



STUDY OF THE CONDITIONED MANAGEMENT OF EFFORT PARAMETERS BY MEANS OF OPERATIONAL STRUCTURES DURIN THE PHYSICAL EDUCATION CLASSES

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Abstract

Scope The physical and sports education, as an institutionalized activity, implies choosing from the multitude and variety of physical exercises the most adequate and efficient, according to the principles and pedagogical rules, the physiological and hygienic ones specific to the age, sex and educational means of the system level we organize our activity at. As a training and educational process, physical and sports education has an organized character and is a bilateral process that that submits its subjects to permanent actions, according to the objectives of physical and sports education, aiming at perfecting physical development and improving physical conditions.

Methods We aimed at creating a harmonious equilibrium between physical activities, using operational structures of the handball game in the curriculum and extra-curriculum activities taking as starting point the pleasure students took in practicing this sport. In order to achieve these objectives of training and influencing the foreseen parameters we placed a particular interest on attentively checking work instruments, starting from collecting specific data.

Results From analysing the anthropomorphic data we can notice a pronounced asymmetry of height related data. By analysing the parameter regarding their weight, although the row in symmetrically arranged around the average, the differences are significant, though explainable, as in both teams there are both girls and boys. The results of the experiment are presented, analysed and interpreted comparatively, for each test in the dynamic of the testing between the first and final test of the subjects of the research, the initial and final data.

Comparing the individual results and the average registered during the final testing, we notice differences during the average results of the first test and the values registered during the second one.

Conclusion The differences achieved by the experimental research lead us to believe that the results obtained are caused by using actions specific to the handball game as well as tools of gathering data that can be perfected in accordance to the new objectives and tasks that our research requires. We can also come to another notable conclusion, that is the fact that for dynamic and efficient game actions, the inter-relationship between the level of development and combined movement qualities as well as the quality of technical and tactical exercises, by ensuring an emulation state for the students for desiring victory implicitly leads to greater efficiency, usefulness, rapidity, precision and spectacular qualities on the background of the training and educational process

Key words: management, effort, parameters, class.

Introduction

Physical education and sports aim at supporting and developing bio-psycho-motor skills in order to improve and maintain optimal health state, achieving a harmonious physical development and a physical condition having a high level of motor skill manifestation.

During the preparation process, the efficiency of the work performed depends on the capacity of adapting concrete conditions in which sports activity is organized. (Deacu, Finichiu, 2010) The special importance of this scientific endeavour is given by the fact that it gives importance on preparing the technical and tactics moment by exercising operational structures that are specific to handball

and these form the premises of an effort capacity on the part of the students. To this type of preparation it is characteristic that they deliver clear tasks, according to development needs and student effort capacity. Establishing the objectives for improving physical training was achieved by evaluating them through specific tests. (Constantinescu, 2012)

This paper aims at improving research in the field of physical education within the technical university education and is based on solid information obtained by applying collective instruments of gathering preparation results in both training and educational processes that students take part in during the physical education classes. Starting



from the training and educative activity that the students from the Oils and Gas University Ploiești organize, we reach the conclusion that by means of operational structures specific to handball we will be able to effectively coordinate effort parameters during the physical education classes, thus achieving the training objectives that we have initially set. Our main objectives are promoting the values present during handball games, by developing the knowledge and competences of youth, that allows developing their social, communicative, solidarity and fair play attitude

Methods

We aimed at creating a harmonious equilibrium between physical activities, using operational structures of the handball game in the curriculum and extra-curriculum activities taking as starting point the pleasure students took in practicing this sport. In

order to achieve these objectives of training and influencing the foreseen parameters we placed a particular interest on attentively checking work instruments, starting from collecting specific data.

Organising the research: The research period expands over a time frame of 5 months (February – June), namely the second semester of university school year 2012 – 2013. The location is sports base of Oil and Gas University, Ploiești. The representatives are made of students in the 1st and 2nd year of study (boys and girls). We used a number of 24 students, organised in 2 teams, one being a witness and an experimental one, divided equally.

The undergone research had two stages. The first stage was the one for the measuring of dependant variable parameters – their evolution was monitored throughout the research. The second stage meant applying the experiment pilot program in order to check its accuracy and acting means, collecting data and research methods.

Cr. No.	Height (cm)	Weight (kg)
1	174	62
2	171	59
3	174	51
4	162	60
5	157	49
6	159	62
7	174	72
8	165	61
9	158	58
10	170	60
11	159	49
12	150	43
M	164,42	57,16667
DS	8,08	7,825754
Average	163,5	59,5

Table 1 – witness team (height, weight)

Cr. No.	Height (cm)	Weight (kg)
1	174	68
2	167	65
3	181	74
4	177	64
5	173	70
6	168	60
7	168	63
8	174	70
9	163	65
10	169	65
11	175	65
12	168	60
M	171,4167	65,75
ds	5,071459	4,136863
Average	171	65

Table 2 – experimented team (height, weight)



Cr. No.	Speed/ 50m		Endurance/ 800m		Squats		Pushups		Dribbling among cones	
	Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf
1	8,20	8,04	4,12	4,02	23	27	16	23	6,54	6,14
2	8,12	7,98	4,10	4,04	24	27	15	19	6,42	6,04
3	8,11	7,67	4,21	4,10	24	28	17	24	6,45	6,09
4	8,72	8,29	4,15	4,01	23	28	15	23	7,00	6,35
5	7,46	7,13	4,23	4,02	25	29	15	21	6,95	6,40
6	7,76	7,68	4,11	4,05	22	26	18	23	6,84	6,20
7	8,21	8,02	4,10	4,00	28	30	16	24	6,58	6,05
8	7,79	7,73	4,32	4,15	20	24	12	19	6,15	5,77
9	8,54	8,32	4,44	4,11	24	29	13	15	6,97	6,45
10	7,66	7,46	4,51	4,18	18	22	17	19	5,74	5,36
11	8,18	7,92	4,45	4,19	22	26	18	22	7,00	6,42
12	7,78	7,32	4,50	4,22	19	22	11	17	6,23	5,84
M	8,04	7,80	4,27	4,09	22,67	26,5	15,25	20,75	6,5725	6,09
DS	0,37	0,369	0,16	0,08	2,74	2,64	2,26	2,93	0,40	0,32
Average	8,11	7,82	4,22	4,07	23	27	15,5	21,5	6,56	6,115
Student Test (t)	12,72	-12,72	-12,72	-4,39	-4,39	11,63	11,63	10,37	10,92	-9,60
ANOVA monofact	3,30	3,30	3,30	0,53	2,05	2,05	2,05	5,11	15,70	16,29

Table 3 - Testing results of the experiment team – initial and final test

Cr. No.	Speed/ 50m		Endurance/ 800m		Squats		Pushups		Dribbling through cones	
	Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf	Ti	Tf
1	9,31	9,14	5,22	5,16	20	22	12	14	6,48	5,97
2	9,88	9,61	6,12	6,04	21	22	8	10	6,02	5,38
3	10,09	9,83	6,25	6,18	19	20	8	9	6,35	6,85
4	10,23	9,87	6,14	6,07	21	22	7	8	6,39	6,01
5	9,25	9,19	5,41	5,36	25	27	12	14	6,44	6,08
6	9,59	9,36	5,33	5,3	24	26	10	12	6,86	6,44
7	10,56	10,28	6,20	6,15	23	25	14	15	6,55	6,09
8	9,36	9,12	5,19	5,14	24	25	13	14	6,56	6,12
9	9,59	9,41	5,31	5,25	24	25	12	14	6,48	6,00
10	10,24	9,92	5,50	5,44	20	22	7	8	7,01	6,53

11	10,02	9,54	5,46	5,41	19	21	8	9	6,93	6,48
12	10,41	9,82	5,44	5,38	20	21	7	8	7,24	6,86
M	9,88	9,59	5,63	5,57	21,67	23,17	9,83	11,25	6,61	6,23
DS	0,45	0,36	0,41	0,41	2,19	2,29	2,62	2,83	0,34	0,42
Average	9,95	9,58	5,45	5,40	21	22	9	11	6,52	6,11
T. Student (t)	12,72	-12,72	-12,72	-4,39	-4,39	11,63	11,63	10,37	10,92	-9,60
ANOVA mono fact	3,30	3,30	3,30	0,53	2,05	2,05	2,05	5,11	15,70	16,29

Table 4 Testing results at control tests witness team – initial and final testing

Results

From analysing the anthropomorphic data we can notice a pronounced asymmetry of height related data. By analysing the parameter regarding their weight, although the row in symmetrically arranged around the average, the differences are significant, though explainable, as in both teams there are both girls and boys.

The results of the experiment are presented, analysed and interpreted comparatively, for each test in the dynamic of the testing between the first and final test of the subjects of the research, the initial and final data.

Comparing the individual results and the average registered during the final testing, we notice differences during the average results of the first test and the values registered during the second one.

By adding up the significance of these individual differences and the arithmetic mean we focused on the special significance Student test: $t = -12,72$ ($p = 0,05p$ and critical = 2,06). This value had no significance for the ANOVA mono-factorial test, as this test is much more sensitive and expressive $F = 3,30$ ($p = 0,05$ for F critical = 4,05).

The next test was endurance running for a distance of 800 m. During the first testing the representative value configuration shows a relative symmetry of the data around the arithmetic– $M_a = 5,44$ min. During the final testing we enhanced some differences as to the initial one. These differences were significant only for Students test, as we can notice $t = 4,39$ (t critical = 3,72 $p = 0,001$) for ANOVA there is no significant difference: $F = 0,53$ (F critical = 4,05 $p = 0,05$).

The next compared and analysed given test was the squats test a 30 sec. In the initial testing, the values of the central tendency show a slight asymmetry over the arithmetic mean ($M = 22,67$ squats) in the row of individual data. The registered

differences in the final testing as to the ones in the initial one were significant as only for the first test Student: $t = 11,63$ (for t critical = 3,76 $p = 0,001$) in favor of the second testing. We notice that for ANOVA the differences had no significance $F = 2,05$ (F critical = 4,05 $p = 0,05$) as they were random.

The next compared and analysed undergone test was the push-ups test for a period of 30 sec. The central value tendency during the first testing show a pronounced asymmetry to the right of the average line ($M = 9,83$ push-ups) in the row of individual data.

During the final testing we notice the individual differences and the average values as compared to the initial one. After statistic testing we notice that the differences were significant for both tests: for Student: $t = 10,37$ (t critic = 3,76 $p = 0,001$) and for ANOVA $F = 5,11$ (F critical = 4,05 $p = 0,05$).

The last compared and analysed undertaken test in this research was the dribbling test through cones on a distance of 20m. During the first test, the central tendency value was of 6,61 sec. The average having a value of 6,52 sec.

During the final test, we notice individual differences and differences as to the value of the initial testing. By applying significance statistical tests, we notice that these tests were relevant for both tests in favour of the results of this particular test: for Students test : $t = -9,60$ (t critical = 3,76 $p = 0,001$) and for ANOVA $F = 16,29$ F critical = 12,35 $p = 0,001$.

Discussion

According to Constantinescu A. (2013) and Brill (1993), in order to learn and consolidate the base techniques, it is necessary to use appropriate game methods and adapt them to the players particularities. As a theoretical's remark, as Acsinte A. (2003) stated, an university team has to know everything



about handball. It is necessary during the preparation to take into account the following:

- Using diverse, normal and easier training means during the training;
- Using exercises that are performed at maximum speed;
- The training must take place while having an adequate emotional state, boredom mustn't interfere with the training;
- The time of training is different during a university school year from one period to another and aims at achieving the set objective for the competitive period;
- The means, methods, dosage of the effort has to take into consideration the level of training of the team as well as the flaws that have to be modified during this time frame;

During the undergone experiment, we also noticed the necessity of using additional material during training (balls of different sizes and weights, sling balls, cords, elastic bands, gymnastics benches etc.)

We also placed much importance on organising as many games as possible (friendly games, school games, etc., with the high schools nearby) that gave us the possibility to correctly apply the things learnt during training.

A major set-back is the fact that the university has a technical profile and the physical education classes are once every two weeks and we had to organise trainings and sports meetings every two weeks.

Required according to Cercel P (1980) handball is to be practiced 3-4 times a week to expected results related training periods. Students and especially young people over 18 years we need to maintain a high level technical and tactical.

Conclusions

At the end of the research we can conclude that there were differences during the testing between individual results and the average between the two tests to which the subjects were exposed.

The differences achieved by the experimental research lead us to believe that the results obtained are caused by using actions specific to the handball game as well as tools of gathering data that can be perfected in accordance to the new objectives and tasks that our research requires. We can also come to another notable conclusion, that is the fact that for dynamic and efficient game actions, the inter-relationship between the level of development and combined movement qualities as

well as the quality of technical and tactical exercises, by ensuring an emulation state for the students for desiring victory implicitly leads to greater efficiency, usefulness, rapidity, precision and spectacular qualities on the background of the training and educational process

Among the operational systems that appeal to students during the physical training we notice: applicative routines, shuttles, batons, games, ball games, contest exercises in conditions of direct adversity, game on a reduced field or for one gate.

As a theoretical conclusion, as Acsinte A. (2003) stated, an university team has to know everything about handball. We cannot achieve good results if the members of the team do not know how to apply technical and tactics elements during the game played with an active adversary unless they aren't ready to attack different the different systems of defence used by the adversary team or vice-versa, to defend itself according to the attack system used by the adversary team. It is necessary for the team to be very well prepared from a physical, psychological and theoretical point of view. They have to work very calmly, with much patience, one must look at the players deficiencies on each part of athletic training and remove them if we want to reach good and outstanding results.

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