 25m test (sec), we notice a stagnation of the group average, the difference being small at only 0.02 s.

The results recorded by the two groups of girls at the initial and final testing (Table 7) show that in the 7x5m shuttle run test, the experimental group recorded progress of 2.38 s between the two testings, highlighted by the value P<0,001. The control group, with a difference between testings of only 0.02 s, does not record progress; the value P>0,05 confirms that there are no statistically significant changes.

In the 3`30`` timed run test, the experimental group recorded an increase in the group average value by 9.2 m, progress supported by P <0,05. Comparing the averages of the control group indicates a slight tendency toward improvement in general performance, with an increase of 3.8 m per group, but the value P >0,05 confirms that there is no statistically significant difference between the two testings. The lack of significant progress is in line with the absence of a specific intervention, consolidating the control group's role as a valid reference baseline.

Table 7. Comparative analysis of the general and special physical preparation level of the subjects participating in the pedagogical experiment (n=10, girls)

No	Tests	Group	Initial indices x ±m	Final indices x ±m	Statistical significance	
					t	P
GENERAL PHYSICAL TRAINING						
1.	**Shuttle run 7x5m, sec**	E	16,02±0,41	13,64±0,33	**7,020**	<0,001
		C	15,85±0,67	15,83±0,35	**0,038**	>0,05
		t	**0,216**	**4,553**	-	-
		P	>0,05	<0,05	-	-
2.	**Timed run 3`30``, m**	E	697,8±14,56	757,0±15,99	**4,314**	<0,05
		C	701,4±11,02	705,2±10,67	**0,391**	>0,05
		t	**0,197**	**2,807**	-	-
		P	>0,05	<0,05	-	-
3.	**Standing long jump, cm**	E	144,2±5,32	164,0±3,21	**4,658**	<0,01
		C	144,6±4,35	145,4±4,02	**0,213**	>0,05
		t	**0,058**	**3,618**	-	-
		P	> 0,05	<0,05	-	-
4.	**Squats 1 min, nr. reps.**	E	21,8±0,68	25,4±0,40	**6,666**	<0,01
		C	22,4±0,67	22,4±0,35	**0**	>0,05
		t	**0,631**	**5,660**	-	-
		P	>0,05	<0,01	-	-
SPECIAL PHYSICAL TRAINING						
5.	**50m backstroke, sec**	E	47,23±0,72	45,07±0,95	**2,805**	<0,05
		C	46,71±1,02	46,67±0,67	**0,048**	>0,05
		t	**0,419**	**1,379**	-	-
		P	>0,05	<0,05	-	-
6.	**50m freestyle, sec**	E	38,24±0,49	36,11 ±0,53	**4,650**	<0,01
		C	37,38±0,35	37,12±1,02	**0,303**	>0,05
		t	**1,433**	**0,878**	-	-
		p	>0,05	>0,05	-	-
7.	**Front crawl legs, hands on kickboard, 25m, sec**	E	30,36±0,40	28,49±0,49	**2,968**	<0,05
		C	30,27±0,67	30,22±0,35	**0,066**	>0,05
		t	**0, 115**	**2,883**	-	-
		P	>0,05	<0,05	-	-

Note: n=5 f = 4 t 2,776, 4,604, 8,610 P<0,05, 0,01, 0,001
n=10 f=8 t 2,306, 3,355, 5,041 P<0,05, 0,01, 0,001

In the standing long jump test (explosive leg power), the experimental group recorded progress with an average difference of 19.8 cm, with P <0,01, while the control group recorded minimal progress with a difference of 0.8 cm; the value P>0,05 indicates the absence of a statistically significant change in children's performance in this test. Girls in the experimental group worked at a much higher intensity; relays that included jumps and explosive starts shaped leg power.

While monotony in the control group lowered motivation, in the experimental group the desire to win the game motivated the girls to perform movements at maximum speed. In the 1 min squats test, girls in the experimental group recorded an improvement in the group average with a difference of 3.6 reps/min; P <0,01 confirms the positive impact of the intervention. In the case of the control group, the complete stagnation of performance is demonstrated by the maintenance of an identical average (22.4 reps/min); even though some subjects made small progress, others recorded regression. P>0,05 indicates this complete stagnation.

Following the experiment, it was found that girls in the experimental group achieved performances in the three swimming tests as well. A statistically significant improvement in time was recorded in the 50m backstroke test (sec), from 47,23±0,72 s to 45,07±0,95 s, in the 50m freestyle test (sec), the initial average was 38,24±0,49 s, and the final one was 36,11±0,53 s, and in the last test, front crawl legs with hands on a kickboard for 25m (sec), the experimental group significantly reduced the average time from 30,36±0,40 s to 28,49±0,49 s. P< 0,05 highlights an increase in the power of the leg kick.

In the control group, the average values in all three swimming tests show minimal progress, with a difference between testings of 0.04 s in the 50m backstroke, and P >0,05 highlights a statistically non-significant performance. Also, a progress of 0.26 s in the 50m freestyle and P> 0,05 indicates minimal progress, while the difference of 0.05 s obtained in the front crawl legs with hands on a kickboard for 25m denotes that a statistically significant change is not evident (P> 0,05), which confirms that the control group did not record progress in this swimming test.

Analysis of the motivation-performance correlation

The efficiency of the implemented program was proven through the analysis of the results obtained by children in the motivation test and in the physical and specific tests.

This stagnation demonstrates that the decisive factor in progress in the swimming tests was not the time spent in the pool, but the quality and specificity of the training. Without these strength-speed stimuli, the organism of the control group subjects remained adapted to an effort regime of medium intensity, insufficient for performance.

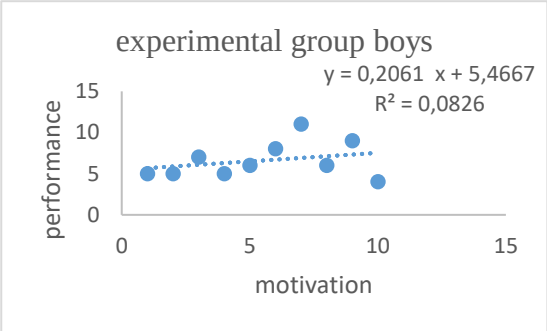


Fig. 9. Dependencies between motivation and performance in the boys' experimental group

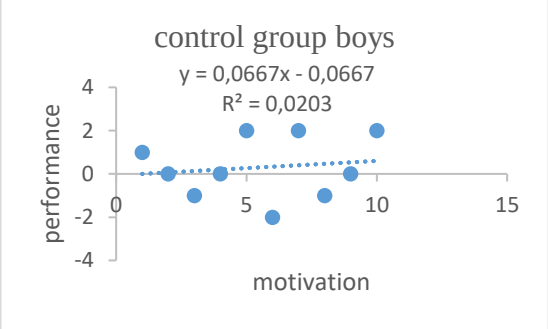


Fig. 10. Dependencies between motivation and performance in the boys' control group

From Figure 9, the coefficient of determination, R^2 =0,0826, shows that only approximately 8.26% of the variability of motivation can be explained by the variability of performance in the experimental group. The rest of approximately 91.74% of the performance variation is explained by other factors (for example, native abilities, training, physical conditions, social support, feedback received from the coach, etc.). This relatively low value of R2 indicates that although there is a positive correlation, motivation explains only a small part of the performance variation. In the control group, the slope of the regression line, although positive, is extremely small, indicating a very weak relationship between motivation and performance. The very low value of the coefficient R^2 signals the fact that only 2.03% of performance variation is explained by motivation. The remaining 97%+ is influenced by other factors.

In the girls' experimental group, R^2 0,2278 shows that motivation explains approximately 22.78% of the performance variance. In the control group, an R^2 of 0.2321 indicates a relatively weak to moderate positive linear relationship. Although there is an increasing trend, a large part of performance variability is not directly attributed to motivation according to the obtained data (Figures 11 and 12).

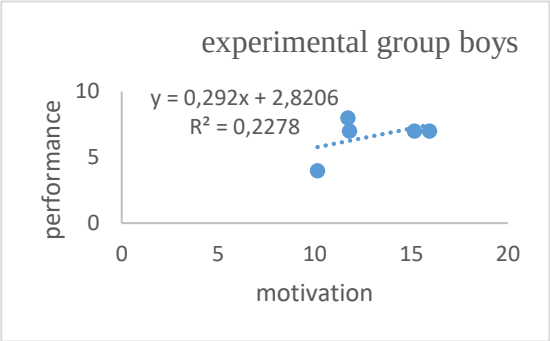


Fig. 11. Dependencies between motivation and performance in the girls' experimental group

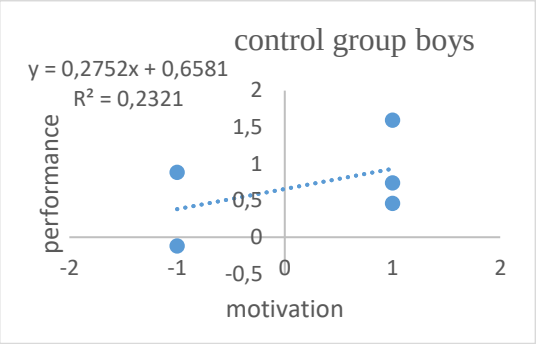


Fig. 12. Dependencies between motivation and performance in the girls' control group

Performance and motivation decrease or increase correlatively, but other factors have a larger role in obtaining performances.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Following the theoretical analysis, the execution of the pedagogical experiment, and the evaluation of the results obtained in tests, we reached the following conclusions regarding the effectiveness of the training program focused on integrating motivational factors into swimming training sessions:

1. Specialized literature, although offering a general perspective on motivational factors in sport, presents a gap in specific research on swimming at the age of 9-10 years. The contribution of each element (quality of training, teaching methods, affective experiences, competition successes, and parental support) to achieving performance has not been sufficiently researched. Future research must fill this gap and quantify the real impact of these elements. To explain why some children succeed better than others, it is essential to investigate and evaluate the specific role of these elements in detail.

2. Given the informational gap identified in the specialized literature analysis, it was necessary to start an empirical investigation. Consequently, this research adopted a sociological survey-type methodology aimed at collecting primary data from relevant sources: children, specialists, and parents. This investigation allowed for the identification and empirical validation of key factors that motivate or demotivate children from practicing swimming and achieving performance. The perception of respondents highlighted the importance of concrete aspects such as: the desire to learn swimming techniques and form new skills in this sport (68% children and 28% parents), the desire for self-assertion and achieving performance (12% children), the atmosphere during training sessions (38% coaches), and health benefits (22% parents). The most relevant demotivating factors identified in the sociological survey are: lack of support and encouragement

from coaches (64% children) and low self-esteem (72% coaches). Therefore, empirical research provided applied information, supplementing generic data from literature with a specific perspective on relevant factors for the studied sample.

3. Statistical analysis of the results obtained by the two groups at the initial evaluation (pre-testing) did not reveal statistically significant differences between individual performances in general physical and special training tests. At the initial testing, the only statistically significant difference between the experimental and control groups was observed in the standing long jump test (cm), where the boys' control group (151,5±1,51) ecorded a slightly higher performance than the boys' experimental group (146,1±1,49), however, the differences did not prove to be significant (P>0,05). For the other tests, there were no statistically significant differences between groups either (a relevant aspect for both girls and boys), indicating a similar level of initial performance. Thus, it was possible to ensure a balanced starting point for the implementation and evaluation of the proposed program.

4. Analysis of the results of the "Motivation for swimming" test (adaptation after the N. Luskanova method) demonstrated a positive and significant evolution of the motivational level within the experimental group at the final testing. Initially, the distribution of subjects across motivation levels was relatively homogeneous between the experimental and control groups, although the control group showed a slight advantage. After implementing the pedagogical program focused on motivational activities, the experimental group recorded a notable transformation: the number of subjects with very good motivation (Level I) increased from 2 to 7, and subjects initially at Level III (low motivation) advanced to higher levels. This substantial change in motivational distribution confirms the effectiveness of the experimental program in stimulating and consolidating intrinsic motivation for practicing swimming in children from the experimental group. By contrast, the absence of intervention within the control group resulted in a relatively constant distribution of subjects across motivation levels between the initial and final evaluations.

5. Analysis of the results obtained at the final testing highlighted the program's efficiency: the motivation level increased, as did the children's performances in the experimental group. For boys, at the final testing, significant differences are observed in the experimental group compared to the initial testing, at the significance threshold of 5 – 0.1% (P<0,05, 0,01, 0,001). The control group recorded values of P>0,05. For girls, differences between initial and final testing in the experimental group are visible through values of P<0,05, 0,01, 0,001, while the control group highlights a lack of progress, the differences not being significant (P>0,05).

6. A significant percentage of 74% of the surveyed children recognized the role of motivation as a direct influencing factor on swimming performance. However, the analysis of the motivation-performance correlation shows us that although there is a positive link between these two elements, the strength of this relationship varies significantly depending on gender and the group to which participants belong. Extrinsic factors such as training, rewards, and feedback have a larger weight in explaining performance improvement.

7. By identifying motivational factors, developing, and implementing a specific pedagogical program, the research demonstrated that such a model can positively influence both motivation and

performance of 9-10 year old swimmers. Thus, the scientific problem was solved by providing a validated praxiological model, which, although not guaranteeing a direct and strong correlation, proves that a specific intervention can lead to positive results in both aspects of training.

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Correlating the study's conclusions, the following directions of action are proposed to increase the efficiency and sustainability of training programs intended for junior athletes:

- We recommend standardizing motivational strategies by implementing the program in the control group as well. A sports environment based on support and belonging is crucial for stimulating intrinsic motivation and ensuring sustainable progress.
- It is necessary to integrate modern technology into the training process by using educational and sports videos, integrating mobile apps, interactive platforms, and personalized digital feedback. Thus, children can monitor their progress and proactively manage their motivation over the long term through constant self-assessment.
- For both groups, we recommend carrying out periodic evaluation activities of physical and specific progress, and applying the motivational test, to allow constant monitoring of performance and adjustment of the proposed program based on the needs of each group.
- To sustain children's motivation and involvement in sports, parents should offer unconditional support, cultivating an environment where every small victory is celebrated, failures are handled constructively, and communication with coaches is effective. It is essential to avoid excessive pressure on results and to support the child's autonomy in their choice and sports path.
- Coaches can continuously use methods centered on emotional development and increasing motivation, including: building trust through praise focused on effort and progress, transforming failures into learning opportunities, setting clear and realistic goals, encouraging autonomy, and creating a positive, inclusive environment that promotes mutual support.
- We recommend widespread implementation of the proposed program given the positive results observed in this study. Expanding it can contribute to developing specific skills and creating a collaborative and motivational environment. Widespread implementation of the program will guarantee superior uniformity in children's training, thereby maximizing the positive impact on their general physical development.

Implementing these recommendations will considerably increase the impact of motivational factors on training and performance. This strategy will contribute to the harmonious development of athletes, with the obtained results being long-lasting, if we refer to athletes who desire superior performance.

Research limitations

One of the research limitations is the relatively small sample size. A limited number of participants can affect the generalizability of results, making it difficult to extrapolate conclusions to a wider group of children practicing swimming. Therefore, although the program was effective for the experimental group, we cannot state with certainty that it would have the same effects among a larger population.

Another significant limitation of the study is the limited time duration, which prevented the observation of long-term effects of the training program and, implicitly, verification of the durability of the obtained results. To truly evaluate the persistence of motivational and performance benefits, a longitudinal study is essential. For a more complete picture and deep understanding of the program's impact, we recommend adopting mixed research methods, combining: *Quantitative methods:* repeated measurements of performance (swimming times, test scores), standardized motivation and self-confidence questionnaires administered at regular intervals throughout the longitudinal study; *Qualitative methods:* semi-structured interviews with children, parents, and coaches, focus groups, and logbooks kept by participants. These methods would allow for the identification of contextual factors and how motivation correlates with performance.

The study did not take external factors into account, such as the influence of the family environment or other extracurricular activities, which could impact children's motivation and performance. These factors can have a significant impact on children's motivation and performance, and their absence from the analysis might offer an incomplete picture of the real effects of the training program.

Future research directions

An important direction for future research would be expanding the sample and including diverse groups of children, including from other regions or cultures, to obtain a clearer picture of the impact of motivational factors on sports performance.

Then, future research could include longitudinal studies analyzing the evolution of motivation and performance over a longer period to better understand the sustainable effects of the training program.

Future research should adopt a multifactorial approach, focusing on identifying and analyzing those preponderant factors that, individually or in interaction, explain the majority of performance variance, especially in contexts where motivation alone proved to be a weak predictor (such as in the case of boys in the present study). Exploring multiple regression models could provide a more comprehensive understanding of the complex network of influences on performance.

At the same time, it is necessary to investigate other motivational variables, such as the influence of self-assessment, social support, or disadvantaged environments, which could bring valuable information for optimizing sports training programs and developing children's motivation for sports in general.

REFERENCES

1. ANTONIALE A., ANTONIALE L. *Structura motivațională a sportivilor de performanță*, în Revista: Studii și cercetări științifice în educație fizică și sport . Nr.2 Bacău, 1998, p.102-106.
2. BANIAŞ P. *Abordare interdisciplinară în activitatea de înot terapeutic*. Editura UVT, Timişoara, 2008, 213 p, ISBN 987-32-1765-0
3. BACIU, E., *Motivaţia, perspective psiho-pedagogice*, Editura Pim, Iaşi, 201, ISBN 9736472190
4. BOLOGA, M, GHERGHIŞAN, D. *Posibilităţi de cuantificare a motivaţiei în activitatea sportivă*. Vol. Simpozionul Ştiinţific Naţional „*Pregătirea sportivilor de înaltă performanţă*" Bucureşti, Conferinţa Consiliului Ştiinţei Sportului, 1994, p.119-125.
5. BUZEA,C., *Motivaţia. Teorii şi practici*, Editura Institutului European, Iaşi, 2010, 213 p., ISBN 9735058578
6. COSMOVICI, A., IACOB, L. *Psihologie şcolară*. Editura Polirom, Iași, 1998, 304 p, ISBN 973-683-048-9
7. CORNIANU, D., R. *Cum poate fi crescută motivația la sportivii performeri*. În Revista Știința Sportului, nr. 45, București, 2005, p 22.
8. CREŢU, T. *Psihologia vârstelor*. Iași: Editura Polirom, 2009. 392 p. ISBN 978974613588
9. DENNY, R., *Cum să te motivezi ca să câştigi*, Editura Polirom, Iaşi, 2005, 200 p, 973-681-870-5
10. EPURAN M, HOLDEVICI I, TONIŢA F. *Psihologia sportului de performanţă*. *Teorie şi practică*. Editura FEST. Bucureşti, 2001, 480 p, ISBN 973-85143-0-4
11. EPURAN, M., HORGHIDAN, V. *Psihologia educaţiei fizice*, Editura ANEFS, București, 1994, 234 p ISBN 973-852734-0-4
12. FLORINDA, G. *Manual de spihologia dezvoltării.* Iași: Editura Polirom, 2015. 420 p. ISBN 978-973-46-57308.
13. GAVRILUŢĂ, C., GAVRILUŢĂ, N. *Sociologia sportului. Teorii, metode, aplicaţii*. Editura Polirom, Iași, 2010. 249 p. ISBN 9789734615896.
14. GONCEARUC S., CALUGHER V., *Structura motivaţiei în învăţarea motrice*. *Teoria şi arta educaţiei fizice în şcoală,* nr. 2, Chişinău 2006 .p. 17-22
15. HANŢIU I. *Educaţie fizică şi sport. Teorie şi metodică. Note de curs*, Universitatea din Oradea, Facultatea de Geografie, Turism şi Sport. Oradea, 2013, 80 p.
16. JURCUŢ, TEODOR RADU. *Educaţia fizică şi sportul - componenta de bază a procesului de formare a tinerei generaţi*i, Editura Sfântul Ierarh Nicolae, Bistrița, 2010, 123 p, ISBN 978-606-577-163-5.
17. MASLOW, A. H., *Motivație și personalitate*. Editura TREI, București, 2013.568 p.ISBN: 978-973-707-905-3
18. MUSTE D., *Stimularea motivației învățării la elevi prin intermediul unui program educațional specific,* Editura Presa Universitară Clujeană, Cluj, 2020, 264 p. ISBN 9786063708763
19. NICU A. *Teoria şi metodica antrenamentului sportiv modern*. Editura Fundaţia România de Mâine, București, 2002, 231p, ISBN 9734847789

20. PÂNIŞOARĂ I, PÂNIŞOARĂ G., *Motivarea eficientă. Ghid practic*. Editura Polirom, Iași, 2005, 296 p, ISBN 973-681-969-8.
21. POPESCU, G. *Psihologia creativităţii*. Editura Fundaţiei România de Mâine, Bucureşti, 2009, 142 p, ISBN 978973163347
22. POPENICI, Ș. *Motivaţia pentru învăţare: de ce ar trebui să le pese copiilor de ea şi ce putem face pentru asta.* Editura Didactica Publishing House, Bucureşti, 2009, 127 p, ISBN 973-9864-09-8
23. POPA, C., ILARION, A., GEVAT C. *Pregătirea psihologică a atleților în antrenament și concurs*, în Revista: de Cultură Fizică și Sportivă, Vol. I, Fascicula I a Universității „Tibicus" din Timișoara, Facultatea de Educație Fizică și Sport, 2006 p 120.
24. TEODORESCU, A. S. *Activităţi sportive adaptate*. Editura Fundaţiei "România de Mâine". București, 2011, 216 p. ISBN 978-973-163-594-1.
25. TEODORESCU, S. *Antrenament şi competiţie.* Editura Alpha MDM, Bucureşti, 2009, 213 p, ISBN 9785472026279
26. TEODORESCU, S. *Bazele antrenamentului sportiv*. Curs universitar. Editura Discobolul, București, 2018, 134 p. ISBN 9784026332023
27. TRIBOI V. *Teoria şi metodica antrenamentului sportiv*. Editura Valinex, Chișinău, 2009. 369 p.ISBN 9784526272921
28. TURCU, T., C. *Actualitatea problemei motivației privind interesul studenților români pentru educație fizică și sport: Studiu transversal și longitudinal*. Teză de doctorat ANEFS București, 2005, 209 p.
29. TODOR, L. *Motivaţia-factor conditional al învăţării*. Editura Universităţii din Oradea. Oradea, 2010, 213 p, ISBN 978-606-34-23.
30. ZLATE, M. *Tratat de psihologie comportamentală*, vol I, Editura Polirom, Iaşi 2004, 336 p, ISBN 978-973-46-1520-9.
31. BOUET M., *Les motivations des sportifs* –L ' Harmattan –Paris, 1998
32. CAVE, A., & MILLER, A. (2015, August 20). *Technology in sport: the speed of science*. The Telegraph. Retrieved from https://www.telegraph.co.uk/investing/business-of-sport/technology-in-sport/
33. DICK H., *Coaching Swimming Successfully*, Human Kinetics,1995
34. GORMAN, PH. *Motivation and emotion*, Routledge, taylor&Francais Groyp, Londra, New York, 2004.
35. HELLRIEGEL, D. SLOCUM, JW, WOODMAN, RW. *Organizational Behaviou*r, 6th ed. West Publishing Comapny, New York, 1992.
36. KRABAK BJ., HANCOCK KJ., DRAKE S. *Comparison of dry-land training programs between age groups of swimmers.* PM 2013;5(4):303-9
37. MASLOW A. *A theory of human motivation*, Psychological Review, 50(4):370-396, 1943.
38. RYAN, R. M., DECI, E. L.*Promoting self-determined school engagement: Motivation, learning, and well-being.* In K, 2009.
39. БУЛГАКОВА Н., ПОПОВ,О., РАСПОПОВА Е.*Теория и методика плавания.*Москва: Академия, 2014, 319 с

40. КОКОРЕВ, Д.А. *Методика обучения плаванию детей младшего школьного возраста с использованием дополнительного оборудования* / Д.А. Кокорев // Шаг в науку. Материалы IV научно-практической конференции молодых ученых (II всероссийской). 2020. с. 243-245. ISBN: 978-5-4465-2161-6.
41. ШЕВЫРЕВА, Е.Г., ПЕТРОВ, А.В., АРХИПОВА, Д.Н., ПЕТРОВА, О.В. *Роль и значение имиджа тренера в работе с юными спортсменами // Современные проблемы науки и образования.* 2021. № 2. ISSN2070-7428.

LIST OF THE AUTHOR'S PUBLICATIONS ON THE THESIS TOPIC

1. PETRE D.-I., NEDELCU R.-I. Research on expert opinion analysis on the influence of motivation factors on swimming and performance at the age of 9-10 years. În: *The Annals of the "Ştefan cel Mare" University of Suceava. Physical Education and Sport Section. The Science and Art of Movement*, vol. XVI, issue 2, 2023, p. 149-155. https://doi.org/10.4316/SAM.2023.0217

2. NEDELCU, R.-I., **PETRE, D.-I.,** NICOLAICIUC N. Study regarding the identification of the socialization level of pubertal children who practice swimming. In: *The Annals of the "Ştefan cel Mare" University of Suceava. Physical Education and Sport Section. The Science and Art of Movement*, vol. XVI, issue 2, 2023, p. 140-148. https://doi.org/10.4316/SAM.2023.0216

3. PETRE D.-I. Motivație și performanță: impactul programului experimental „Eu vreau și pot obține performanțe" = Motivation and performance: the impact of the experimental program "I want and can get performance". În: *Știința culturii fizice*, nr. 42/2, 2023. www.scf.usefs.md

4. PETRE, D.-I., RÎȘNEAC, B., NEDELCU, R.-I. Importanța motivației și încrederii de sine pentru creșterea performanței sportive la copiii-înotători de 9 – 10 ani. In: *Sport. Olimpism. Sănătate*: Congres științific internațional, Ediția a VII-a, 15-17 septembrie 2022. Chișinău: Editura USEFS, 2022, pp. 251-256. ISBN 978-9975-68-460-6. https://doi.org/10.52449/soh22.38

5. NEDELCU, R.-I., RÎȘNEAC, B., PETRE, D.-I. Aspecte privind socializarea copiilor prin antrenamentele de natație. In: *Sport. Olimpism. Sănătate*: Congres științific international, Ediția a VII-a, 15-17 septembrie 2022. Chișinău: Editura USEFS, 2022, Ediția 7, pp. 225-231. ISBN 978-9975-68-460-6. https://doi.org/10.52449/soh22.34

6. PETRE, D.-I., RÎȘNEAC, B. Studiul aspectelor motivaționale ale practicării înotului și obținerea performanțelor sportive la vârsta de 9-10 ani. In: *Integrare prin cercetare și inovare.: Ştiinţe sociale*: Conferința științifică națională cu participare internațională, 9-10 noiembrie 2023. Chisinau: Centrul Editorial-Poligrafic al USM, 2023, pp. 561-566. ISBN 978-9975-62-688-0. https://ibn.idsi.md/ro/vizualizare_articol/201444

7. CERCHEZ G., **PETRE D.-I.,** NEDELCU R.-I. Training theory-interactive strategies in the educational process. In: Proceedings of the 15th International Management Conference: "*Managing People and Organizations in a Global Crisis*", 4th – 5th November 2021, Bucharest, Romania, p. 980-987.
https://conferinta.management.ase.ro/archives/2021/pdf%20IMC%202021/5%20PDF%20S5%20IMC%202021/5_16.pdf

8. PETRE D.I. Study on the level of motivation for swimming at the age of 9-10 years. In: *Sport. Olimpism. Sănătate*: Congres științific international, Ediția a VIII-a, 28-30 septembrie 2023. Chișinău: "VALINEX" SRL, 2024, Ediția 8, pp. 132-135. ISBN 978-9975-68-531-3. https://doi.org/10.52449/soh23

9. NEDELCU, R.-I., **PETRE, D.-I.,** RÎȘNEAC, Boris. Efectele socializării prin practicarea înotului la vârsta pubertară. In: *Probleme actuale ale teoriei şi practicii culturii fizice:* Conferința științifică a tinerilor cercetători cu participare internațională, Ed. Ediția 1, 13 aprilie 2023. Chişinău: „VALINEX" SRL, 2024, pp. 272-279. ISBN 978-9975-68-530-6. https://ibn.idsi.md/ro/vizualizare_articol/219431

10. PETRE, D.-I., NEDELCU, R.-I., RÎȘNEAC, B. Dezvoltarea capacităților motrice ale copiilor de 9-10 ani prin intermediul antrenamentelor de înot. In: *Probleme actuale ale teoriei şi practicii culturii fizice:* Conferința științifică a tinerilor cercetători cu participare internațională, Ed. Ediția 1, 13 aprilie 2023. Chişinău: „VALINEX" SRL, 2024, pp. 317-323. ISBN 978-9975-68-530-6. https://ibn.idsi.md/ro/vizualizare_articol/219437

ANNOTATION

Petre Dan-Ionuț ,,Motivation for practicing swimming in children aged 9-10 years for achieving sports performance": Phd Thesis in educational sciences. Chișinău, 2026.

Structure of the thesis: introduction, three chapters, general conclusions and recommendations, bibliography from 197 sources, annotation in romanian, english and russian, 153 pages of basic text, 28 tables, 51 figures, 12 appendices. The obtained results are published in 10 scientific works.

Keywords: swimming, motivation, sports performance, children aged 9-10, training, schedule, planning, competitions, contests, analysis, psychopedagogical program.

The purpose: of this research is to identify and analyze motivational factors and their influence on 9-10 year old children who practice swimming, highlighting how motivation contributes to their engagement, progress, and performance.

Research objectives:

1. Analysis of the specialized literature regarding the motivational factors that influence the practice of swimming at the age of 9-10 years and the achievement of performances.
2. Analysis of the perception of specialists and parents regarding the factors that motivate or demotivate children aged 9-10 years to practice swimming and achieve sports performance.
3. Researching the level of motivation, general physical and specific training of children, before and after the application of the program.
4. Experimental argumentation of the effectiveness of the application of the program based on the motivational factors for practicing swimming and obtaining performances.

The results obtained, which contribute to the solution of the important scientific problem: highlight the influence of motivational factors on the practice of swimming in children aged 9-10 and form the basis for the development of an adapted training program. This program optimizes the training process, supports the growth of motivation and improves sports performance, providing coaches with effective methods for support.

The theoretical significance of the work: consists in the development and argumentation of the use of activities aimed at developing the motivation of children aged 9-10 who practice swimming. Practically, these activities contribute to increasing sports performance, self-confidence, and the development of children's physical, psychological and social skills.

The novelty and originality: of the work consists in analyzing the motivational factors and their impact on swimming in children aged 9-10, as well as in developing a motivation-based training program. This tool can be validated and widely used in Swimming Clubs to increase children's motivation and to help coaches develop specific interventions that will motivate and help children improve their swimming performance.

The applied value: of the work is aimed at developing and capitalizing on a psychopedagogical training program for children aged 9-10 who practice swimming, with an emphasis on the motivational component. The research results can be used as a guide model in children's swimming clubs, for swimming coaches and teachers.

The implementation of the scientific results: was carried out in swimming training with children aged 9-10. The results of scientific research were disseminated through a series of articles published in the proceedings of national and international conferences, with specialized topics, organized in Romania and the Republic of Moldova.

ADNOTARE

Petre Dan-Ionuț „Motivația practicării înotului de copiii de 9-10 ani pentru obținerea performanței sportive”: Teză de doctor în științe ale educației. Chișinău, 2026.

Structura tezei: introducere, trei capitole, concluzii generale și recomandări, bibliografie din 197 de surse, adnotare în limbile română, engleză şi rusă, 153 pagini text de bază, 28 de Tabele, 51 de Figuri, 12 Anexe. Rezultatele obţinute sunt publicate în 10 lucrări ştiinţifice.

Cuvinte-cheie: înot, motivație, performanțe sportive, copii de 9-10 ani, antrenament, program, planificare, competiții, concursuri, analiză, program psihopedagogic.

Scopul cercetării: constă în identificarea și analiza factorilor motivaționali și a influenței acestora asupra copiilor de 9-10 ani care practică înotul, evidențiind modul în care motivația contribuie la implicare, progres și performanță.

Obiectivele cercetării:

1. Analiza literaturii de specialitate privind factorii motivaționali, care influențează practicarea înotului la vârsta de 9-10 ani și obținerea de performanțe.
2. Analiza percepției specialiștilor și părinților cu privire factorii care îi motivează sau îi demotivează pe copiii cu vârsta de 9-10 ani pentru practicarea înotului și atingerea performanțelor sportive.
3. Cercetarea nivelului motivației, de pregătire generală fizică și specifică a copiilor, înainte și după aplicarea programului.
4. Argumentarea experimentală a eficienței aplicării programului bazat pe factorii motivaționali pentru practicarea înotului și obținerea de performanțe.

Rezultatele obținute care contribuie la soluționarea problemei științifice importante: evidențiază influența factorilor motivaționali asupra practicării înotului la copiii de 9-10 ani și stau la baza dezvoltării unui program de pregătire axat pe activități specific motivațional. Acest program optimizează procesul de antrenament, sprijină creșterea motivației și îmbunătățește performanțele sportive, oferind antrenorilor metode eficiente pentru susținere.

Semnificația teoretică a lucrării: constă în elaborarea și argumentarea utilizării activităților care vizează dezvoltarea motivației copiilor de 9-10 ani care practică înotul. Practic, aceste activtăți contribuie la creșterea performanțelor sportive, a încrederii de sine, la dezvoltarea abilităților fizice, psihologice și sociale ale copiilor.

Noutatea și originalitatea lucrării: constă în analiza factorilor motivaționali și a impactului acestora asupra practicării înotului la copiii de 9-10 ani, precum și în elaborarea unui program de pregătire bazat pe motivație, care poate fi validat și utilizat la scară largă în Cluburile de natație pentru a crește motivația copiilor și pentru a ajuta antrenorii să dezvolte intervenții specifice care să îi motiveze și să îi ajute pe copii să își îmbunătățească performanțele în natație.

Valoarea aplicativă a lucrării: are în vedere elaborarea și valorificarea unui program de pregătire psihopedagogică pentru copiii de 9-10 ani care practică înotul, cu accent pe componenta motivațională. Rezultatele cercetării pot fi utilizate sub forma unui model de ghid în cadrul cluburilor de natație pentru copii, pentru antrenorii și profesorii de înot.

Implementarea rezultatelor științifice: s-a realizat în cadrul antrenamentelor de înot cu copiii cu vârsta de 9-10 ani. Rezultatele cercetării științifice au fost diseminate prin intermediul unui șir de articole publicate în culegerile conferințelor naționale și internaționale, cu tematică de specialitate, organizate în România și Republica Moldova.

PETRE DAN-IONUȚ

MOTIVATION FOR PRACTICING SWIMMING IN CHILDREN AGED 9-10 YEARS FOR ACHIEVING SPORTS PERFORMANCE

Specialty 533.04. Physical education, sport, kinetotherapy and recreation

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