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INFLUENCE OF BULGARIAN FOLK DANCES ON PHYSICAL DEVELOPMENT AND PHYSICAL FITNESS OF STUDENTS

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ABSTRACT
Bulgarian folk dances find a varied place in terms of volume and content in physical education and sports classes at universities. Folk dance classes presence is influenced by various biological and social prerequisites, driven by the social needs of individuals. Engaging in Bulgarian folk dances contributes to the development of motor qualities. Fast dynamic movements, such as jumps and hops, help develop speed. Simultaneously, endurance can be enhanced through increasing joint movement amplitude, while dance movements and combinations for specific muscle groups contribute to strength, flexibility, and upright posture. This fosters the acquisition of skills and habits for motor culture, which are an integral part of the educational process.
The aim of this article is to trace the bioenergetic responses of the organism resulting from practicing Bulgarian folk dances. To achieve the research objective, two sports-pedagogical tests were conducted to determine the level of physical fitness among the students under study. A test battery consisting of ten indicators was used in the testing, of which four indicators for physical development and six for physical fitness. We processed the results of the testing using appropriate mathematical-statistical methods: variance analysis, comparative analysis of Student's t-criterion, and index method. Based on the obtained results and the performed analysis, conclusions were drawn regarding the specific effectiveness of practicing Bulgarian folk dances and ways to purposefully improve the health status and motor capabilities of students were revealed.

Keywords: elective discipline, physical education, motor qualities, motor potential.

INTRODUCTION

Bulgarian folk dances find a different place in terms of volume and content in physical education and sports classes at universities. Their place is influenced by various biological and social prerequisites, driven by the social needs of humans. They are an integral part of the educational process.

The studying, teaching, and performance of dances are related to good physical fitness. Folk dances contribute to the development of physical qualities such as strength, speed, agility, flexibility, and endurance of the lower and upper limbs, and body muscles, for building good posture, which is achieved through prolonged training and development of the respective muscles. Evidence for this can be found in the works of Bulgarian authors (1, 2).

The issue of physical capacity is the subject of research in the works of numerous authors (3-6). Motor activity can be inspired by sounds and emotions (7). Physical movements are an interpretation of the sounds performed by musicians. "Dancers are interpreters of music. They perceive the messages encoded in the music and transform them into movements" (8). In classes on folk dances, attention is paid not only to rhythm but also to the connection between dance, music, and the development of motor skills, which has a positive impact on physiological, biological, and psychological functions, contributing to health strengthening, improving efficiency, and creative activity of individuals (9).

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MATERIALS AND METHODS

The aim of this article is to explore the bioenergetic responses of the organism as a result of practicing Bulgarian folk dances *(horo)*.

To achieve this goal, we set the following tasks:
1. Researching specialized literature on the topic of physical development and physical capacity among students.
2. Collecting information about the level of physical development and capacity of students.
3. Revealing the average levels and variability of indicators of physical development and capacity of students.
4. Comparative analysis of the physical capacity of students.

Training sessions on Bulgarian folk dances are held weekly for 2 academic hours – 90 minutes, at the sports complex of South-West University "Neofit Rilski". Students who have chosen the discipline "Folk Dances" participate in these sessions.

To determine the state of physical capacity of the students, a sports-pedagogical testing was conducted (in two phases). The test battery includes 10 indicators, four for physical development and six for physical capacity.

The results from the testing were processed using appropriate mathematical-statistical methods: variance analysis, comparative analysis with Student's t-criteria, and index method.

RESULTS

Statistical analysis of the examined indicators aims to characterize the causes and measure the extent of their influence on controlled traits. This way, both general patterns within a given population and the peculiarities of its components – individual observation units – can be revealed.

Figure 1 presents data on the physical development of students from the first and second testing. It is noteworthy that in the first testing, the average weight of male students shows that they are above normal – 25.42 Body Mass Index. The highest value of BMI is 30.30, which according to the World Health Organization (WHO) corresponds to obesity first degree. This confirms that at the current stage of societal development, obesity is an extremely serious health and social problem worldwide.

The lowest value is 21.05. In the second examination, the average BMI of male students is 24.96, indicating that their weight is within the normal range.

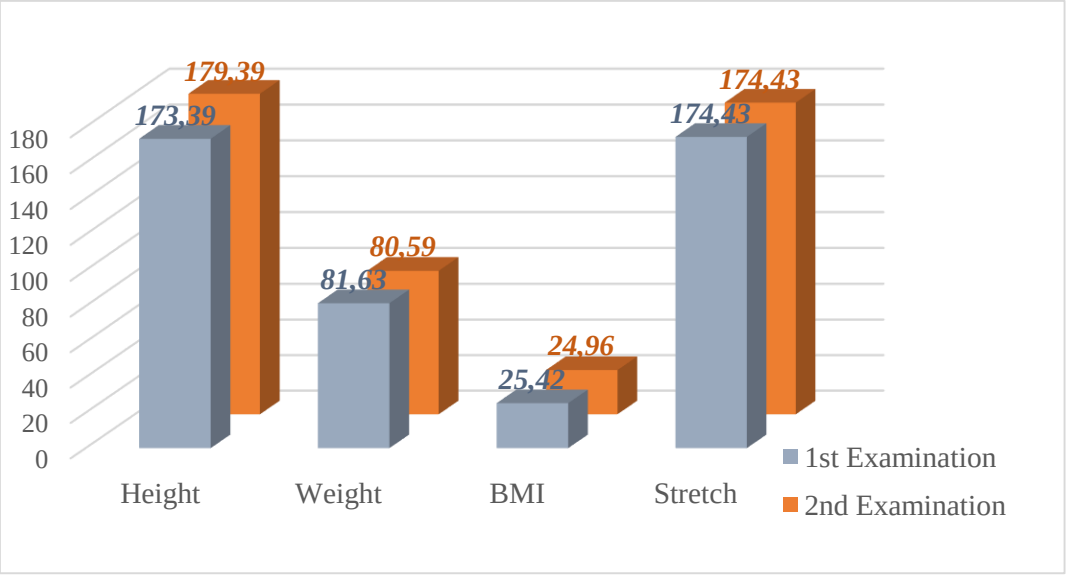

Figure 1. Physical Development of Male Students – First and Second Examination

Tables 1, 2, 3, 4, and **Figure 2** present the results of the testing conducted on indicators of physical development (numbers 1 to 4) and physical capacity (indicators 5 to 10) at the beginning and end of the pedagogical experiment among male students.

Table 1. *Average Values and Variability of Physical Development Indicators Among Male Students – First Examination*

№	Indicators	X	S	V	min	max	As	Ex
1.	Height	179,39	7,16		159	192	-0,57	0,21
2.	Weight	81,63	6,59	8,07	68	96	0,03	-0,52
3.	Body-mass Index (BMI)	25,42		6,65	21,05	30,3	-0,55	1,63
4.	Stretch	174,43	7,19	4,12	154	187	-0,53	0,24

Table 2. *Average Values and Variability of Physical Capacity Indicators Among Male Students – First Examination*

№	Indicators	X	S	V	min	max	As	Ex
5.	Standing long jump	199,33	25,14		141	256	-0,21	-0,12
6.	Running 30 m	5,37	0,74	13,78	3,99	7,81	0,88	1,78
7.	Running 200 m	43,33		6,32	38,25	49,56	0,32	-0,27
8.	Arm dynamometry – right hand	43,71	5,39	12,33	26,84	48,35	-0,06	-0,49
9.	Arm dynamometry – left hand	38,74	5,39	13,91	26,84	48,35	0,35	-0,18
10.	Sit-ups	45,86	5,05	10,97	34	55	0,07	-0,67

Table 3. *Average Values and Variability of Physical Development Indicators Among Male Students – Second Examination*

№	Indicators	X	S	V	min	max	As	Ex
1.	Height	179,39	7,16		159	192	-0,57	0,21
2.	Weight	80,59	6,18	7,67	67	92	-0,10	-0,53
3.	Body-mass Index (BMI)	24,96		5,89	21,05	27,34	-0,87	0,35
4.	Stretch	174,43	7,19	4,12	154	187	-0,53	0,24

Table 4. *Average Values and Variability of Physical Capacity Indicators Among Male Students – Second Examination*

№	Indicators	X	S	V	min	max	As	Ex
5.	Standing long jump	210,20	25,11		144	261	-0,33	-0,10
6.	Running 30 m	5,35	0,72	13,46	3,90	7,60	0,68	1,20
7.	Running 200 m	41,95		6,70	36,25	48,36	0,55	-0,12
8.	Arm dynamometry – right hand	43,83	4,72	10,77	34,75	53,97	0,03	-0,50
9.	Arm dynamometry – left hand	38,82	5,34	13,75	26,89	49,27	-0,30	-0,15
10.	Sit-ups	49,47	5,26	10,63	39	62	0,21	-0,38

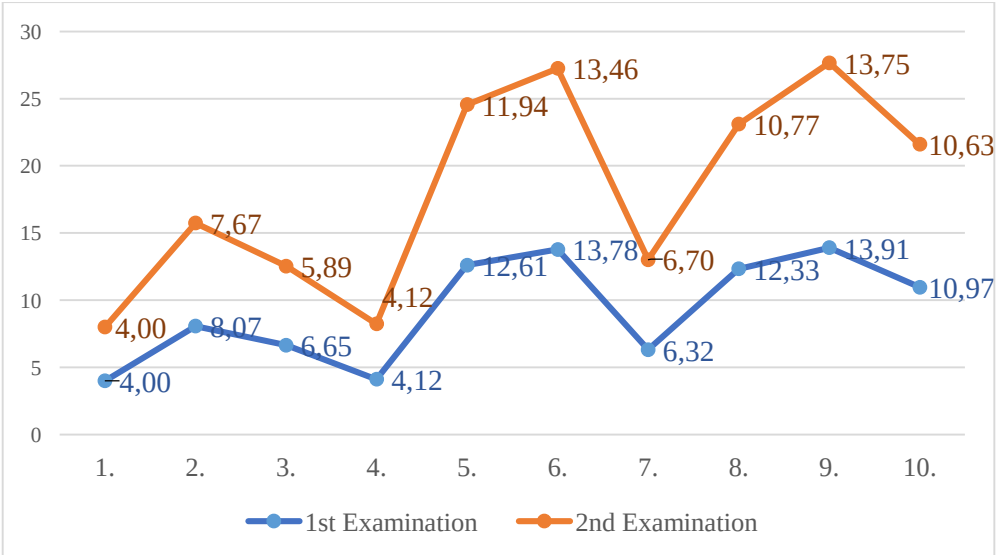

Figure 2. Dispersion of Physical Development and Physical Capacity Indicators Among Male Students – First and Second Examination

The average values for male students across indicators of physical development numbered 1 to 4 are as follows:

For indicator number 1 – Height, the values range from 159 cm to 192 cm, with a coefficient of variation (V) of 4.10%. For indicator number 2 – Weight, at the first examination, the minimum value is 68 kg and the maximum is 96 kg, with V = 8.07%. At the second examination, the values are respectively: minimum – 67 kg and maximum – 92 kg, with V = 7.67% – the group is homogeneous. For indicator number 3 – Body Mass Index (BMI), the values are min. = 21.05 and max. = 30.03, with V = 6.65% at the first examination, and min. = 21.05 and max. = 27.34, with V = 5.89% at the second examination. For indicator number 4 – Stretch, the values range from min. = 154 cm to max. = 187 cm, with V = 4.12%. Across all examined indicators of physical development in both examinations, the data show that based on the coefficient of variation, the studied population is homogeneous.

At indicator number 5 – Standing Long Jump (providing information on explosive capabilities of the lower limbs in the horizontal plane), the coefficient of variation V = 12.61% at the first testing, making the group approximately homogeneous, and V = 11.94% at the second testing, rendering the group homogeneous. The registered values at indicator number 6 – 30m Sprint (providing information on speed capabilities) show that the group of examined students is approximately homogeneous, with V = 13.78% at the first and V = 13.46% at the second testing. At indicator number 7 – 200m Run (providing information on speed endurance), the variation values of the examined population are V = 6.32% at the first and V = 6.70% at the second testing, making the group homogeneous. For the remaining indicators, numbers 8 (Right Hand Dynamometry) and 9 (Left Hand Dynamometry) – (providing information on upper limb strength), the examined population is relatively homogeneous. At indicator number 10 – Sit-ups, the homogeneity of the examined population is maintained with V = 10.97% at the first and V = 10.63% at the second testing.

As seen from **Table 5**, male students have improved their results from the first examination. This is most noticeable at indicator number 5 (Standing Long Jump), indicator number 7 (200m Run), and indicator number 10 (Sit-ups). At the second examination, there is also a decrease in weight, contributing to the normal weight status of male students.

Table 5. *Comparative Analysis of Physical Capacity Among Male Students*

№	Indicators	Ist Examination		IInd Examination		d	t	P(t)
		X_1	S_1	X_2	S_2			
1.	Height	179,39	7,16	179,39	7,16	-	-	-
2.	Weight	81,63	6,59	80,59	6,18	1,04	3,20	99,83
3.	BMI	25,42	1,69	24,96	1,47	0,46	3,55	99,92
4.	Stretch	174,43	7,19	174,43	7,19	-	-	-
5.	Long jump from standing position	199,33	25,14	210,20	25,11	-10,86	-10,26	100
6.	30 m Sprint	5,37	0,74	5,35	0,72	0,01	-2,57	98,68
7.	200 m Run	43,33	2,74	41,95	2,81	1,38	12,78	100
8.	Hand dynamometric (R)	43,71	5,39	43,83	4,72	-0,12	-2,73	99,12
9.	Hand dynamometric (L)	38,74	5,39	38,82	5,34	-0,08	-2,35	97,75
10.	Sit-ups	45,86	5,03	49,47	5,26	-3,61	-16,62	100

DISCUSSION

Activities involving traditional Bulgarian folk dances contribute significantly to the development of various motor skills. Fast dynamic movements like jumps and leaps help develop speed. Simultaneously, increasing the amplitude of joint movements supports building of endurance. Dance movements and

combinations for specific muscle groups aid in developing strength, flexibility, and upright posture. This contributes to acquiring skills and habits for motor culture, which is a primary

reason why these activities are considered an integral part of the physical education system.

The results from the mathematical-statistical processing of our study's initial data, using variance analysis, allow us to reveal the average levels and variability of each observed population both at the beginning and end of the pedagogical experiment. This reveals opportunities to establish some general patterns and characterize the content and organization of the learning process in one of the elective forms (horo / folk dances) at SWU "Neofit Rilski". Furthermore, it provides an opportunity to track the dynamics of development of key indicators characterizing the physical development and work capacity of students under the influence of the specific means of folk dances during organized sessions within the curriculum.

CONCLUSION

From the obtained results and made analysis summaries, we can draw the following conclusions:

1. At the average, the values of the body mass index (BMI) at the beginning and end of the pedagogical experiment, it is established that: male students in the first examination have a weight above the norm.
2. In all examined indicators carrying information about the physical development and physical capacity of the studied group of male students, they maintain their homogeneity in both examinations.
3. At the end of the pedagogical experiment, because of applying the author's model for developing physical capacity through the compulsory and elective discipline Sport – "Folk Dances" at SWU "Neofit Rilski", using folk dances male students improved their results on indicators: No. 5 (Standing long jump), indicator No. 7 (200m run), and indicator No. 10 (Sit-ups). In the second examination, there is also a decrease in weight, which contributes to the normal weight and BMI condition of male students.

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