Trakia Journal of Sciences, Vol. 17, Suppl. 1, pp 668-675, 2019

Available online at:
http://www.uni-sz.bg

ISSN 1313-7069 (print)
ISSN 1313-3551 (online) **doi:10.15547/tjs.2019.s.01.108**

ANALYSIS OF DYNAMICS IN THE DEVELOPMENT OF MOTOR SKILLS OF STUDENTS IN UNIVERSITY OF FORESTRY AFTER THE APPLIED MODEL FOR INCREASING PHYSICAL ABILITY

Zh. Georgiev*

Department of Physical Education and Sport, Faculty of Agronomy, University of Forestry, Sofia, Bulgaria,

ABSTRACT
The optimization of physical activity of students is directly related to the issue of improving their physical abilities. Proper physical development and a high degree of physical activity are essential basis on which they should be built as socially active individuals. The objective of this study is to track and analyses the changes occurred in the physical abilities indicators of students from the University of Forestry after applying a model to develop motor skills. In this survey, 187 students have been involved and evaluated with a test battery, consisted of ten physical fitness tests, conducted at the beginning and at the end of the experiment. We used a variational and comparative analysis to process the survey results.

Key words: University of Forestry; students; physical ability; study; growth

INTRODUCTION

The optimization of motor activity in students is directly related to the problem of improving their physical ability. Proper physical development and high degree of physical ability set the obligatory base, on which they build themselves as socially active individuals. The physical ability sheds light on the general employability of the human body based on complex development of physical qualities and necessary for their fulfillment motor skills and habits. It is also dependent on physical preparedness, sex, age and hereditary factors (1, 2).

Physical employability is a term that ranges over a wide variety of factors, some of which are: fitness, physical preparedness and state of body. It is accepted that physical ability is an inner inbred state of the human body, characterized by a certain degree of motor reactions, reached as a consequence of the functional adaptation to a variety of biosocial influences (3).

In series of publications authors suggest that physical ability is determined by the presence of a certain level of motor qualities-strength, speed, swiftness, endurance, nimbleness, agility and etc. (4, 5). Based on the specificity of certain actions, the organism is automatically capable of forming its' own functional system, providing for certain motor activity. Depending on the character and aim of the activity as well as the conditions of the medium, this functional system distinguishes from certain symptoms in sportsmen practicing different types of sports (6).

The vast majority of scientific research in the field of physical education is focused on trying out new sources and methods of influence, which would have a positive impact on the physical development in teenagers.

Goals and tasks of physical education in universities as a coaching process are achieved by utilizing a wide range of resources. Physical exercises are the main specific source of physical education. Through them physical

***Correspondence to**: *Zhelyazko Georgiev, Department of Physical Education and Sport, Faculty of Agronomy, University of Forestry, Sofia, 10 Kliment Ohridski Blvd., Sofia 1797, Bulgaria, phone: (+359) 885716114; (+359 2) 862 17 82, e-mail: jakuzzi@abv.bg*

development, level of physical and coordination abilities as well as employability are enhanced through education and improvement of technical motor habits related to the practiced sport (7).

The improvement of students' performance in future is the subject of sports specialists in universities, who do not only have to improve the quality of coaching in accordance with the modern-day trends but plan certain activities of choice and establish equilibrium in sports groups with the aim of raising the quality of the educational process and enhancing the outcomes of training sessions when students are in their respective universities as well (8).

Goals, main tasks, organization and methods of research

1. Aim of the research - observation and analysis of changes taking place in indicators of physical efficiency in students of the University of Forestry after putting the specialized motor qualities enhancement model into practice.

2. Main tasks:

1) Theoretical set-up of the problem;
2) Ascertain the level of the researched physical efficiency indexes in the beginning and end of the experiment;
3) Form a variational and comparative analysis of the researched indicators;
4) Affirm the hypothesis that by putting the suggested by us specialized model in physical education classes into practice, there will be an improvement in students' physical efficiency;
5) Draw conclusions and give suggestions in favor of the practice.

3. The object of research is the observation of dynamics in development of motor qualities in students of the University of Forestry after putting the physical efficiency improvement model into practice.

4. The contingent of the research are 187 students of the University of Forestry (1st and 2nd courses) in groups of Physical education and sports (PES) divided as follows:

1) Experimental group – men (EGm) - 58
2) Experimental group – women (EGw) - 35
3) Control group – men (CGm) - 58
4) Control group – women (CGw) - 36

METHOD OF RESEARCH

In order to carry out the research we have come up with a specialized model of physical preparation for student. It is held in the primary scheduled classes of PE and sports in the University of Forestry. The lessons are held once a week each of which is of 90 minutes duration. It spans within the course of one school year, two terms consisting of 15 lessons. The pedagogical experiment has been carried out in complex "Bonsist". In order to achieve the goals we have used a test battery composed of 10 tests (9).

The given results have been processed with the help of mathematical and statistical processing, through the programs IBM "SPSS" and "Excel". Variational and comparative analyses of results have been applied.

The exercises from the specialized model are applied in the educational content only in students of the experimental group. They are put into practice in basketball, volleyball, tennis, table tennis and football training in the University of Forestry, which complements the thematic educational content of the chosen type of sports in accordance to the annual distribution.

The educational activities with the experimental group are structured as follows:

Preparatory part (~ 20 - 25 min) - we have divided it conditionally into two parts:

1. General part (~ 15 min) a wide variety of exercises is performed to develop certain motor qualities:

a) Special-running exercises – different types of running exercises; running with a different continuance; jump running drills with different placement of body and hands; running exercises over "hats" and cones; accelerations; starts from different positions.

b) Strength development exercises – drills for strength of upper limbs, lower limbs and explosiveness; exercises for abdominal muscles; strength compound exercises with dumb-bells; power complex with a bench; work on strength of arms and shoulder girdle with a medicine 3kg ball.

c) Exercises, improving flexibility.

2. Special part (~ 10 min) specific preparatory exercises are performed in accordance to the sport of choice.

Main part (~ 45 - 55 min) – which is divided conditionally into two parts as well:

- Special technique drills (in accordance to the chosen sport) ~ 20 - 25 min.
- Sports game (in accordance to the chosen sport) ~ 30 - 35 min. In some activities in the course of break it is advisable to work on improving certain muscle groups. E.g.-push-ups 3 sets/10 reps each + crunches 3 sets/10 reps each.

Final part (~ 10 - 15 min) – accenting on stretching and slow restoration running (~ 2 - 3 min).

ANALYSIS OF THE RESULTS

In the first test **"Standing long jump"** we give value to the explosiveness of lower limb muscles. The male and female experimental groups enter the research with already better results than those of the male and female control groups.

After the 2nd testing, men's experimental group has improved its' indexes ($\bar{X}2$ = 227, 84 cm), by d = 10,24 cm (4,71%) with guarantee probability of P(t)=100%, given that $\alpha < 0,05$, which confirms that the difference is reliable.

In men's control group the results are $\bar{X}2$ = 209,64 cm, here as well an improvement is observed by d = 3,35 cm (1,62%), affirmed by the guarantee probability of P(t) = 100,00%, given that $\alpha < 0,05$, which also confirms that the difference is trustworthy **(Table 1)**.

Table 1. *Comparative analysis on "Standing long jump test"*

Standing Long Jump Test	I test		II test		D	d%	t	α	P(t)
	$\bar{X}1$	S1	$\bar{X}2$	S2					
Experimental group - men	217,60	24,59	227,84	24,84	10,24	4,71	-18,03	0,000	100,00
Control group - men	206,29	27,13	209,64	28,05	3,35	1,62	-4,73	0,000	100,00
Difference	11,31		18,20		6,89				
U	-2,239		-3,293		-6,889				
α	0,025		0,001		0,000				
P(U)	97,50		99,90		100,00				
Experimental group - women	159,86	18,77	170,89	17,63	11,03	6,90	-12,66	0,000	100,00
Control group - women	150,58	24,48	152,58	24,96	2,00	1,33	-2,81	0,008	99,20
Difference	9,28		18,31		9,03				
t	1,788		3,560		8,048				
α	0,078		0,001		0,000				
P(t)	92,20		99,90		100,00				

After the 2nd testing, women's experimental group has improved it's indicators by d = 11,03 cm (6,90%), affirmed by P(t) = 100%, which proves that the difference is reliable. In women's control group as well are observed improvements by d = 2,00 cm (1,33%), affirmed by P(t) = 99,20%, but the improvement in results is expressed in smaller portions **(Table 1)**.

In the end of the research students of the experimental group improve their results towards their colleagues from the control group with difference in men – 6,89 cm. and in women – 9,03 cm. This shows that our recommended model successfully influences on the development of lower limb explosiveness.

As we've noticed in **Table 2**, during the experiment **"Handgrip strength test on a strong hand"** the experimental groups (men and women) show a more considerable improvement in results in comparison to the control groups (men and women).

The increase in men's experimental group is trustworthy dEGm = 3,49 kg which is 7,32% more with a guarantee probability of P(t) = 100,00%, whilst in the men's control group the increase is expressed weaker: dCGm = 0,67 kg, which is 1,38% more with a guarantee probability of P(t) = 100,00%, it also is trustworthy **(Table 2)**.

Women's experimental group has also undergone considerable statistical improvement of results from the 1st and 2nd research of increases dEGw = 2,37 kg, which is 8,65% more affirmed by the guarantee probability of P(t) = 100,00%, given that $\alpha < 0,05$. Women's control group improves its' results in smaller proportions but also with trustworthy borders dCGw = 0,44 kg, which is 1,63% more with a guarantee probability of P(t) = 99,90%.

The hypothesis of the higher efficiency of training actions, applied to the experimental group (men and women) has been proven after comparing the increases of both groups. In men, the difference in the increases between the experimental and control groups is 2,82 kg, which is of major statistical significance, affirmed by the guarantee probability near 100%. In women's groups the situation is similar, the difference is in 1,93 kg, between the increases it is also statistically important **(Table 2)**.

Table 2. *Comparative analysis on "Handgrip strength test on a strong hand"*

Handgrip Strength-strong hand	**I test**		**II test**		**d**	**d%**	**t**	**α**	**P(t)**
	X̄1	**S1**	**X̄2**	**S2**					
Experimental group - men	47,67	6,62	51,16	7,02	3,49	7,32	-6,69	0,000	100,00
Control group - men	48,57	8,10	49,24	8,24	0,67	1,38	-3,75	0,000	100,00
Difference	-0,90		1,92		2,82				
U	-0,736		-1,204		-7,574				
α	0,462		0,228		0,000				
P(U)	53,80		77,20		100,00				
Experimental group - women	27,40	5,23	29,77	5,34	2,37	8,65	-12,60	0,000	100,00
Control group - women	27,00	3,79	27,44	3,78	0,44	1,63	-3,63	0,001	99,90
Difference	0,40		2,33		1,93				
T	0,370		2,126		8,629				
A	0,712		0,037		0,000				
P(t)	28,80		96,30		100,00				

In the beginning of the experiment **"3 kg medicine ball throw"** all researched groups are of similar starting level. In the course of the experiment, the men's experimental group has improved its' results by dEGm от 27,59 cm (3,49%), the improvement is reliable as P(t) = 100,00% and α < 0,05. In men's control group the increase (d = 6,48 cm., 0,81%) is also reached but to a smaller extent. The values in women's groups from the second testing are: women's experimental group the fulfilled increase by 22,29 cm, which is reliable as P(t) = 100,00% and α < 0,05. In women's control group the increase by 3,34 cm is statistically insignificant P(t) = 81,10%.

Our insights are affirmed by the comparison between the increases in the experimental and control groups. In men (dEGm = 27,59 cm and dCGm = 6, 48 cm.) the difference is 21,11 cm which is statistically significant. In the feminine groups (dEGw = 22,29 cm. и dCGw = 3,34 cm) with difference in increases is 18,95 cm which is also of major statistical significance with a guarantee probability P(t)=100%.

With the next test **"Squats in 30 sec"** we evaluate the strength of lower limb muscles in students. From the exhibited results on **Table 3** we observe that the increase in men's experimental group from the 1st and 2nd testings is dEGm = 2,25 reps (8,04%).

Men's control group increases by dCGm = 0,40 reps (1,35%) which is also trustworthy, affirmed by the guarantee probability of P(t) = 99,70%, but too insignificant to note a considerable improvement of lower limb strength endurance.

Table 3. *Comparative analysis on "Squats test in 30 sec"*

Squats Test in 30 sec.	**I test**		**II test**		**d**	**d%**	**t**	**α**	**P(t)**
	X̄1	**S1**	**X̄2**	**S2**					
Experimental group - men	27,97	2,83	30,22	3,20	2,25	8,04	-6,83	0,000	100,00
Control group - men	29,60	3,21	30,00	3,11	0,40	1,35	-3,05	0,003	99,70
Difference	-1,63		0,22		1,85				
U	-2,913		-0,189		-7,866				
A	0,004		0,850		0,000				
P(U)	99,60		15,00		100,00				
Experimental group - women	26,51	2,84	28,51	2,59	2,00	7,54	-5,21	0,000	100,00
Control group - women	26,31	3,82	26,94	3,96	0,63	2,39	-3,63	0,000	100,00
Difference	0,20		1,57		1,37				
U	-0,347		-1,407		-5,357				
α	0,728		0,160		0,000				
P(U)	27,20		84,00		100,00				

In women-experimental group has achieved an increase by dEGw = 2,00 reps. (7,54%) with a guarantee probability of P(t) = 100,00%.,

whilst control group has increased by dCGw = 0,63 reps. (2,39%) with a guarantee probability of P(t) = 100,00%. Here as well we note that the difference is not major to observe a considerable improvement of lower limb strength endurance.

Our hypothesis is affirmed by the comparison on the growth in both experimental and control groups. In men the difference is the increases by 1,85 reps is statistically significant as it is backed up by the guarantee probability close to 100%. In women's groups the difference is 1,37 reps which is of major statistical importance as well. From this we can draw the conclusions that the approbated new model has had a great impact on the improvement of lower limb muscles in students in comparison to the standard methods of training in control groups **(Table 3)**.

The strength of the abdominal muscles has been measured with the **"Sit ups test in 30 sec"**. After the first testing we have ascertained that both experimental and control groups share similar abilities and no evident differences have been put forward P(t) < 70,00% and α > 0,05 between their initial accomplishments **(Table 4)**.

Table 4. *Comparative analysis on "Sit ups test in 30 sec"*

Sit Ups Test in 30 sec.	**I test**		**II test**		**d**	**d%**	**t**	**α**	**P(t)**
	$\bar{X}$1	**S1**	**$\bar{X}$2**	**S2**					
Experimental group - men	25,66	3,91	27,41	4,09	1,75	6,82	-9,13	0,000	100,00
Control group - men	24,98	3,34	25,28	3,35	0,30	1,20	-2,60	0,012	98,80
Difference	0,68		2,13		1,45				
t	0,996		3,079		6,567				
α	0,322		0,003		0,000				
P(t)	67,80		99,70		100,00				
Experimental group - women	21,51	2,91	23,29	3,21	1,78	8,28	-11,13	0,000	100,00
Control group - women	21,33	3,68	21,64	3,65	0,31	1,45	-2,94	0,006	99,40
Difference	0,18		1,65		1,47				
t	0,229		2,018		7,707				
α	0,819		0,047		0,000				
P(t)	18,10		95,30		100,00				

Representatives of the experimental groups in the second testing have achieved a higher increase by 2,13 reps in men and respectively by 1,65 reps in women in comparison to those of the control group. The differences are statistically trustworthy as they are affirmed by the guarantee probability of P(t) men = 99,70% and P(t) women = 95,30%. The analysis of the increases is backed up (dEGm – dCGm= 1,45 бр. and dEGm – dCGw = 1,47 reps.) by the guarantee probability of (P(t) = 100,00%) in both cases proves that the differences are considerable, which verifies our point of view **(Table 4)**.

Table 5. *Comparative analysis on "T-test"*

T-Test	**I test**		**II test**		**d**	**d%**	**t**	**α**	**P(t)**
	$\bar{X}$1	**S1**	**$\bar{X}$2**	**S2**					
Experimental group - men	12,87	1,12	12,28	0,99	-0,59	-4,58	8,47	0,000	100,00
Control group - men	13,54	1,16	13,39	1,19	-0,15	-1,11	4,26	0,000	100,00
Difference	-0,67		-1,11		-0,44				
t	-3,138		-5,432		-5,624				
α	0,002		0,000		0,000				
P(t)	99,80		100,00		100,00				
Experimental group - women	15,88	1,24	15,10	1,21	-0,78	-4,91	7,60	0,000	100,00
Control group - women	16,61	2,26	16,38	2,06	-0,23	-1,38	3,24	0,003	99,70
Difference	-0,73		-1,28		-0,55				
t	-1,675		-3,181		-4,416				
α	0,099		0,002		0,000				
P(t)	90,10		99,80		100,00				

The quality "agility" in students has been followed with the help of **"T-Test"**. The average values in men's both experimental and control group after the 1st testing have shown a slight difference in 0,67 s ($\bar{X}$1EGm = 12,87 s, $\bar{X}$1CGm = 13,54 s). In women's groups the average values are of similar difference 0, 73 s ($\bar{X}$1EGw = 15,88 s; $\bar{X}$1CGw = 16,61 s), which shows that the researched groups are fairly identical in ability **(Table 5)**.

After the 2nd testing we affirm that students from the experimental groups improve their results towards their colleagues from the control groups with a statistically considerable increase by 0,44 s in men and respectively, 0,55 s in women. We owe this fact that we apply a different training method to ours' for representatives of the control groups and the influence on special exercises on the presented by us new model for the experimental groups.

In the next test **"Sit and reach"** we observe the differences in flexibility of hip joints and spinal cord in students **(Table 6)**. The average values in men from the 1st testing are ($\bar{X}$1EGm = 6,43 cm; $\bar{X}$1CGm = 10,14 cm, with a difference in 3,71 cm), which tends to show that the men's control group achieves better results. In women's groups the average values the increased by 3,31 cm in favor of the experimental group – $\bar{X}$1EGw = 13,31 cm; $\bar{X}$1CGw = 10,00 cm **(Table 6)**.

Table 6. *Comparative analysis on "Sit and reach test"*

Sit and Reach Test	I test		II test		d	d%	t	α	P(t)
	$\bar{X}$1	S1	$\bar{X}$2	S2					
Experimental group - men	6,43	6,20	7,34	6,69	0,91	14,15	-3,40	0,001	99,90
Control group - men	10,14	7,31	10,22	7,23	0,08	0,79	-1,51	0,132	86,80
Difference	-3,71		-2,80		0,83				
U	-2,710		-2,033		-2,956				
α	0,007		0,042		0,003				
P(t)	99,30		95,80		99,70				
Experimental group - women	13,31	7,48	14,43	7,66	1,12	8,41	-3,77	0,000	100,00
Control group - women	10,00	6,96	10,33	6,68	0,33	3,30	-2,24	0,032	96,80
Difference	3,31		4,10		0,79				
U	-2,275		-2,649		-2,889				
α	0,023		0,008		0,004				
P(t)	97,70		99,20		99,60				

After the 2nd testing, students from the experimental groups have increased their achievements by 0,91 cm in men and by 1,12 cm in women, which is statistically reliable with a guarantee probability of P(t) > 95,00%. In men's control group the improvement if the result is by 0,08 cm and is not of statistical relevance as the guarantee probability is P(t) = 86,80%. In women's control group the progress is insignificant as well. No major improvement in flexibility is observed.

Our hypothesis is proved by the comparison between the increases of both experimental and control groups. In men the difference is 0,83 cm which is statistically considerable, affirmed by the guarantee probability of P (t) = 99,70%, with α < 0,05. In women's groups (dEGw = 1,12 cm and dCGw = 0,33 cm) - the difference is 0,79 cm which is statistically considerable as well P(t) = 99,60% **(Table 6)**.

The level of speed endurance in students has been observed with the help of **"400m sprint for women"** and **"600 m sprint for men"**. The average values of the 1st testing of both experimental and control women groups has shown a difference in 0,67 s, which is statistically irrelevant P(t) < 95%).The higher value is in favor of the experimental group, which enters the research with a lower indicator. In men the average values from the 1st testing has shown a difference in 1,34 s as the highest index is in favor of the experimental group.

In the end of the research women's experimental group has achieved a statistically significant improvement in their results by 2, 08 s, affirmed by the guarantee probability of P (t) = 100, 00%. The control group, on the other hand make slight improvements in 0,27 which is statistically insignificant.

In experimental men groups the improvement between the increases is 1, 58 s., which is

statistically considerable P(t) = 100, 00%. The control group, on the other hand make slight improvements in 0,34 s.

The hypothesis of the better effectiveness of our suggested model, is affirmed by the realized significant increase in women experimental group by 1,81 s towards that of the women from the control group. The difference is statistically significant, backed up by the guarantee probability of P(t) = 100,00%. In men's groups the difference is 1,24 s between the increases it is also statistically considerable, once more, the higher increase is observed in the experimental group.

One of the main methods of defining the physical employability is the **"Three minute step test"**, through which we follow the development of the cardiovascular system. According to the norms of the Step test settled down by B. Mackenzee, the average values in men ($\bar{X}$1EGm = 151,59 beats/min.; $\bar{X}$1CGm = 150,72 beat/min.) and women ($\bar{X}$1EGm = 156, 80 beats/min.; $\bar{X}$1CGw = 154,83 beats/min) show that the general physical ability in all researched students in the beginning of the experiment is much weaker **(Table 7)**.

Table 7. *Comparative analysis on "Three minute step test"*

Three Minute Step Test	I test		II test		d	d%	t	α	P(t)
	$\bar{X}$1	S1	$\bar{X}$2	S2					
Experimental group - men	151,59	18,55	145,66	18,29	-5,93	-3,91	-6,83	0,000	100,00
Control group - men	150,72	23,24	149,55	23,19	-1,17	-0,78	-2,71	0,007	99,30
Difference	0,87		-3,89		-4,76				
U	-1,007		-0,210		-7,687				
α	0.314		0.833		0.000				
P(U)	68,60		16,70		100,00				
Experimental group - women	156,80	23,94	149,26	23,12	-7,54	-4,81	7,39	0,000	100,00
Control group - women	154,83	18,86	153,00	18,30	-1,83	-1,18	3,21	0,003	99,70
Difference	1,97		-3,74		-5,71				
t	0,385		-0,758		-4,916				
α	0.701		0.451		0.000				
P(t)	29,90		54,90		100,00				

In the end of the experiment we have ascertained that the students from the mans' experimental group have improved their results by 5,93 beats/min towards their colleagues from the control group who increased their heartbeat rate by 1,17 beats/min.

In women's groups the experimental group has improved its' results by 7,54 beats/min, whereas their equivalents from the control group have only increased the rate by 1,83 beats/min.

Students from men's experimental group have achieved a significantly higher increase by 4,76 beats/min than that of the control group. In women's experiment group the increase is by 5,71 beats/min higher than that of the control group. The differences in both occasions are of major statistical importance, affirmed by a guarantee probability of P(t) = 100% and $\alpha < 0,05$ **(Table 7)**.

The most crucial criteria of evaluating the differences from the effect of the experimental and control impact on the physical ability of students is the comparison of the average growths in both respective groups after the 2nd testing. When comparing the general average growth we have used a relative growth (d%), which is expressed in percentages and gives opportunity to make a successful comparison between indicators, expressed in different metric units. The results from the made comparison of the general average growths of the experimental and control groups (men and women) are shown on **Table 8**.

The difference between the relative growths in men (EGd% = 3,95% and CGd% = 0,76%) is 3,20 % affirmed with a guarantee probability of P(t) = 99,80%, which is statistically significant.

In women's groups the difference is 3,42% (EGd% = 4,60% и CGd% = 1,18%), which is of statistical significance as well by P(t) = 100%. The students from the experimental groups have improved their physical ability nearly by 80% in men and by 74,3% in women, which is more than their colleagues from the control groups. This proves our hypothesis **(Table 8)**.

Table 8. *Comparison of relative growths after 2nd study*

№	Men	n	$\bar{X}$	S	K-S	Sig	t	α	d	%	Pt
1	EG d%	18	3,95	3,64	0,204	0,052	3,684	0,002	3,20	80,86	99,80
2	CG d%	18	0,76	0,56	0,148	0,200					
№	**Women**	**n**	$\bar{X}$	**S**	**K-S**	**Sig**	**t**	**α**	**d**	**%**	**Pe**
1	EG d%	18	4,60	3,03	0,182	0,119	4,592	0,000	3,42	74,30	100,00
2	CG d%	18	1,18	0,90	0,143	0,200					

CONCLUSIONS AND RECOMMENDATIONS:

1) The analysis of indexes of physical ability has shown that in the beginning of the experiment both experimental and control groups in average share common results. In the end of the research the experimental group has excelled much faster and better than the control groups, where the growth is considerably lower.

2) The statistical significance of the change of the control researches which have taken place in the experimental groups prove that our designed model stimulates greater results than the ordinary training methods of PE classes in the University of Forestry.

3) In our opinion, it is advisable to include our suggested exercises with the aim of improving the physical qualities of students, which therefore, will lead to the improvement of the anthropometric indicators.

4) We advise increasing the lessons of PE in the University of Forestry to 2 times a week, to achieve a greater effect on the physical employability and health state of students.

ACKNOWLEDGEMENTS

The current research is initiated and put into practice with the help of the National educational program "young students and post-doctorates". I sincerely thank you for looking after the young researchers, scientists and pedagogues in Bulgaria.

REFERENCES

1. Rachev, K. et al., Theory and Methodology of Physical Education. M & F., Sofia, 1984.
2. Rachev, K., Theory and Methodology of Physical Education. M & F., Sofia, 1991.
3. Petkova, L., Kvartirnikova, M., Test for physical capability evaluation. M & F., Sofia, p. 83, 1985.
4. Zimkin, N., Physiological characteristics of strength, speed and endurance. F & S., Moskva, 1956.
5. Zatsiorsky, V., Athlete's physical qualities. F & S., Moskva, 1966.
6. Kassabova, L., Contribution of sports and technical indicators on performance of female students - basketball players. *Sport and Science*, 3:192-201, Sofia, 2017.
7. Bozhkova, A., Physical education and sport in higher schools - state and prospects for development. Yearbook, MU, DEOSS, Vol. I, pp. 101-112, Sofia, 2009.
8. Ignatov, G., Peltekova, I., Results of indicators of physical preparation and physical development of students from Sofia University – Republic of Bulgaria. *International Journal of Kinesiology and Other Related Sciences*, Vol. 45, pp. 49 – 52, Veles, 2017.
9. Mackenzie, B., 101 Performance Evaluation Tests. NSA Press, Sofia, 2011.