

Improving Students' Effort Capacity through Movement Games in Physical Education Lesson

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ABSTRACT: Maintaining effort capacity is one of the goals pursued in adult physical education. Sedentary people have difficulty in sustaining an effort that is considered to be within the usual intensity. They should receive training exercise because they have lost the physical ability through a bad conduct of life. In this research we started from the hypothesis that the use in the physical education lesson of motion games, which involves sustained efforts, will lead to a much faster increase of the students' effort capacity. Dynamic games will determine the students to participate with greater interest and pleasure in lessons, and this will result in improved effort due to their active involvement. The goal was to highlight that motion games can also be used with success in the case of young people. The attractiveness and dynamism that characterizes the games determines the students to be more active and more involved in practicing physical exercise. The experiment was conducted on a group of 18 students from the second year of study at Faculty of Economic Sciences and Public Administration, at „Ștefan cel Mare” University of Suceava. The control group was formed from 18 students in the second year, the same specialization in another study group. The experiment was conducted over a period of 4 months (October 2018 - January 2019).

KEYWORDS: *Effort Capacity, Resistance, Improvement, Movement Games, Physical Education Lesson, Students*

I. INTRODUCTIONS

All movements involve mobilizing the body's energy resources for accomplishment a nervous effort (attention, memory, imagination) and muscular effort. Physical effort is a predominantly biological stimulus that forces the body to respond by electrical, biochemical, mechanical, thermal manifestations. The field of physical education and sport builds its specificity only in relation to physical effort as a complex adaptive stimulus, which produces multiple effects on the human being (Bota, A, 2013, p.129).

Exercise is one of the means to maintain health and combat morbidity. The human body needs movement to maintain its integrity and proper functioning, especially now when sedentarism has become a feature of modern life. The physical exercises applied to sedentary adults, according to Sbenghe, T. (1987, p.613) must follow:

- maintenance of joint flexibility;
- maintaining muscle strength and resistance;
- maintaining good coordination and the ability of movements;
- maintaining a correct position and alignment;
- maintaining the effort capacity.–

As we notice, maintaining effort capacity is one of the goals pursued in adult physical education. Sedentary people have difficulty in sustaining an effort that is considered to be within the usual intensity. They should receive training exercise because they have lost the physical ability through a bad conduct of life. Tolerance in effort is the main measure for assessing an individual's ability. (Sbenghe, T., 1987, p.310, Sbenghe, T., 2002, p.435). Increased physical condition must be one of the main goals of physical education and sports specialists. The effort capacity is also associated with being synonymous with the quality of resistance. According to Nicu, A., (2002, p.318), resistance is "a fundamental, perfectionable motor quality that manifests itself through the ability of the body to perform a mechanical work of a certain intensity for a long time, without decreasing the efficiency" and after Dragnea, A. (2006, p.127), this is "the ability of the human body to perform an activity for as long as possible, without decreasing the yield, in the conditions of the economic functioning of the body, overcoming fatigue and a rapid restoration." Knowledge of effort is important in conducting lessons of physical education, in the choice of exercises, volume and intensity. The supportability of the effort will also be followed

by clinical signs, by the occurrence of tachycardia (heart beat over admitted values), precordial pain, arrhythmias, palpitations, sweating, dizziness, dyspnea, muscle pain. Effort tests assess the cardiorespiratory response to a given effort, allow functional evaluation of the healthy individual, the athlete or the patient. The body's response to exercise varies according to many parameters: age, gender, nutrition status, ambient temperature, body position, exercise ability, heart condition, lung condition (Sbenghe, T., 2002, p.436). Increased effort capacity is done by several means. Some of them are walking, running, stair climbing, cycling, swimming etc. It is preferred that the intensity of the physical effort to be about 60% of the maximum possibilities in fitness for health. The duration must be 2-3 per week and the volume should be minimum 30 minutes.

II. MATERIAL AND METHOD

Hypotheses of the research: we believe that the use in the physical education lesson of motion games, which involves sustained efforts, will lead to a much faster increase of the students' effort capacity. Dynamic games will determine the students to participate with greater interest and pleasure in lessons, and this will result in improved effort due to their active involvement. The purpose of the research: The goal was to highlight that movement games can also be used with success in the case of young people. The attractiveness and dynamism that characterizes the movements games determines students to be more active and more involved in practicing physical exercise. Subjects of research: the experiment was conducted on a group of 18 students from the second year of study (aged 19 to 21 years) at Faculty of Economic Sciences and Public Administration, at "Ștefan cel Mare" University of Suceava. The control group was formed from 18 students in the second year, the same specialization (Accounting and Management Information Systems) in another study group. Research period: the experiment was conducted over a period of 4 months (October 2018 - February 2019), during one semester. The research methods: method of study of specialized literature, observation method, experiment method, methods of collecting, processing and interpretation of data. Tests used in research: for the evaluation of the students' effort capacity were used: recording the heart rate at rest, the Ruffier Test (Cordun, M, 2009, p.265), the Harvard Step Test (Leuciuc, F., V. 2015, p.91) and running resistance on a distance of 800 meters. The means used in research: throughout the physical education lessons we have introduced various movement games that involve sustained efforts and which have been aimed at increasing the students' effort capacity. As examples of means we used: "Catch up" with its variants, "Number race", "The third man runs away", "Catch the pair", "Who keeps the ball longer?", "Crabs and shrimps" "The fisherman and the net" transport games of the ball, various means as entertainment in the form of competition etc.

III. RESULTS

After the introduction of motion games in the physical education lessons to the students in the experiment group, the differences in the values resulting from the tests were as follows:

Table 1 – Experimental group

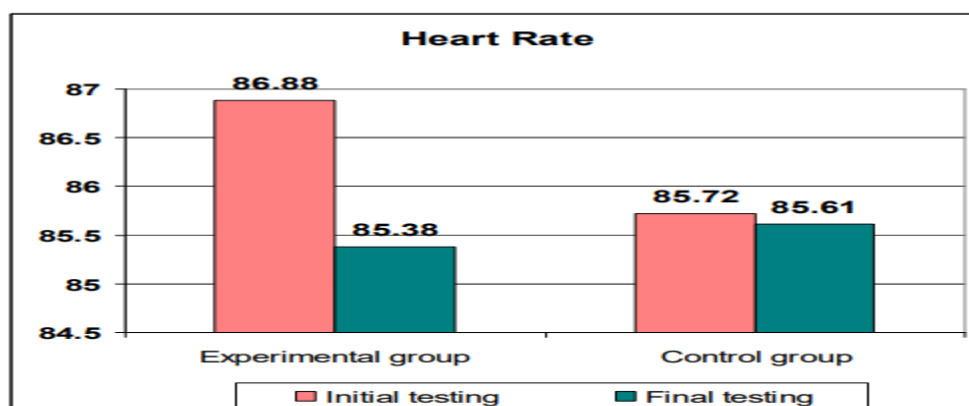
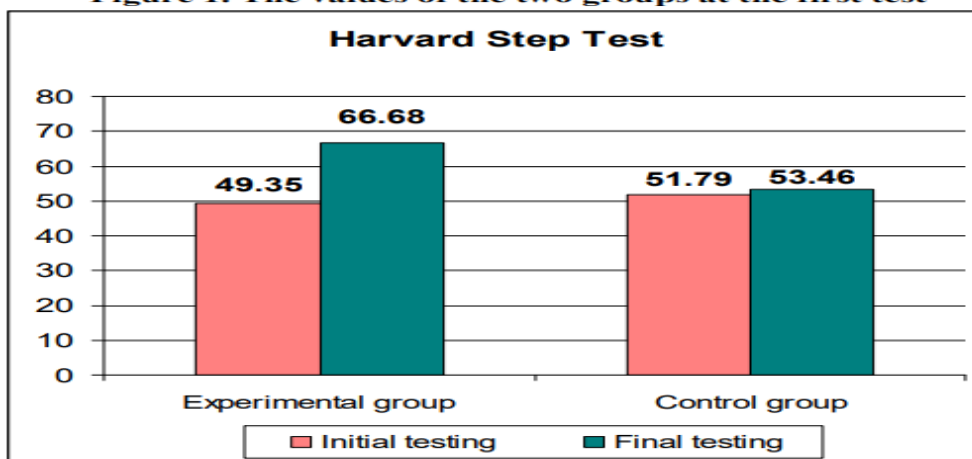
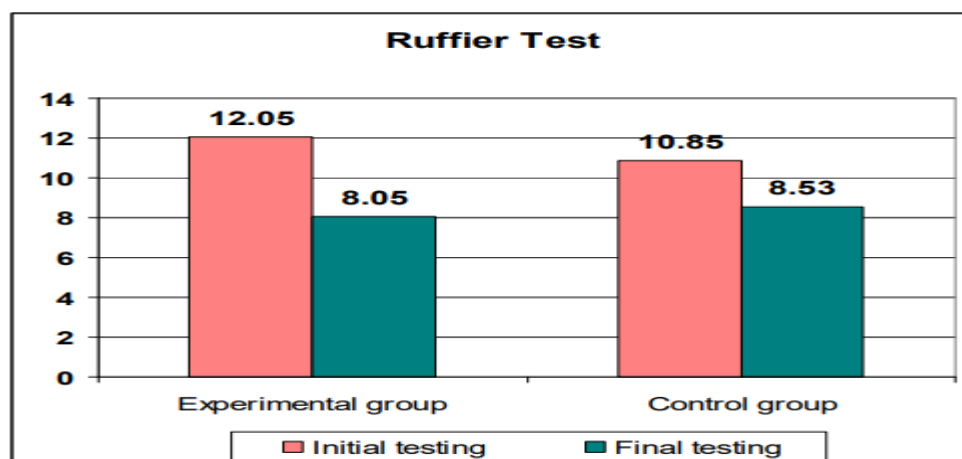
Statistical indicators	Heart Rate		Harvard Step Test		Ruffier Test		Running 800 m	
	I.T	F.T	I.T	F.T	I.T	F.T	I.T	F.T
X	86.88	85.38	49.35	66.68	12.05	8.05	5.30	4.48
S	8.81	7.34	13.04	15.71	4.11	2.88	0.77	0.65
CV	0.10	0.08	0.26	0.23	0.34	0.35	0.14	0.14
Median	88	86	47.82	65.08	12.65	7.8	5.38	4.38
Mo	84	86	48.56	66.03	15.7	5.3	6.03	5.03
Min	69	70	33.87	40.33	5.2	4.3	3.89	3.66
Max	103	98	80.42	91.32	16.5	15.4	6.53	5.93

Tabel 2 – Control group

Statistical indicators	Heart Rate		Harvard Step Test		Ruffier Test		Running 800 m	
	I.T	F.T	I.T	F.T	I.T	F.T	I.T	F.T
X	85.72	85.61	51.79	53.46	10.85	8.53	5.13	4.83
S	8.21	8.07	15.91	10.85	3.27	2.95	0.82	0.63
CV	0.09	0.09	0.30	0.20	0.30	0.34	0.16	0.13
Median	85	88	47.04	49.61	11	8.65	5.42	4.73
Mo	83	88	48.66	52.53	14.4	10.5	4.11	4.11
Min	71	73	34.53	35.69	5.1	4.6	3.78	3.84
Max	98	97	80.79	84.66	15.7	15.3	6.42	6.01

Table 3 – The difference between the results

Evaluation tests	Significance	Values	No. of subjects Experimental gr.		No. of subjects Control gr.	
			I.T	F.T	I.T	FT
Ruffier Test	Very good	0 – 5	0	1	0	2
	Good	5,1 – 10	6	14	7	12
	Average	10,1 – 15	4	2	9	3
	Poor	> 15,1	8	1	2	1
Harvard Step Test	Good	> 80	1	4	1	1
	Average	50 – 80	4	9	5	12
	Poor	< 50	13	5	12	5

**Figure 1. The values of the two groups at the first test****Figure 2. The values of the two groups at the second test****Figure 3. The values of the two groups at the third test**

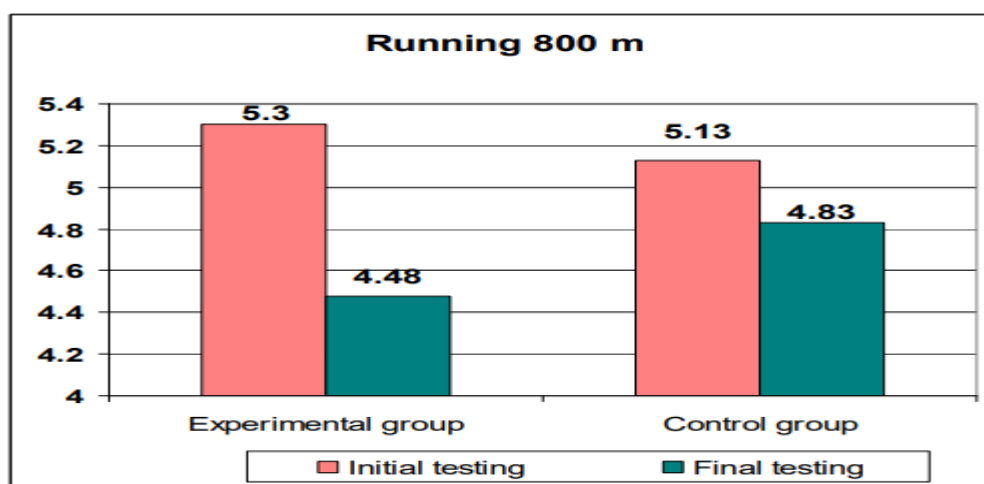


Figure 4. The values of the two groups at the fourth test

IV. CONCLUSIONS

After analyzing the results obtained by the students from the two groups under experiment, we note that in all four tests we have a significant evolution in the effort of the students in the experimental group. The cardiac frequency did not have very obvious oscillations, because the research period was relatively short, and the influence of such a functional parameter requires a longer preparation period. Both in the Ruffier Test and the Harvard Step Test, tests that assess the level of effort training and rebound after effort, the students in the experimental group, who prepared with fun dynamic games, had much better results in final testing. Although young women's ability to work is low due to the fact that they have a sedentary lifestyle, through physical education lessons, we managed to influence some functioning parameters and the body's response to the effort. As for the quality of the resistance that was assessed by the running test, it is noted that in the final test, all the students in the experimental group have traveled the proposed distance in a much shorter time compared to the initial testing.

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