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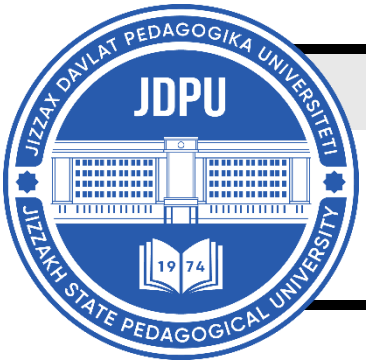

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ANALYSIS OF THE RESULTS OBTAINED AT THE END OF THE EXPERIMENT OF HEALTH INDICATORS OF STUDENTS OF HIGHER EDUCATIONAL INSTITUTIONS

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ABOUT ARTICLE

Key words: athletics, physical fitness, healthy lifestyle, Ruffier-Dixon index, Quetelet index, vital index, strength index, student health, functional capabilities, cardiovascular system, health-improving training.

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Abstract: In this article, the dynamics of changes in the health indicators of students of higher educational institutions based on physical education classes, in particular, athletics, was scientifically analyzed. The study used the Quetelet index, the Life Index (HI), the Strength Index (SI), the Ruffier-Dixon index, and compared the indicators of the experimental and control groups. According to the results of the experiment, it was established that physical training, athletic exercises, and factors of a healthy lifestyle have a significant positive impact on the general health status of students, the functioning of the cardiovascular system, and physical performance capabilities. Especially in the experimental group, a significantly high change in indicators was observed. According to the research results, it was scientifically substantiated that track and field training is an effective means of forming physical fitness, functional capabilities, and a healthy lifestyle in students.

Introduction. Today, in higher educational institutions, it is important to strengthen the physical health of students, increase their motivation for a healthy lifestyle, and develop their

physical fitness and functional capabilities. Physical education and athletics classes serve not only to restore and maintain health, but also to form the student's mental and volitional qualities, increase social activity, and develop a culture of movement.Athletics exercises comprehensively develop in students such physical qualities as speed, strength, endurance, agility, balance, and coordination. Especially through jumping, running, and throwing exercises, the activity of the functional systems of the body is improved, and volitional qualities are formed.In jumping athletics, it is necessary to take into account the indicators of maximum running speed, speed-strength qualities, run-up and tempo-rhythm structure of the jump. In track and field throwing, the maximum manifestation of speed, strength, speed-strength qualities, and technical skill indicators is noted. The above-mentioned factors, which have the strongest impact on the result in various types of athletics, must be taken into account when selecting tests for pedagogical control in the training process. When selecting athletes for sports improvement groups, it is necessary to use universal tests to determine their physical fitness, as well as verified in terms of reliability, informativeness, and longevity when organizing various national teams. For sprinters and hurdlers, the following tests are included: 20-60 m run before the start, 30-60 m run before the start, and 150-600 m run; standing long jumps and high jumps, Abalakov jumps, triple jumps and ten jumps from a standing position; throwing a shot put with both hands from below forward, from below over the head backward. Data on the physical fitness and model characteristics of sprinters and hurdlers aged 16-19 are presented.

Table 1

The Ruffier-Dixon index allows obtaining information not only about the hemodynamics of cardiac circulation, but also about the physical performance of students. It is known that the state of the cardiovascular system is a reflection of the level of physical activity of students. The higher the reserve of the cardiovascular system, the higher the physical performance. Thus, the higher the physical activity, the higher the level of health (Safarova D.D., 2021) (Safarova D.D. Sports Morphology," "Scientific Technical Information Press@ Tashkent, 2021-248 p.). In the control group, the Ruffier-Dixon index at the beginning of the experiment was -7.8±1.08 p.p., at the end of the experiment this indicator increased to 7.04±1.09. Growth rate - 9.4% (tables No. 5, No. 6).

Positive results were also observed in the control and experimental groups of students. However, it was found that the indicators obtained in the experimental group were significantly higher than in the control group.

In the control group, the final difference or increase in the Ruffier-Dixon index was 9.4%, while in the experimental group, the increase was 14.9%. Thus, we can see that the methods

used in the experimental group served not only to improve their physical fitness, but also to improve their health level. Based on the indices and the results obtained, it was proven that the health of students increased significantly.

In the control group, the level of health also increased, but it was significantly lower than in the experimental group. They achieved positive results thanks to physical education classes based on traditional programs and additional classes.

Table 2

Based on the data obtained from the results of our research on the formation of the health level of student youth, we considered it expedient to make the following proposals.

A healthy lifestyle is behavior aimed at maintaining and strengthening health, ensuring a high level of work capacity, active longevity, based on scientifically based medical and hygienic norms, that is, aimed at preserving and strengthening people's health. According to the World Health Organization, human health is not only the elimination of diseases, but also physical, mental, spiritual, and social well-being. In life, it consists in the development of physical, mental, and functional qualities, maintaining an acceptable level of work capacity and social activity for the maximum duration of life. In the upbringing of a strong young generation striving for a healthy lifestyle, it is necessary to fully observe the rules of proper nutrition, avoid bad habits, rely on the main components of health: spiritual and physical condition, know and take into account the dominant factor - the individual lifestyle, observe a healthy lifestyle, remember that strengthening health is in one's own hands, and strive to be physically and spiritually healthy. Formation of the concept of a healthy lifestyle in the minds of student youth, promotion of a healthy lifestyle, conducting explanatory work in higher educational institutions on the rules of observing a healthy lifestyle, developing personal qualities necessary for a healthy lifestyle. From this point of view, the task of higher educational institutions is not only to provide education and upbringing, but also to improve the health of students and promote a healthy lifestyle among them. The following proposals have been developed for the introduction of the principles of physical culture and sports.

In higher educational institutions, it is necessary to organize and promote healthy lifestyle lessons not only in the field of valeology, but also in extracurricular activities.

During the lesson, provide students with knowledge about a healthy lifestyle and the rules for its observance, hardening, and disease prevention;

It is required for students to practice their acquired knowledge in practical classes, to apply the knowledge and results gained in extracurricular activities and clubs at events held at

the university and city level, at various meetings, to the general public, and to establish a healthy lifestyle for them.

Conclusion. It can have a significant impact on the formation of each individual engaged in physical education and, in particular, athletics. Track and field exercises are a good tool for their physical development and development of the ability to overcome difficulties. In the dominant types of endurance, such qualities as perseverance and patience, self-control, and stability are improved during the training process. In speed-strength athletics, along with perseverance and self-control, courage, initiative, determination, and independence are actively developed.

The practical significance of track and field exercises is invaluable. Knowledge of running, jumping, and throwing is a necessary condition for daily life. The motor experience gained during training influences the formation of physical fitness and ensures a high level of adaptation of each growing individual to social life. Based on the foregoing, athletics exercises are the most optimal means of extracurricular activities of higher educational institutions, since their availability, diversity, wide use for conducting classes in various forms allow students to develop their organs and grow up healthy and harmoniously developed..

References:

1. Decree of the President of the Republic of Uzbekistan No. UP-6099 "On the Formation of a Healthy Lifestyle and the Development of Mass Sports," 2020.
2. Olimov.M.S Doctoral dissertation (DSc) on the topic "Scientific and pedagogical foundations of training student track and field athletes in running" 2023 year.
3. Khudaykulov. Z.B. Theory and Methodology of Track and Field (Textbook) Tashkent 2022.
4. Olimjonov Sh. "Youth Sports and a Healthy Lifestyle," TDIU Publishing House, 2023.
5. World Health Organization. Physical activity and health for university students, Geneva, 2021.
6. M.S. Olimov. Technology of distribution and management of training loads in multi year training stages of track and field athletes, Pedagogical skills. Scientific-theoretical and methodological journal, issue 3 (June 2021). Issn 2181-6883.
7. Olimov MS, Soliyev IR Haydarov.b.Sh (2018) Sports pedagogical skills (athletics) Tashkent 342 b
8. Akbarov A. , “Methods of mathematical analysis in sports”, textbook, UzDzhTSU, 2020, 228 p. http://library.uzdjtsu.uz/files/pdf/Sportda matematik tahlil.pdf

9. Olimov MS, Soliyev IR, etc. Theory and methodology of athletics. Tashkent-2021

10. Olimov MS, Soliyev IR, Sultanov UI (2019) High-performance athletes

11. Analysis of the results of a multi-year training cycle. Theory of physical education and sports and International scientific conference on modern trends in the development of methodology UzDJTSU Chirchik. 661-665 p.

12. Zelechonok V.B., Legkaya athletics: criteria for performance / V.B. Zelechonok, V.G. Nikitushkin. - M.: 2000 g. 240 p.

13. Matveev L.P. General theory and practical aspects. - L.: Lan, 2008. 384 p.

14. Zelechonok V.B., Legkaya athletics: criteria for performance / V.B. Zelechonok, V.G. Nikitushkin. - M.: 2000 g. 240 p.

15. Matveev L.P. General theory and practical aspects. - L.: Lan, 2008. 384 p.

Table 1

Dynamics of changes in the health indicators of EG students at the end of the experiment.

No	Full Name	Quetelet index			HI - life index			KI - strength index			Ruffier Dixon Index		
		before	**then**	difference %	before	then	difference %	Experience later	Before the experiment	difference %	before	then	difference %
1.	Abd-v I	23.9- Middle high	22.0 - medium.	7.9	44.0 - average low	55.5- average high	26.1	44.1-medium low	50th medium	13.4	8.8- medium	7.6 is good	13.6
2.	Ab-ov E	25.0 - Medium high.	23.7- medium	5.2	42.0 - moderately low	46.5- medium	10.7	43.2-medium low	47.8- medium	10.6	8.2 medium -	7.1- good r	13.4
3.	Ab-ev J	27.9 high	26.0 - Medium high	6.8	42.7-medium low	48.4- Average	13.3	42.1-medium low	45.9- medium	9.0	6.3- medium	5.2 excellent	17.5
4.	Ah-ov M	23.5- medium	21.5- medium	8.5	43.2-medium low	49.0 - medium	13.4	46.7-medium low	51.0 - average high	9.2	5.9- good	4.8- Excellent	18.6
5.	Bo-ov Sh	23.1- medium	22.0 - medium	4.8	50.7-medium	52.5- medium high	3.6.	53.9 mean	57.2- medium high	6.1	7,9- medium	6.8 is good	13.9
6.	Gaev A	22.8- medium	21.6- medium	5.3	46.8-Middle	56.0 - high	19.7	51.4-medium	56.8 mean high	10.5	8.9 medium	7.8 is good	12.4
7.	Ju-ev D	28,2- medium	26.2- medium high	7.1	46.3-medium	53.0 - average low	14.5	58.6-Medium higher	62.0-high	5.8	9.2- medium	8.0 - good	13.0
8.	Ma-ov J	19.6- medium	19.0 - medium	3.1	50.7-medium	56.5 high	11.4	73.0-high	74.0-high	1.4	8.7- medium	7.6- Excellent	12.6
9.	Ma-ov L	19.2- average.	19.0 - medium	1.0	51.5 average	56.0-high	8.7	66.6-high	high	5.1	7.8- medium	6.6 is good	15.4
10.	Na-ov Sh	21.1 - medium	19.6- medium	7.1	49.25 average	56.9 high	15.5	68.6-high	71.2 high	3.8	6.7 is good	5.5 excellent	17.9
11.	Nos-v A	19.8 average.	19.0 - medium	4.0	49.23 on average	56.9 high	15.6	64.6-high	69.0-high	6.8	7,9- medium	6.8- good	13.9
12.	Paev D	23.7- medium	19.7 average	16.9	53.0 mean snow	57.0 - high	5.8	52.3-medium	57.7 mean high	10.3	8.0 - medium	6.9- good	13.8
13.	Hand-v A	26.8 - high	24.6- avg.	8.2	43.2-medium low	54.0 - medium high	25.0	60.8-Middle high	64.0-high	5.3	7.2- medium	6.1 good	15.3

14.	Rah-ov A	26.7 - high	23.9 avg	10.5	41.6-medium low	51.0 - above average	22.6	50.0 - medium low	53.0 - medium	6.0	4.5- good	3.5- Excellent	22.2
15.	Rikh-ev I	22.4- medium	20.7- medium	7.6	45.7-Medium	53.3- average qori	16.6	60.5-medium high	63.0-high	4.1	9.3- medium	8.0-good	14.0

16.	Rav-ov D	25.3- Medium high.	23.3- medium	7.9	47.3-medium	52.2-mean high	10.4	47.8-medium low	51.0 - average	6.7 medium	6.6- medium	5.4- Excellent	18.2
17.	Soyev S.	21.7-average	19.7- average	9.2	51.0-mean high	56.3-high	10.4	66.6 high	69.0 - high	3.6.	6.2- good	5.0 - excellent	19.4
18.	Til-yev A	25.5-Middle high.	23, 5- medium	7.8	47.0-average	51.2-mean high	8.9	54.4 thousand	57.6 medium high	4.8	8.4- medium	7.3 is good	13.1
19.	Tosh-v M	27.4-high	upper	8.0	46.0 - average	52.0 - medium high	13.0	47.2-medium low	51.0 - average	8.1	6.9- Middle	5.8- good	15.9
20.	Tosh-v S	19.9- medium	18.2- medium high	8.5	50.7 medium high	56.1-high	10.7	53.6 mean	57.1- medium higher	6.5	6.2- good	5.1 - good	17.7
21.	Va-ev A	29.3-high	26.2 higher.	10.6	42.9 medium low	47.0 - medium	9.6	55.7 average high	62.0-high	11.3	8,1- medium	7.0- good	13.6
22.	Yav-ev Sh.	26.4-high	24.4- Middle high	7.6	44.4-medium low	49.5- medium	11.5	54.7 mean	61.0-high	11.5	7.4- medium	6.3- good	14.9
23.	Ur-ov E	26.3-high	24.2 - average.	8.0	42.25 medium low	52.5-high average	24.3	64.7-high	66.0-high	2.0	8.7- Middle	7.6 is good	12.6
24.	Ab-ov B	21.1- medium	23.9 medium high	11.8	47.7-middle high	56.5-high	18.4	51.1-average	57.0 - average high	11.5	8.8- Middle	7.5 is good	14.8
25.	Yul-ev M.	31.9-high	26.0 - Medium high.	18.5	42.0 - moderately low	46.5- medium	10.7	53.4-Average	60.0- medium upper	12.4	8.4- medium	7.2 is good	14.3
$\bar{x} \pm \sigma$		24.3±3.33	22.6±2.69	8.3±3 .74	46.5±3.62	52.9±3.51	13.8±5.89	55.4±8.44	59.3±7.72	7.1±3.37	7.6±1.21	6.5±1.18	14.9±2.52

Table 2

Dynamics of changes in health indicators of CG (control group) students of Tashkent State Technical University at the end of the experiment

No	Full Name	Quetelet index			HI vital index			KI Force Index			Ruffier Dixon Index		
		before	then	difference -%	before	then	Difference %	took	after	difference - %	before	then	difference %
1.	Abdov B.	23.1-medium	22.0 - medium	4.8	46.4-medium	51.0 - medium high	9.9	53.5-medium	56.2-medium higher	5.0	9.0 medium	8.3. medium	7.8
2.	Asaev A.	27.9-high	26.0 - medium high.	6.8	40.4-low	44.0 - medium high	8.9	46.0 - moderately low	53.1 mean	15.4	8.9 medium	8.3 medium	6.7.
3.	El-ev E	20.9-medium	20.2-average.	3.3	44.6-medium low	47.7-medium	7.0	50.7-medium low	54.2-medium	6.9	9.1 medium	8.2 medium	9.9.
4.	Esh-ov M.	23.2-medium	23.0 - medium	0.9	44.1-medium low	49.1-medium	11.3	49.3-medium low	53.0 - medium high	7.5	8.2-medium	7.2. good	12.2.
5.	Esh-ov S	25.5 average high	23.8-medium	6.7	47.7-medium	53.0 - medium high	11.1	41.8-medium low	45.0 - medium low	7.7	5,7-chorus	4.8-Excellent	15.8.
6.	Faev Sh.	21.4-medium	20.2-medium	5.6	42.25-medium low	46.3-medium	9.6	42.25-medium low	47.3-medium low	12.0	7.2 average	6.9 good	4.2.
7.	Ib-ov A	20.5-medium	19.7-average	3.9	46.4-medium	51.0 - medium high	9.9	54.5-medium	56.6-average high	3.9	7.4-medium	7.0-good	5.4.
8.	Is-ov M	26.5-high	24.0 - medium	9.4	44.9-medium low	49.0 - medium	9.1	60.8-medium high	62.0-high	2.0	8.0 medium	7.2-good	10.01

			high										
9.	Jo-ov A	30.1-high	26.0 - medium-high.	13.6	39.0 - low	43.0 - medium high	10.3	41.4-medium low	46.0 - medium	10.6	8.1-Medium	7.0-good	13.6.
10.	Keyev A	28.9-high	26.0 - medium high.	10.0	43.4-medium low	47.0 average	8.3	56.5-medium high	61.0-high	8.0	8.0 - medium	7.5 is good	6.3.
11.	Kom-ov O	27.5-high	26.0 - medium high.	5.5	43.2-medium high	46.8-medium	8.3	54.0 - medium high	60.5-medium high	12.0	7.5-good	7.0-good	6.7.
12.	Ma-ov A	26.6-high	26.0 - medium high.	2.3	45.7-medium low	49.0 - medium	7.2	48.5-medium high	53.0 - medium	9.3	8.3 - medium	8.0 medium	3.6.
13.	Ma-pov X	20.2-medium	20.0 - medium	1.0	47.6-medium	51.0 - medium high	7.1	66.1-high	70.1-high	6.1	8.5-medium	8.0 - medium	5.9.
14.	Ma-ov F	22.1-medium	21.2-medium	4.1	47.7-medium	51.4-medium high	7.8	68.6-high	71.0-high	3.5	8.0 - medium	7.5 is good	6.3.
15.	Naev N.	21.6-medium	21.0 - medium	2.8	46.4-medium	51.0 average higher	9.9	61.9-high	65.7-high	6.1	6.4- good	5.4-Excellent	15.6.
16.	Nu-yev B	25.5 average high	23.8-average.	6.7	47.7-medium	51.3-medium high	7.5	71.6-high	73.0-high	2.0	6.2 good	5.2 excellent	16.1.
17.	Ob-ov R	23.4 - medium.	23.0 - average	1.7	46.47 - medium	51.1-medium high	10.0	61.9-high	64.0-high	3.4	7.0 good	7.8 is good	11.4.
18.	Horsesh	25.6-	24.0-	6.3	46.5-	51.0 -	9.7	55.8-	57.0 -	2.2	8.2-	6,9-	3.6.

	oe S	medium high	mediu m		medium	medium high		medium	mediu m upper		medium	chord	
19.	Rakhov K	20.1- medium.	19.7- average	2.0	50.0 - medium	51.0 - medium high	2.0	68.7- high	70.3- high	2.3	9.1- medium	7,9- chord	5.9
20.	Too toxic	31.9 - high	29.0- high	9.1	37.6-low	42.0 - moderat ely low	11.7	49.4- medium low	53.0 - mediu m	7.3	8.9 medium	8.3 mediu m	6.3
21.	Tulev S	22.9 - average	22.0 average	3.9	46.5- medium	51.3- medium high	10.3	64.7- high	67.5- high	4.3	6.0- good	5.3 excelle nt	15.6.
22.	Yeahhh J	25.3 medium high	23.5- mediu m	7.1	44.9- medium low	49.7- medium	10.7	55.0 - medium	58.0 - mediu m high	5.5	5.6- good	5.0- excelle nt	16.1
23.	Khoev F.	24.9 - average high.	23.9 average	4.0	47.6- medium	51.1- medium high	7.4	53.8- average	57.0 - mediu m high	5.9	8.9 medium	7.7- good	11.4.
24.	Zo-ov Q	27.5-high	26.0 mediu m upper	5.5	42.6- medium low	46.5- medium	9.2	61.3- high	63.5- high	3.6.	8.2- medium	6.9- good	15.9.
25.	Ab-ov S	21.0 - average.	20.0 - mediu m	4.8	48.5- medium	53.0 - medium high	9.3	61.7- high	64.1- high	3.9	7.8- medium	6.7- good	13.2 4.
$\bar{x} \pm \sigma$		24.6±3.28	23.3±2. 57	5.6± 3.04	45.1±3.01	49.1±2.9 9	8.9±1.9 9	55.99±8 .64	59.28± 7.87	5.9±3 .5	7.2±1.36	6.06±1. 36	9.4± 5.99