

INFLUENCE OF ADDITIONAL EXERCISES ON TRANSFORMATION OF MOBILITY ABILITIES OF STUDENTS IN PRIMARY SCHOOLS

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(Preliminary communication)

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Abstract

The goal of this research was to determine eventual differences at the level of motor abilities of the students who had two additional physical activities per week, apart from regular physical education lessons, and those who didn't have additional physical activities except regular physical education lessons. The research was realized in the first term of 2010/2011 school year. Fifty students were involved in this research and they were divided into two subsamples, according to additional exercise. Six standardized movement tasks were applied for the evaluation of motor abilities. T-test and descriptive statistics were applied in the processing of the results. On the basis of the T-test values statistically significant difference between the students with and without additional physical exercise was indicated in four variables. The results indicate that we can have greater influence on motor abilities transformation by increasing the number of activities during the week.

Keywords: *motor tests, swimming section, physical education teaching, additional physical exercise, t-test method*

INTRODUCTION

Generally, every physical exercise includes the whole range of motor abilities, combined variously (ex. strength, speed and skillfulness) and in different levels. Kurelić, Momirović, Stojanović, Šturm, Radojević, & Viskiće-Štaleb, 1975, with his associates considers motor abilities as a “conditio sine qua non” (necessary condition) for learning of a particular technique in every movement tasks, and can be considered to represent the basic values of the total area of the human motor skills.

Motor ability is related to certain development level of latent motional human dimensions, and they cause successful movement, no matter if they are acquired by practice or not.

Development of motor abilities follows biological laws of growth changes, as they are determinate by morpho-functional and psycho-physiological dimensions of one's personality. The character of this development is greatly related with the individual genetic factors, the influence of the surrounding and individual activity. Typically, the development of motor

abilities is an irregular, heterochronic and critical period.

Motor abilities mostly develop within the process of gaining and specializing in different motor skills and habits, as well as working on some special exercises, which points to importance of continuous practice. Well planned, organized systematic pedagogical influence on children's physical education expressed in the development of these abilities, is of great importance during the primary school (I-IV grade). The ultimate goal of developing motor skills children should be: to improve general endurance, improved strength of large muscle groups that allow proper posture and adoption of the motor skills necessary for complex motor actions, and increase mobility and capacity correction of certain defects of body structure.

During the process of formation and development of motor skills is very relevant to measure, monitor and evaluate their level of development. For this purpose we use the motor tests, which include motor actions that require a demonstration of skills at their fullest extent.

In this research we were interested in the following skills: strength, speed, coordination, balance, precision, flexibility and stamina of the students who had two additional swimming activities during school week, and other group that didn't have additional training apart from the regular classes of physical education.

Toward analyzing previous researches, we included works that we considered relevant for the study topic.

Kukolj (1977), tested 900 sportsmen, aged 6 and up to the senior age, from six sports branches, using 15 tests to rate status of motor abilities and functioning. They came to conclusion that there is a low degree in motor abilities development – under the influence of inheritance adopted by the range of functions that allows the event of motor behavior characteristic of the sport, and under the influence of external factors to specific functional profiling, kinematic and dynamic links in accordance with the requirements of the sports field.

Arunović (1978), searched the influence of specially organized physical education with basketball as a main activity on improvement of motor abilities. The sample included 46 students in experimental and 36 students in control group, aged 15 and 16. Education lasted three and a half months, or 36 classes of physical education. Two anthropometric factors were studied (body height and weight) and six motor factors, upon as a result came up the explosive strength, balance, flexibility and rapidity were increased.

In Krulanovic's (2006) research he wanted to establish efficiency of experimental program compared to a regular physical education program in high school. He accomplished his training with 140 students from the 3rd grade in fitness center, using a circular training model.

The experimental group had 70 students, and same was with the control one. He used 11 examples for measuring morphological characteristics, 14 for motor abilities and 16 to evaluate functional abilities.

The *subject* of the research was the motor abilities of the 5th grade students.

The *objective* is to explore differences in motor abilities between active students who went swimming and non-sportive who had no additional activities apart from their regular classes.

Considering subject and objective, these tasks were defined:

- to evaluate motor abilities of students who haven't practiced any sports,
- to evaluate motor abilities of students who have practiced some sport,
- to establish difference between two groups using proper statistic procedures and

- to point at the theoretical and practical importance of the achieved results.

METHODS

The assessment of the motor abilities was realized in May 2010/2011 in elementary school "October 17th" in Jagodina. Evaluation was accomplished during the morning hours. This is in correspondence with the school schedule since they go to training classes during the afternoon. Evaluation took place in the sports hall with optimal size as well as proper lighting, temperature and hygienic conditions.

Students were divided in two groups. Evaluation was done by experienced physical education teachers. The results were published in special students journals.

The sample included fifty 5th grade students from this school, divided into 2 subsamples: one consisted of 30 non-sportive students, and the other had 20 sportive students accompanied with one additional hour of swimming twice a week.

While testing motor abilities, age characteristics, results of previous researches, and findings from other similar studies, were of great importance.

The levels of motor abilities were estimated using six tests battery. The goal was to cover all components of motor capability.

RESULTS

At the first phase we have analyzed the results of the children who had 3 physical education classes and 2 additional trainings, and then the other group who had only regular classes.

As the table data shows, the results for certain age meets our expectations. Largest differences appeared in push up endurance value which was 107.92 in the group with additional training compared to 107.64 in the other one.

As we can see, students with additional training accomplished better results including 2,57 more repetitions in sit-ups, results for medicine ball was 35,42 cm further, advantage of 76,39 tenths in push up endurance, 9,27 cm in long jump, 7,6 in agility and 5, 84 cm in deep bending.

Further analysis will show if there were any statistically significant differences within those two groups.

If we take a look at the T-test, we can conclude that there is statistically significant difference in four tasks: sit-ups $p=.001$, push up endurance $p=.018$, agility $p=.000$ and deep bending $p=.004$. The results show advantage of the group that had additional swimming exercises. We got similar results in medicine ball and long jump tasks, but the differences between groups here were not of significant

Table 1. Group with additional training

TASKS	M	SD	MIN	MAX	RANGE
Sit-ups	20.20	1.61	18.00	23.00	5.00
Medicine ball	372.75	74.48	235.00	510.00	275.00
Push up endurance	213.95	107.92	3.00	454.00	451.00
Long jump	153.20	20.43	100.00	188.00	88.00
Agility	54.80	5.36	47.00	66.00	19.00
Deep bending	20.90	4.61	11.00	31.00	20.00

Graph 1. Diagram that shows results of both groups – with and without additional training

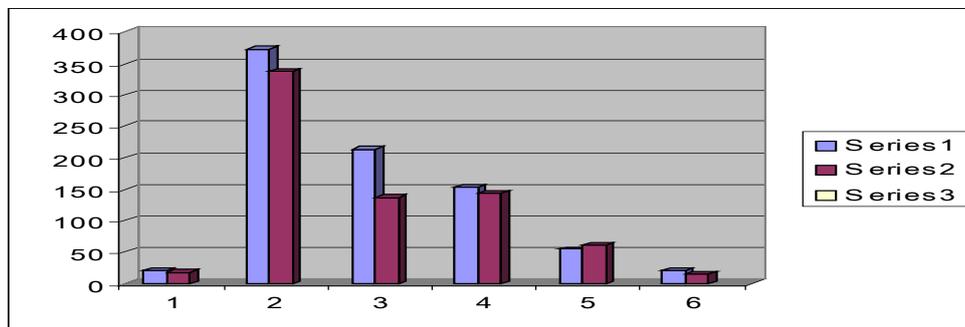


Table 2. Group without additional training

TASKS	M	SD	MIN	MAX	RANGE
Sit-ups	17.63	2.79	12.00	23.00	11.00
Medicine ball	337.33	70.69	200.00	470.00	270.00
Push up endurance	137.56	107.64	3.00	479.00	476.00
Long jump	143.93	21.53	100.00	180.00	80.00
Agility	62.40	7.56	53.00	82.00	29.00
Deep bending	15.06	7.73	.00	30.00	30.00

Table 3. T-test of students with and without additional training

TASKS	T-TEST	Significant P – level
Sit-ups	3.707	
Medicine ball	1.699	.001
Push up endurance	1.521	.096
Long jump	2.456	.135
Agility	3.885	.018
Deep bending	3.027	.000
		.004

importance.

In graph 1. under “1” there are results of sit-ups, under “2” medicine ball, under, “3” it’s push up endurance, under “4” long jump, “5” agility and under “6” deep bending. They all show better results in the group who had swimming activity than the other one that didn’t have additional physical exercises. Swimming, however, improved motor abilities of students. Therefore it should be considered as a school activity during or after the school hours.

CONCLUSIONS

Our empirical research included 50 fifth grade students from “October 17th” in Jagodina.

The sample was divided in two subsamples: one consisted of 20 students who had additional swimming activity, and the other was made of 30 students who had only regular physical education classes. Students from the first group had two additional trainings apart from the three regular classes per week, and the others had only those three classes.

Our conclusions come from our objective, aims and results which we accomplished:

- by descriptive statistics it was established that the motor abilities of those who had additional training were on higher level than those who didn't have it;

- with the T-test we got the results that show statistically important differences within four tasks, and they show advantage of the group with additional exercises.

Additional activities in physical education made a great improvement in motor abilities, therefore it can be highly recommended for implementation in contemporary school system. The idea is to make new researches on larger samples and various age groups.

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ВЛИЈАНИЕТО НА ДОПОЛНИТЕЛНОТО ВЕЖБАЊЕ ВРЗ ТРАНСФОРМАЦИЈАТА НА МОТОРНИТЕ СПОСОБНОСТИ КАЈ УЧЕНИЦИТЕ ОД ОСНОВНИТЕ УЧИЛИШТА

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(Прейходно соопштение)

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Апстракт

Целта на истражувањето беше да се истражат евентуалните разлики во трансформацијата на моторните способности кај учениците од основните училишта кои беа опфатени со дополнително физичко вежбање. Истражувањето е реализирано во Основното училиште „17 Октомври“ во Јагодина, во учебната 2010/2012 година. За проценување на моторните способности се применети шест стандардизирани моторни тестови. Со истражувањето беа опфатени 50 испитаници кои беа поделени во две групи. Едната група беше составена од 20 ученици кои покрај редовната настава по физичко воспитување, беа опфатени со дополнително

вежбање во пливачка секција. Другата група беше составена од 30 ученици кои беа опфатени само со редовна настава по физичко воспитување. Освен основните дескриптивни статистички показатели, за утврдување на разликите во трансформацијата на моторните способности, применет е t-тест. Добиените резултати од истражувањето укажаа на позитивни ефекти од дополнителното вежбање кое беше реализирано со пливачки активности.

Клучни зборови: *мојорни иџесџови, иливачка секција, настава по физичко воспитување, дојолниџелно вежбање, t-иџесџи*

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