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COMPARATIVE STUDY OF FORCE TO LEVEL STUDENTS F.E.F.S.

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Abstract

Purpose. Our research aims at benchmarking the quality of the students driving force specialization and Special Motion Physical Therapy (KT) and Physical Education and Sports (EFS) from the Faculty of Physical Education, Spiru Haret. This study aims to achieve a database that provides the possibility to analyze the various issues relating to the potential biomotric and to observe trends in these categories of students, to intervene with appropriate means to improve the findings.

Ways. For carrying out the work we used the following research methods: bibliographic study method, observation method pedagogical practical test method, statistical and mathematical methods; plotting method.

Results. There were mixed results on samples from students in sports and those in physical therapy indicators highlighted by applying statistical and mathematical

Conclusions. The results should be considered by all teachers working with student groups from two specializations to intervene with appropriate means to improve the findings.

Keywords: General strength, Physical Therapy, Physical Education.

Purpose

Driving force is one of the qualities required more physical activity. It is the basis of simple skills and its importance increases in direct proportion to the aim in the training and development of basic motor skills specific to the various branches of sport.

Quality force increases relatively quickly, but lack of concern for developing and maintaining it soon leads to a decrease in parameters used in the preparation.

Force development can start right from the age of 10 years, if special care manifest in the grading exercise (O. Bompa, 2001).

The force development process is recommended to use exercises and traction climbing which defeats their body weight, gradually introduce the work with objects of different sizes, and partner exercises.

Forms of expression:

Depending on participation muscle groups, are:

♣ *general power*, which refers to the degree of development of the whole muscular system.

It is characterized by an increased capacity manifestation of force in different situations: in productive activity, in sports, entertainment. It is also based on a thorough physical training, including sports initiation phase, when it comes to driving quality development and ensure general physical training, as harmonious. Note that it is the subsequent training, specific force, engaging, through contraction, the main muscle groups, to overcome any resistance;

♣ *specific or special power* is his own sports activities, allowing "entry" to work to overcome resistance to one or a few muscle groups.

Allow expression of muscle forces imposed regimes and levels of sport specialization.

Specific force, weight and level of development that differs from one sample to another sport, while the overall strength varies from individual to individual (D., George, 2005).

Another classification is based on the nature of muscle contraction, highlights the following forces:

♣ *dynamic force or isotonic*, contraction occurs when muscle fibers following change dimensions. When muscle fibers shorten following the entry into action of agonist muscles (motor), type dynamic force is overcome (regime myometrium), and the fibers are prolonged into action by the antagonist muscles (frenulum) is of type dynamic force transfer (pliometric regime);

♣*force static or isometric* contraction occurs when the result does not change the muscle fibers.

If isometric force, maximum force capacity of the contractor is less than the external resistance;

♣ *joint force*, combined or auxotonică is an alternation of two forces: dynamic and static.

After exercise capacity ratio of force and weight:

♣ *maximum force* or absolute. This can be static or dynamic. Depending on body strength increases when body weight increases;

♣ *relative strength* expresses the ratio of maximum force and weight, the force per kilogram body weight. Relative strength decreases usually with increasing their body weight (A., Nicu, 1999).

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After the combination that works together with other motor skills:

♣ *speed under power (explosive);*
♣ *force under strength;*
♣ *force under skill.*

Means used to develop force:
1. The process of lifting weights (or load) by:
♣ continuous growth of load;
♣ increase the speed of the load;
♣ Continuous load increases and decreases.
2. Process of intense and rapid isometric muscle contractions (dynamic effort method);
3. Power-training process;
4. Method repeated efforts to overflowing;
. Method isometric efforts;
6. Process circuit (S, Todea, 2005).

Methodical force development:

Performing exercises of force required prior locomotor training. Exercise of force will be alternated with action to develop flexibility, skill, speed. Force development we select only those exercises that can be executed correctly by the student. Establishing muscle groups that want to address to comply with the idea of developing overall body strength. Setting rational load and their progressive growth will be based on age and level of training of students. The best results are obtained with a load of 50-70%.

Strength exercises will be followed by pauses that allow the body to restore exercise capacity. Force is a perfect quality by ensuring continuity exercises. It will focus on developing explosive strength and extensor.

Methods

Thus, personal data of students in specialized somatic and Special Motion Physical Therapy (table 1) and the specialization of Physical Education and Sports (table 2), were assessed as follows:
♣ ***Age*** - was recorded in **years,** his favorite chronological age that subjects were at that time.
♣ ***Height of the body*** - is the longest of the human body. This was measured between vertex and plane plants. Subject standing with his back to staturometru, legs and spine as straight, head up, eyes forward. Size was determined and recorded in **cm** sheet.
♣ ***Weight*** - was measured by the scales. Subjects were equipped, and weighed without shoes in the morning. Weight was recorded in **kg**.

Table 1. Personal data and somatic of students specialized in Special Motion and Physical Therapy

No.	Personal			Data somatic	
	Name and surname	Age	Sex	Weight (Kg)	Height (cm)
1	A. M	20	M	72	170
2	B. D	40	M	107	175
3	B.I	22	M	88	177
4	B.R	23	M	78	182
5	B. S	22	M	71	180
6	C. A	19	M	80	184
7	C. F	20	M	77	172
8	C.E	21	M	78	181
9	C.R	22	M	82	187
10	D. C	20	M	60	178
11	D. Cr.	40	M	72	180
12	D. A	23	M	77	170
13	D.I.	31	M	89	186
14	D.M	33	M	76	173
15	E. M	29	M	75	178
16	E.P	22	M	70	176
17	F. L	31	M	62	175
18	F.M	24	M	66	184
19	G. E	19	M	80	180
20	G.R	21	M	71	185

21	G.M	23	M	76	189
22	G.S	22	M	74	175
23	H. L	20	M	72	180
24	H. G	20	M	80	180
25	I. M	22	M	84	182
26	Î. A	20	M	63	184
27	L. A	19	M	80	178
28	M. I	19	M	74	170
29	M. C	19	M	80	184
30	M. E	19	M	80	173
31	M. A	46	M	70	170
32	M. M	19	M	75	180
33	M. Ion	27	M	75	184
34	M. C	19	M	79	190
35	O. R	32	M	55	165
36	X	24,22	M	75,65	1,78
37	S	6,88	M	9,11	0,06

Table 2. Personal data and somatic of students specialized in Physical Education and Sports

No.	Personal			Data somatic	
	Name and surname	Age	Sex	Weight (Kg)	Height (cm)
1	A.A.	21	M	68	1,75
2	A.M.	21	M	68	1,75
3	C.V.	22	M	51	1,61
4	L.N.	21	M	50	1,73
5	S.A.	25	M	50	1,60
6	P.A.	22	M	56	1,70
7	D.A.	25	M	62	1,75
8	S.H.	26	M	68	1,75
9	C.M.	23	M	79	1,82
10	Z.M	25	M	78	1,75
11	L.V.	21	M	76	1,91
12	T.I	36	M	105	1,74
13	M.A.	43	M	66	1,75
14	T.A.	25	M	65	1,76
15	D.I.	22	M	98	1,91
16	D.M.	23	M	72	1,69
17	C.I.	21	M	84	1,78
18	T.A.	21	M	60	1,70
19	C.M.	32	M	92	1,90
20	T.M.	32	M	81	1,79
21	G.I.	22	M	62	1,83
22	V.D.	33	M	62	1,78
23	P.S.	22	M	60	1,74
24	L.A.	23	M	64	1,78
25	D.I.	32	M	80	1,75
26	M.S.	35	M	87	1,76
27	V.V.	23	M	85	1,73
28	A.G.	24	M	56	1,65
29	T.C.	43	M	96	1,80
30	V.D.	25	M	85	1,82
31	A.J.	26	M	72	1,75
32	R.D.	29	M	68	1,80
33	R.R.	33	M	66	1,76
34	G.P.	34	M	77	1,86

35	H.T.	23	M	62	1,70
36	X	26.68	M	71,74	1,76
37	S	6,19	M	13,90	0,07

Regarding data from students in two majors (Table 3 - KT, Table 4 - EFS) to test the quality of driving force, were assessed as follows:

♣ ***Abdominal strength***: the dorsal lying, feet set, is to lift the trunk with hands behind your head, the maximum speed for 30 seconds. There have been correct lifting the **number of repetitions** in the allotted time.

♣ ***Back muscle strength***: from a lying face, hands behind your head, feet fixed to lift the trunk so that trunk is approaching the vertical speed maximum time of 30 seconds.

There have been correct lifting the **number of repetitions** in the allotted time (I., M., Butu, M., Butu, I., Constantinescu, S., Macovei, 2012).

♣***Explosive force (expansion*)**:

first measurement was made in standing with the wall right shoulder, right arm stretched out above, the second measurement was the peak of the vertical jump. It made the difference between first and second measurement, was assessed in **cm**.

♣ ***Force arms***: the position of supporting the student has executed pushups.

Performances were assessed only correct and recorded **the number of repetitions**.

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Table 3. The results of students in specialized Physical Therapy and Special Motion to force testing

Subjects	Traction data			
	Force abdomen	Force back	Explosive force	Force arms
1	16	17	10	13
2	17	16	40	7
3	20	31	51	18
4	21	17	30	33
5	4	20	30	30
6	30	32	55	16
7	32	32	63	20
8	17	25	55	20
9	25	27	66	31
10	21	32	40	40
11	32	29	65	30
12	32	29	50	30
13	20	22	55	15
14	27	29	40	20
15	24	37	55	23
16	23	28	44	20
17	18	32	34	12
18	25	29	65	38
19	28	33	57	16
20	30	30	45	15
21	30	33	50	20
22	17	21	40	8
23	22	37	53	7
24	23	31	50	27
25	25	33	45	10
26	22	29	48	9
27	23	31	42	15
28	20	34	40	12
29	16	28	39	11
30	18	24	36	9
31	20	22	39	12
32	25	29	47	8
33	20	33	49	5
34	23	32	44	17
35	18	28	43	6
X	22,4	28,34	46,14	17,8
S	5,77	5,44	11,31	9,44

Table 4. The results of students in specialized Physical Education and Sports to force testing

Subjects	Traction data			
	Force abdomen	Force back	Explosive force	Force arms
1	25	42	50	52
2	24	44	50	52
3	22	30	35	15
4	18	43	35	15
5	23	30	35	12
6	25	38	47	19
7	15	26	32	15
8	9	25	50	25
9	27	30	50	30

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10	18	35	50	15
11	26	35	60	26
12	13	22	38	7
13	20	37	45	16
14	19	31	50	17
15	15	31	45	1
16	21	34	42	25
17	26	36	50	42
18	26	38	40	31
19	24	37	40	30
20	31	45	55	50
21	14	33	40	19
22	14	37	40	31
23	19	44	32	34
24	19	36	35	20
25	17	40	43	16
26	30	46	42	20
27	15	30	45	30
28	20	33	43	22
29	11	27	34	8
30	25	42	48	42
31	31	41	38	33
32	32	42	40	35
33	17	27	27	25
34	10	23	37	10
35	23	30	37	20
X	20,68	34,85	42,28	24,57
S	6,14	6,58	7,30	12,61

Results

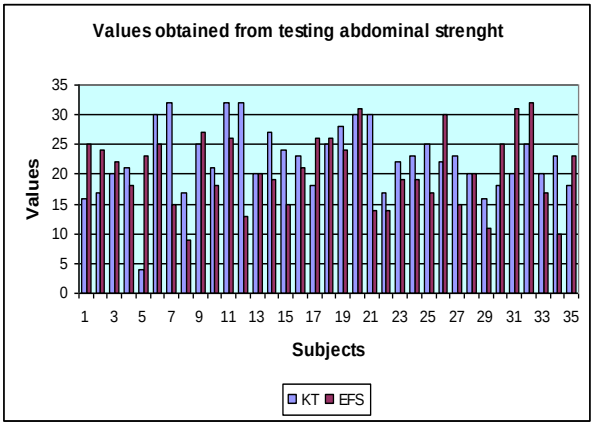

Figure 1. Force abdomen

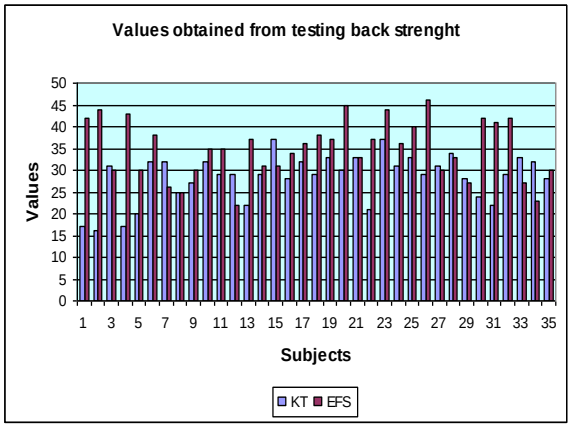

Figure 2. Force back

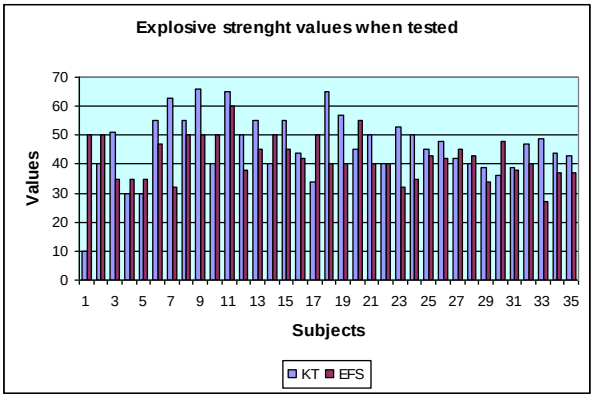

Figure 3. explosive force.

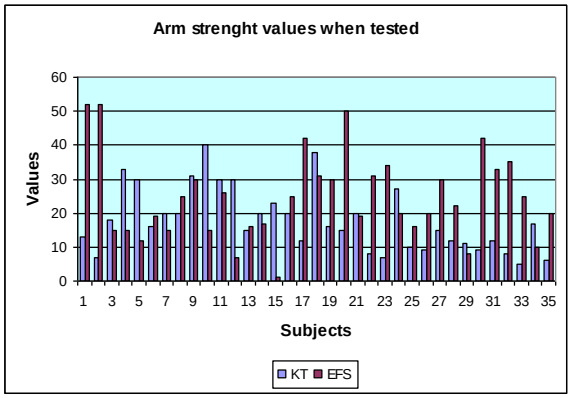

Figure 4 force arms

Discussion and conclusions

The purpose of this study is to be able to determine the methods, means, methodical, the quality of driving force.

Regarding the values obtained from ***testing abdominal*** strength, the minimum (4) is obtained by the students of the specialization KT, the maximum is the same for all students participating in the experiment (32).

Arithmetic average testing ***abdominal strength*** is higher in students at KT specialization, the students compared the EFS.

When testing ***back strength***, maximum value (46) is obtained by specialization students EFS, and the minimum value (16) is obtained by KT specialization students.

Arithmetic average ***back strength*** testing is higher EFS students from specialization, the students compared to KT.

In terms of ***explosive strength*** values when tested, both values (maximum - minimum 66 and - 10) are obtained by students at KT specialization. Arithmetic mean is greater ***explosive strength*** testing to students at KT specialization, the students compared the EFS.

When testing ***arm strength***, so the maximum value (52) and the minimum (1) is obtained by EFS specialization students.

Average ***arm strength*** test results is higher than students in the specialization EFS students from KT.

High values of standard deviation of results obtained by students from both specialization highlights their lack of homogeneity.

The overall results obtained show the need to develop, maintain, improve labor methods, specific means.

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