

STUDY ON THE METHODOLOGY OF THE DEVELOPMENT OF MOTOR QUALITY AND RESISTANCE THROUGH METHODS AND MEANS SPECIFIC TO ATHLETICS FOR 13 - 14 YEAR OLD STUDENTS

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Abstract

Following the elaboration and application of some exercises and complexes of exercises specific to the development of the motor quality of resistance, proposed to the experimental group, it is assumed that the indices of the motor quality of resistance will have a significant increase at this age of 13-14 years in students. Through a correct and pertinent analysis, it can provide useful aspects regarding the real capabilities and possibilities of 13-14 year old students. The final goal is to create a material that will be used by all those who are interested in developing the motor quality of resistance, and to support them in achieving the objectives of the physical education and sports lesson. Using the methods and means specific to the lesson of physical education and sports in order to develop the quality of motor resistance, we can say that resistance can be developed with their help.

Introduction

As it is reported in the book "Synthesis of the Theory and Methodology of Physical Education and Sports Course", authors Dr. C.I. Bucur, Emil Blaga, A. Encuțescu, Pedagogical Institute Publishing House, Oradea, 1975, page 60, resistance is one of the most educable biomotorqualities, gained only when the individual reaches a certain level and degree of fatigue in training, which adapts the body to effort. When it comes to assessing resistance, it is predominantly the time during which the student is able to maintain the desired intensity of the activity. Using this criterion, resistance can be measured by direct and indirect methods. Regarding the direct method, the student is proposed to perform a certain task and the time limit for work with the given intensity is determined. In the case of the indirect method, the resistance is usually determined after the time to cover a sufficiently long distance. [1]

Motor quality – Endurance "It is demonstrated as the quality of making a certain effort over a longer period of time. Or in other words, the ability to cope with

fatigue during motor activities. In current parlance, the more a student is able to work longer without tiring, the more resilient he is said to be." [2]

According to G. Mitra, we have the definition of resistance as the ability of an organism to perform an effort or some physical activity in a certain unit of time, and the organism must cope with this effort without the yield and value of the activity being diminished, calling to the resources needed by the body to cope with fatigue but also to recover as quickly and productively as possible to normal parameters. [3]

According to Gh. Cârstea, it presents the motor quality resistance depending on the quality of the motor capacity indices that must be kept at a high level during the effort, effort that is usually of approximately long duration and with an increased intensity, so that fatigue appears as later, and if this occurs, the body must be prepared to combat this phenomenon. (Gh. Cârstea, 2000). [4]

As we see in the framework plan, physical education and growth, in primary and secondary school, has two hours of physical education and sports per week, in different conditions, different times of the day, with variable numbers of students. In conclusion, we note that it is very difficult to achieve increased indices of general resistance and even less of special resistance. [5]

Resistance is useful for students in school activity and during physical education and sports lessons, it is vital to find some methods and means to develop the motor quality of resistance. Anaerobic properties: the body's ability to use energy in conditions without oxygen, the ability to compensate for changes in the internal environment of the body and the level of tissue adaptation to hypoxia conditions". [6]

General resistance. In G. Mitra's book, it is determined by the possibility of performing with approximately 70% of the total musculature, certain actions that last a long period of time, and in the whole process several systems are involved, such as the respiratory, cardiovascular or nervous system central, being subject to certain needs. With the help of general endurance the student can act productively when subjected to certain sustained efforts. [7]

Special resistance- "He is from a certain profession or branch". [8]

Special or specific resistance refers to aspects of resistance in the performance of sports professions or branches. [9]

If we look at the accounts of G. Rață, we observe that the content is presented as being dictated by typology and made up of methods, methods and methodical means, with different didactic measures, comprising an optimal dosage with work formations that guarantee maximum efficiency. [10]

Material-method

I started from the hypothesis that using a program of exercises and exercise complexes that have as their purpose the development of resistance, with an emphasis on the experimental group in which 13-14 year old students were selected, but also multilateral physical development and multivalent training, I want to make

progress in terms of the development of endurance, but also of the other motor qualities.

We carried out the experiment at the "LUCIAN BLAGA" HIGH SCHOOL JIBOU. The lessons of the experimental group took place in the school year 2022 - 2023 in the school gym and on the field in the school yard.

The width of the hall was 15 m and the length was 30 m, and the sports field was 60 m long and 30 m wide. In the school year 2022-2023 we used all the material base available to the school and which we managed to fruitful in order to achieve the set objectives.

Between 19.09.2022 and 28.01.2023, the experiment took place, with a duration of four months. The control tests were carried out as follows. The duration of the lessons was 50 minutes, twice a week. The students are between 13 and 14 years old. There were 32 students in the experimental group divided into 21 girls and 11 boys.

The experiment was carried out during the 2022-2023 school year and included 3 stages.

With three stages, in the 2022-2023 school year, the experience showed as follows: First stage - after 4 lessons in the classroom, the initial tests were carried out (19.09.2022-30.09.2022), for motor quality and resistance, second – the implementation of the chosen program, in the third stage - it is defined by the final tests (16.01.2023-28.01.2023) in order to analyze the effects that were recorded following the application of the proposed objectives.

Control samples: endurance run 800 meters, endurance run 1000 meters, the trunk rises from the supine position for 1 minute, jump rope for 1 minute.

Results

The results obtained from the control samples were recorded in a table, analyzed and interpreted according to the applied methods

Table 1. The results at the initial and final tests of the experimental group at the four control tests

N R. C RT .	NA ME S	FI RS T NA M E	RESIS TANC E 800 m I.T. (minut es and second s)	RESIS TANC E 800 m F.T. (minut es and second s)	RESIS TANC E 1000m I.T. (minut es and second s)	RESIS TANC E 1000m F.T. (minut es and second s))	TRUN K RAISE S FROM THE BACK LYIN G POSIT ION I.F. (no. Ofrepe titions)	TRUN K RAIS ES FRO M THE BAC K LYIN G POSI TION F.T. (no. ofrepe titions)	JUM PING ROP E I.T. (no. ofrep etitio ns)	JUM PING ROP E F.T. (no. ofrep etitio ns)
1.	A.	D.	4,33	3,21	5,33	5,09	44	48	101	121
2.	A.	A.	3,45	3,21	3,45	3,41	37	43	65	95
3.	B.	R.	4,25	3,56	4,56	4,27	48	56	103	133
4.	B.	S.	4,55	4,15	4,55	4,15	46	49	64	100
5.	B.	G.	5,02	4,32	5,02	4,48	48	55	67	99
6.	B.	L.	5,23	4,33	5,23	5,22	42	48	35	95
7.	B.	C.	4,49	4,02	4,49	4,21	32	36	73	111
8.	B.	A.	4,44	4,09	4,44	4,11	36	38	85	125
9.	B.	R.	4,25	4,55	4,25	4,07	39	44	73	123
10.	B.	N.	3,29	3,17	4,29	4,26	51	56	98	133
11.	C.	A.	4,03	3,46	4,03	4,10	46	48	66	89
12.	C.	G.	4,02	3,47	4,02	4,00	41	47	87	102
13.	C.	R.	3,21	3,19	4,21	4,18	48	49	95	115
14.	C- B.	A.	4,27	4,11	4,26	4,33	39	43	84	108
15.	G.	I.	4,38	4,05	4,58	4,56	52	57	103	138
16.	G.	E.	3,41	3,25	4,41	4,32	54	55	98	139
17.	I.	A.	4,25	4,16	4,57	4,48	51	54	89	145
18.	I.	M.	4,08	3,48	5,08	4,38	53	55	76	130

19.	I.	J.	4,48	4,05	4,48	4,18	47	49	93	128
20.	K.	A.	4,58	4,17	4,58	4,32	38	44	95	137
21.	L.	P.	3,38	3,26	4,48	4,25	48	51	98	142
22.	M.	V.	3,29	3,25	4,39	4,26	50	52	93	136
23.	M.	M.	5,12	4,47	5,12	4,53	36	41	81	129
24.	M.	A.	4,26	4,19	4,26	4,22	44	48	87	124
25.	N.	S.	5,20	5,21	5,20	5,27	47	49	99	146
26.	P.	P.	3,31	3,28	4,52	4,30	52	53	109	143
27.	R.	M.	4,23	4,14	4,33	4,20	38	40	97	135
28.	S.	O.	4,17	3,48	4,35	4,17	49	52	104	109
29.	Ș.	A.	4,47	4,41	4,51	4,33	51	55	108	126
30.	T.	N.	4,55	4,37	5,20	4,10	47	53	82	110
31.	V.	L.	3,49	3,45	4,20	3,41	52	55	97	123
32.	V.	A.	5,03	5,02	5,45	5,01	45	49	99	133
33.	ARITHM		4,20	4,09	4,55	4,31	45,34	49,12	87,62	122,5
	ETIC									6
	MEAN									

Table 2. The results at the initial and final tests of the control group at the four control tests

N R. C R T.	N A M E	FI RS T NA M E	RESIS	RESIS	RESIS	RESIS	TRUN	TRUN	JUM	JUM
			TANC	TANC	TANC	TANC	K	K	PING	PING
			E 800	E 800	E 1000m	E 1000m	RAISE	RAIS	ROP	ROP
			m	m	1000m	1000m	S	ES	E	E
							FROM	FRO		
							THE	THE		
							BACK	BACK		
			I. T.	F.T.	I.T.	F.T.	LYN	LYN	I.T.	F.T.
							G	G		
							POSIT	POSI		
							ION	TION	(no.	(no.
			(minut	(minut	(minut	(minut	I.T.	F.T.	Of	Of
			es and	es and	es and	es and			repeti	repeti
			second	second	second	second	(no. Of	(no. Of	tions)	tions)
			s)	s)	s)	s)	repetiti	repetit		
							ons)	ions)		
1	A.	E.	4,45	3,21	5,35	5,09	42	48	98	121
2	A.	A.	4,36	3,21	4,56	3,41	37	43	85	95
3	B.	E.	4,31	3,56	4,31	4,27	44	56	97	133
4	B.	L.	4,02	4,15	3,02	4,15	54	49	114	100
5	B.	M.	4,46	4,32	4,59	4,48	48	55	101	99
6	B.	A.	4,11	4,33	3,19	5,22	48	48	126	95
7	B.	A.	4,45	4,02	3,27	4,21	52	36	108	111
8	C.	M.	4,39	4,09	5,49	4,11	44	38	99	125
9	C.	A.	3,56	4,55	4,26	4,07	50	44	103	123
10	C.	P.	4,20	3,17	5,35	4,26	47	56	88	133
11	D.	D.	3,58	3,46	4,58	4,10	47	48	124	89
12	H.	N.	4,29	3,47	5,46	4,00	36	47	79	102
13	H.	A.	4,15	3,19	3,55	4,18	48	49	121	115
14	L.	L.	4,21	4,11	4,58	4,33	47	43	86	108
15	L.	A.	4,38	4,05	5,34	4,56	49	57	98	138
16	M.	B.	4,02	3,25	4,56	4,32	44	55	101	139
17	M.	A.	5,02	4,16	6,47	4,48	43	54	115	145
18	M.	F.	5,03	3,48	6,23	4,38	49	55	97	130
19	N.	E.	4,13	4,05	5,17	4,18	50	49	85	128
20	O.	A.	4,23	4,17	4,56	4,32	43	44	91	137
21	O.	E.	4,46	3,26	6,16	4,25	36	51	116	142

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22	P.	O.	4,56	3,25	6,11	4,26	41	52	102	136
23	P.	A.	3,36	4,47	4,38	4,53	51	41	103	129
24	R.	B.	5,10	4,19	6,22	4,22	38	48	125	124
25	R.	M.	4,59	5,21	6,19	5,27	36	49	99	146
26	S.	D.	3,54	3,28	4,23	4,30	52	53	96	143
27	S.	P.	5,09	4,14	6,27	4,20	47	40	116	135
28	T.	A.	4,52	3,48	5,48	4,17	42	52	86	109
29	T.	D.	3,45	4,41	4,48	4,33	42	55	94	126
30	T.	L.	3,46	4,37	4,59	4,10	48	53	89	110
31	T.	R.	5,20	3,45	6,49	3,41	25	55	46	123
32	T.	F.	3,27	5,02	4,02	5,01	52	55	132	133
33	ARITH		4,24	4,09	4,56	4,31	44,60	49,12	101,0	122,5
	METIC								3	6
	MEAN									

Discussions

Analyzing the values recorded after applying the initial and final tests, we notice that in the 800 m event, significant changes were noticed between the two tests as follows, for the experimental group, the arithmetic mean related to the initial testing is 4.20 seconds, and the final testing 3.59 seconds, thus they obtained a progress from the initial to the final testing by 0.21 seconds and for the control group, the arithmetic mean recorded in the initial test is 4.24 seconds, and in the final 4.17 seconds, thus they achieved a progress of 0.07 seconds from one test to another.

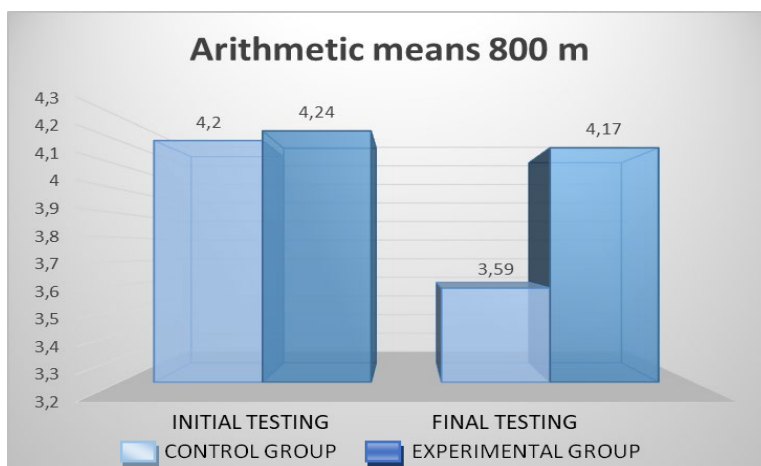


Fig.1.Comparison of arithmetic means 800 m experimental group and control group

In the 1000 m event we have registered differences between the two tests, the times from the final test being better than the times from the initial test. For the experimental group, the arithmetic mean is 4.55 seconds for the initial test and 4.31 seconds for the final test, the progress being 0.24 seconds between the two tests and for the control group, the arithmetic mean is 4.56 seconds recorded in the initial testing and 4.54 seconds for the final testing, the progress being 0.02 seconds from the initial testing to the final testing.

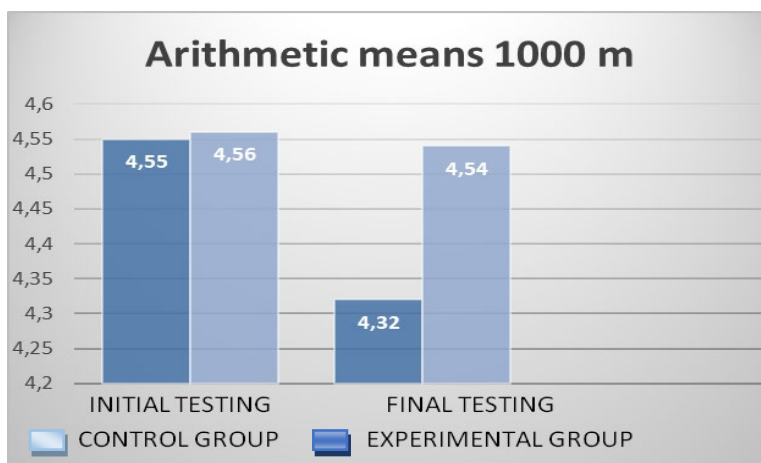


Fig.2.Arithmetic mean comparisons 1000 m experimental group and control group

In the test Trunk lifts from the supine position for 1 minute, we recorded an improvement from the initial to the final testing. For the experimental group, the arithmetic mean is 45.34 repetitions performed in the initial test and 49.12 repetitions performed in the final test, thus we obtained a progress of 3.78 repetitions in the final testing from the initial one and for the control group, in the initial testing, the arithmetic mean is 44.60 repetitions achieved, and in the final testing 46.36 repetitions achieved, thus we obtained a progress of 1.76 repetitions in the final testing from the initial one.

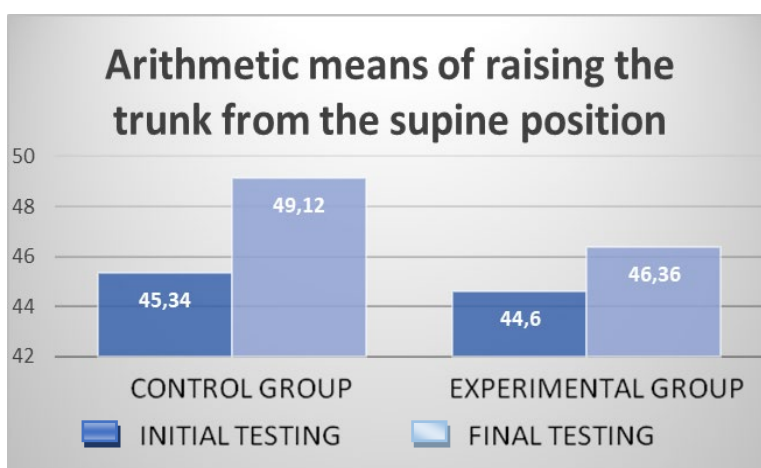


Fig.3.Arithmetic mean comparison of trunk elevation from supine, experimental group and control group

In the jump rope test for 1 minute, we recorded positive differences between the two tests as follows. For the experimental group, the arithmetic mean recorded in the initial testing is 87.62 jumps made, and in the final testing we have 122.56 jumps made, thus we obtained a progress of 34.94 jumps between the two tests and for the control group, in the initial testing the arithmetic mean is 101.03 jumps made, and in the final testing we have 115.36 jumps made, thus we obtained a progress of 14.13 jumps between the two tests.

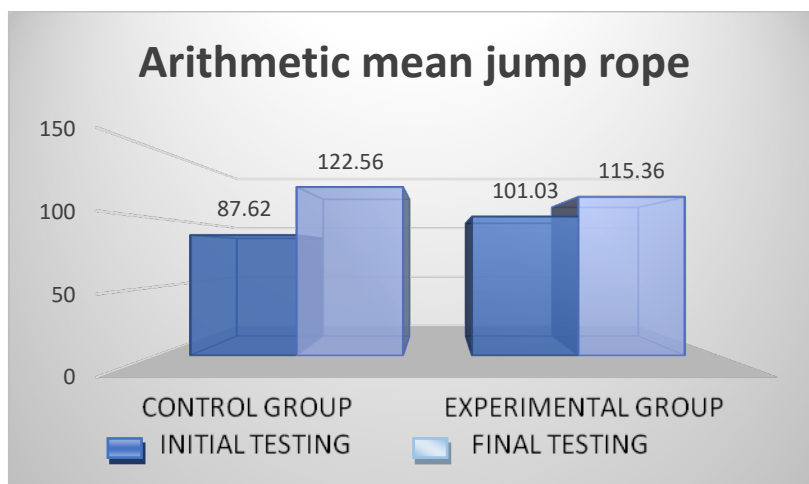


Fig.4.Comparison of the arithmetic means of jumping rope between the experimental group and the control group

Observing that this motor quality has a positive influence from a motor point of view, from the point of view of the harmonious physical and mental development of students and is closely related to the other motor qualities, I propose that in physical education and sports classes it should be developed motor quality resistance. Since lately we have a smaller and smaller selection of children to practice athletics and especially resistance tests, it is recommended that more attention be paid to students who have the necessary qualities to practice athletics and that they be directed to specialized clubs. Knowing that resistance is a motor quality that can be significantly improved, it is recommended to carefully select the methods and means used, taking into account the individual characteristics of the students, their training level, age and gender, criteria that can influence sports performances . Using the methods and means specific to athletics and especially to the development of the motor quality, resistance, we can actively participate in the harmonious development of the students' body, multivalent, multilateral development, a development that can be done within the physical education and sports classes, thus recommending the

fruition at maximum and the use of all the methods and means available in our school unit.

Conclusions

Finally, after I have fully completed the tasks of the scientific research, I bring to your attention the conclusions that I obtained after analyzing some practical-methodical and content aspects:

After analyzing the results obtained in the final and initial tests we can draw the conclusion that the methods and means used have an increased efficiency in terms of the development of motor quality and resistance and we can say that their dosage was well managed.

Starting from the idea that this motor quality is very difficult to develop, the results obtained from the control tests and applied to the sample of students show us that the activities carried out in the classroom and the initially proposed training program were effective.

Knowing that fatigue is a decisive factor in the process of developing the motor quality of resistance, for greater efficiency I paid close attention to external and internal factors that can act positively or negatively on the development of this motor quality.

At the same time, increased vigilance was given to each participant in the activity, offering the possibility of recovery to the optimal parameters, during the lessons and after their completion, taking into account age and gender peculiarities.

We can finally state that the resistance developed in physical education and sports lessons are closely related to the other motor qualities and vice versa.

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