



Preliminary Descriptions And Analysis Of Physical Development, Movement Readiness And Health Level Of Girls Students (Handball)

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| <p>CC License CC-BY-NC-SA 4.0</p> | <p style="text-align: center;">Abstract</p> <p>In this paper, the physical training and health conditions of female students playing handball sports were analyzed using innovative methods.</p> <p>Keywords: physical training, physical development, questionnaire, professionogram, level of health.</p> |
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Different countries of the world is aimed at providing the basis for the development of the human personality, solving general problems related to determining the content, forms, means and methods of education and training. The complexity of higher education programs and the high intensity of training lead to the limitation of students' activity during learning subjects , and as a result, the emergence of chronic mental and mental stress among students is increasing more and more. In order to solve the current problem , introducing new approaches to education and training in the higher education system, creating new types and types of educational institutions, introducing innovative pedagogical and information technologies into the content of the field, new educational programs and projects to increase the activity of students directed creation, development of scientific-research works is required.

Students studying in the majority of higher education institutions of the world, as well as new information on physical education selection of the main equipment for the implementation of the sports specified in the requirements of the programs, using the equipment of the selected sport in its "pure" form or adding exercises from other sports, the size of the loads (especially for girls) and how to implement them problems remain unsolved. Lack of physical activity has a negative impact on the health of women, especially girls studying in the higher education system.

Today, in the higher education system of our country, in order to develop physical education, modernize the educational process and update its content, a number of systematic measures are being implemented to support it. Currently, it is necessary not only to determine the traditional indicators of movement activity of students and youth with traditional means and methods of physical education, but also to determine the adaptive properties, development level and qualities of their body, which are important for professional purposes, with the level of health.

The purpose of the research is to develop and justify the effectiveness of a set of exercises designed to compensate for the lack of movement activity of female students, combining them with handball and other sports.

Tasks of the research:

analysis of the level of physical development, dynamics, movement activity and functional readiness of female students engaged in physical education based on the model state program;
development of a set of exercises consisting of loads provided with the highest energy according to the criterion of energy orientation of handball and additional sports;
choosing handball equipment and additional physical exercises from other sports in optimal harmony and determining the mode of their use during training that provides the highest health-improving effect;
to determine in experiments the effectiveness of the set of exercises that ensure adequate compensation of the lack of movement activity of female students on the level of physical development, movement readiness and health.

Scientific and practical significance of research results . The scientific significance of the results of the research is that the research results obtained on the basis of the conducted pedagogical experiments show the high level and sufficient stability of the training program developed for the physical fitness of female students based on handball tools, only this sport requires the highest energy demand. It is explained by the fact that the exercises performed by other sports, the variability of their combination, and the timely correction of loads according to the data of the dynamic control of the health level of the students are provided with the mandatory addition of selection.

practical significance of the results of the research is that handball tools and additional physical exercises are systematized according to the criteria of energy orientation, during the selection of physical training tools for female students, not only the chosen sport (in the case of handball), but also other the use of additional means of sports with the largest energy volume in optimal harmony, the application of the mixed (aerobic-anaerobic) mode of energy supply of loads according to the criterion of the volume, provides a high health-improving effect explained by

Preliminary descriptions of the levels of physical development, movement readiness and health of female students

The contingent of female students who were admitted to the 1st level students of Gulistan State University and invited to participate in the research, all graduated from a general education school. In a number of scientific research studies, the traditional school exercise complex based on two hours of weekly physical training classes on physical education and sitting behind the desk for 5-6 hours every day to learn it was noted that it could not ensure sufficient movement activity. Because of this, a chronic lack of physical activity may occur in the body of female students enrolled in a higher educational institution .

Therefore, in the preliminary descriptive study of the physical development, movement readiness and health of female students , we, on our part, are related to the previous school life regime in the higher educational institution and education in higher educational institutions. A new type of labor activity was taken into account.

Students' movement activity according to the results of their answers to questionnaire questions, (nq 12 7)

| T / r | Elements of movement activity structure | Existing | |
|-------|---|-----------|-------|
| | | abs olvut | % |
| 1 | Sports presence of discharges | 3 | 2.36 |
| 2 | sports sessions | 3 | 2.36 |
| 3 | Participation in tourist trips | 30 | 23.62 |
| 4 | Cross lard a participation | 37 | 29.13 |
| 5 | In the morning perform hygienic gymnastics exercises: | | |
| | - systematic (regular) | - | - |
| | - sometimes | 58 | 45.67 |

| | | | |
|---|---|----|-------|
| 6 | Participation in sports games: | | |
| | - systematic (regular) | 3 | 2.36 |
| | - sometimes | 69 | 54.33 |
| 7 | Physical education at school to classes relation: | | |
| | - to training felt the need | 14 | 11.02 |
| | - only to get a grade in the subject | 79 | 62.20 |
| 8 | How to physical downloads level intensity like: | | |
| | - high | 19 | 14.96 |
| | - average | 52 | 40.94 |
| | - below average | 22 | 17.32 |

Based on this goal, a total of 127 A questionnaire survey was conducted among students of the 1st stage and their results are presented. Based on the summarization and analysis of the obtained materials, it was confirmed that the girls led a sedentary lifestyle until they entered the university .

respondents in physical education and sports activities can be observed in the answers given in the questionnaire to the question about the level of intensity of mental loads : according to it , 19 respondents or 14.96 percent of respondents are high, 52 or 40.94 percent said they favor doing moderate and 22 people or 17.32 percent favor doing low intensity loads.

indicates that the respondents have a low level of physical education literacy and lack of need for regular, systematic physical training .

In our research, we considered that concrete descriptions of the types of activities during the education of students at higher educational institutions are very important. In order to determine this, an analysis of their professional graphs during one-day mode was carried out.

female students , (nq127)

| tG'r | Activity structure_elements | Continuity in the day | |
|------|---|-----------------------|-------|
| | | abs olyut | % |
| 1 | Participation in lectures | 2.4 | 10.00 |
| 2 | Laboratory training | 2.5 | 10.42 |
| 3 | Independent education training | 3 | 12.50 |
| 4 | Creative activity | 0.4 | 1.67 |
| 5 | Reading literature , watching TV exercise | 2.3 | 9.58 |
| 6 | Cultural events (discos, exhibitions, going to the theater) | 0.6 | 2.50 |
| 7 | Physical education and sports with from except the audience exercises | 1.2 | 5.00 |
| 8 | Free time | 4.4 | 18.33 |
| 9 | Sleep time (duration) | 7.2 | 30.00 |

According to the analysis of the materials presented in this table, female students are in a static state for about half of their time during the day, and if we take into account the time of sleep, their time spent in a state of low movement is on average about 80% of the day. it's worth it. Only 5% of his time during the day is allocated to physical education activities outside the auditorium.

shows that the life activity of female students in the conditions of education in higher educational institutions takes place against the background of clearly expressed hypokinesia. showed. Such a lifestyle can lead to negative consequences for them, and this is one of the main reasons why female students get sick.

According to the medical center of the university, 30 percent of the study participants included in the main medical group, that is, almost healthy students, during the 1st semester 170 it is determined that the hour has lost the ability to work (that is, to receive education).

The level of physical development of female students, from our side, it is a generally accepted methodology to measure their height, weight, chest circumference and its excursion, lung capacity, palm dynamometry . determined by

The following six indicators were used to study the qualitative characteristics of the physical development of female students : chest circumference and excursion, lung capacity, right and left hand palm strength, and body posture. power attracted relatively high interest.

At the beginning of the pedagogical experiment, in order to determine the level of physical development of the students belonging to the control group, we summarized and analyzed the materials of scientific and methodological literature, as well as the physical development tests selected based on the data of our personal practical experiences, the recorded results of each of them, the general acceptance based on the obtained results calculated according to concepts and formulas, their main statistical characteristics are arithmetic mean values, mean square or standard deviation and coefficient of variation indicators numerical values are presented.

Variability of the level of preparation of students of the control group according to the results recorded at the beginning of the pedagogical experience based on the indicators of development, (%)

Note : 1-Chest circumference, cm.; 2-Excursion of the chest, cm.; 3-OTS, l;
4-Right hand palm strength, kg.; 5-Left hand palm strength, kg.; 6- Steel force, kg.

Arithmetic average and standard deviation values of the results recorded at the beginning of the pedagogical experiment on the next "Chest Excursion" test, which describes the level of physical development of the students of this group, are $\bar{X} \pm s q 5.32 \pm 0.46$ cm. and the coefficient of variation Vq calculated for the results of this test was found to be equal to 8.56%.

Arithmetic average and standard deviation values of the results recorded at the beginning of the pedagogical experiment on the "Living capacity of the lungs" test, which describes the physical fitness levels of female students, \bar{X} were 2.22 ± 0.17 liters and It was determined that the coefficient of variation calculated for the results of this test is equal to 7.65%.

Also, the arithmetic mean and standard deviation of the results of the "Right hand palm strength" test, which characterizes the level of physical fitness, recorded at the beginning of the pedagogical experience among female students $\bar{X} \pm s q 24.37 \pm 2.82$ kg . and the coefficient of variation calculated for the results of this test was found to be $Vq 11.57\%$.

Arithmetic average and standard deviation values of the results of the "Left hand palm strength" test, which describes the level of physical fitness of the students of this group, are $\bar{X} 22.13 \pm 2.78$ kg. and the coefficient of variation Vq calculated for the results of this test was found to be equal to 12.56%.

Arithmetic average and standard deviation values of the results of "Stanley's strength" test, which describes the level of physical fitness of this group of students, are $\bar{X} \pm s q 58.84 \pm 6.22$ kg. and the coefficient of variation calculated for the results of this test was found to be equal to $Vq 10.57\%$.

At the beginning of the pedagogical experiment, in order to determine the level of physical development of the students belonging to the experimental group, we summarized and analyzed the materials of the scientific and methodical literature and the results of the physical development tests selected on the basis of the data of our personal practical experiences. Arithmetic mean values, mean squared or standard deviation, and numerical values of coefficient of variation are presented from the basic statistical descriptions calculated according to generally accepted concepts and formulas.

Summarizing and analyzing the data presented in this table made it possible to determine the following picture.

Variability of the level of preparation of students of the experimental group according to the results recorded at the beginning of the pedagogical experiment based on the indicators of development, (%)

Note : 1-Chest circumference, cm.; 2-Excursion of the chest, cm.; 3-OTS, l;
4-Right hand palm strength, kg.; 5-Left hand palm strength, kg.; 6- Steel force, kg.

The arithmetic mean and standard deviation values of the results recorded at the beginning of the pedagogical experiment on the "Chest Excursion" test, which describes the level of physical development of the students of this group, are $\bar{X} \pm s q 5.39 \pm 0.48$ cm. and it was determined that the coefficient of variation Vq calculated for the results of this test is equal to 8.90%.

Arithmetic average and standard deviation values of the results recorded at the beginning of the pedagogical experiment on the "Living capacity of the lungs" test, which describes the level of physical fitness of female students, were $\bar{X} 2.26 \pm 0.18$ liters and it was determined that the calculated coefficient of variation Vq for the results of this test is equal to 7.96%.

Also, the arithmetic mean and standard deviation values of the results of the "Right hand palm strength" test, which describes the level of physical fitness, recorded at the beginning of the pedagogical experience of male and female students $\bar{X} \pm s q 24.92 \pm 2.98$ kg . and the coefficient of variation calculated for the results of this test was found to be $Vq 11.96\%$.

The arithmetic mean and standard deviation values of the results of the "Left hand palm strength" test, which describes the level of physical fitness of the female students of this group, were $\bar{X} \pm 21.47 \pm 2.92$ kg, and the variation calculated for the results of this test coefficient Vq was found to be equal to 13.60%.

Arithmetic average and standard deviation values of the results of measuring "Stanley's strength", which describes the level of physical fitness of the students of this group, are $\bar{X} 60.22 \pm 6.59$ kg. and it was determined that the coefficient of variation Vq calculated for the results of this test is equal to 10.94%.

Indicators representing the level of physical development of students of the control and experimental groups and the average arithmetic values calculated on the basis of their results are close enough to each other, as well as the standard deviation and coefficient of variation, indicators representing how close the level of preparation of the test subjects is. - their proximity to each other emphasizes that the pedagogical experience is methodologically correctly organized.

Comparing the statistical descriptions of the results of the physical development tests of the students belonging to the control and experimental groups at the beginning of the main pedagogical experiment, the absolute and relative differences of the average arithmetic values of each test result, the distribution of these absolute differences among students information on the calculation of critical values, the amount of specified degrees of freedom and the statistical reliability estimates determined according to the significance levels are presented.

Selection of tools and methods to improve the level of physical fitness of students of the experimental group

We, during the organization of the initial pedagogical experience , choose the means of physical training, taking into account the development of the need and motivation of the students in relation to the training with the selected set of physical exercises, to the optimal fitness effectiveness, that is, to teach the exercises with energy. we derived from the requirements to achieve the optimal duration of mining in the mode of mixed energy orientation.

Based on these requirements, an analysis of the most common and energetically effective physical exercises in the arsenal of handball , which is considered a basic tool for physical training of female students , as well as auxiliary tools that can be used from other sports, was carried out. .

Based on this analysis, systematization of the selected physical education tools was carried out, which made it possible to distribute them for use at different stages of pedagogical experience. At the same time, there was a need to optimize the mode of their execution, taking into account the size and speed of the loads, depending on the dynamics of the pedagogical experience.

At the first stage of our research , a large amount of work was carried out on the systematization of physical exercises, that is, the best ones that meet the requirements for the effectiveness of rehabilitation were selected from a large number and variety of tools used in handball. When choosing such exercises, we used the materials of scientific and methodical literature sources, the data of our many years of personal practical work experience

spent at a higher educational institution, and the method of determining the energetic "value" of some tools using the pulsometry method during pedagogical experience.

of the physical exercises of the complex used in handball, which are the most energetically convenient and "useful", are presented.

This developed set of exercises includes 56 simple exercises that can be easily and quickly mastered by students, which are the most necessary basic elements of handball: passing the ball while standing and moving, putting the ball into play, from a set of throwing the ball into the goal, from the simplest individual tactical actions, then from exercises of a collective nature, which include the execution of several elements of handball in a certain sequence, from individual actions during personal defense, handball and handball from mobile games and other sports equipment with its elements formed.

Analysis of preliminary descriptions of the level of mobility readiness of female students

In order to determine the level of physical fitness of students belonging to the control group at the beginning of the pedagogical experiment, we summarized and analyzed the materials of scientific and methodological literature and recorded the results of each physical fitness test selected on the basis of our personal practical experience. Arithmetic mean values, mean squared or standard deviation and numerical values of variation coefficient indicators are presented from the basic statistical descriptions calculated according to accepted concepts and formulas.

Summarizing and analyzing the given data made it possible to determine the following picture.

At the beginning of the pedagogical experiment, six tests were selected to study the level of physical fitness of students from the control group, and the arithmetic mean and standard deviation of the results recorded during

the "100 m run" \bar{X} test were \pm was 84 ± 2.29 s. and the calculated coefficient of variation for this test results was found to be $Vq13.60\%$.

level of physical fitness of the students of this group, were \bar{X} 167.24 ± 24.36 cm. and the calculated coefficient of variation Vq for these test results was found to be 4.57% .

The arithmetic mean and standard deviation values of the results recorded at the beginning of the pedagogical

experiment on the "Cooper test" describing the level of physical fitness of female students were $\bar{X} \pm s$ 1583.70 ± 198.87 m, and for the results of this test it was determined that the calculated coefficient of variation is equal to $Vq12.56\%$.

Comparative analysis of the basic statistical descriptions of physical fitness indicators recorded by female students of the control (nq18) and experimental (nq18) groups at the beginning of the main pedagogical experiment

| T est tr | N persecution group | | | T classification group | | | Difference, % | | t | P |
|----------------|---------------------|--------|-------|------------------------|--------|-------|------------------|------|------|------|
| | \bar{X} | s | V, % | \bar{X} | s | V, % | A F | N F | | |
| 1 | 16.84 | 2.29 | 13.60 | 16.57 | 2.31 | 13.94 | 0.27 | 1.60 | 0.35 | >0.7 |
| 2 | 167.24 | 24.36 | 14.57 | 170.86 | 25.57 | 14.97 | 3.62 | 2.16 | 0.43 | >0.6 |
| 3 | 1583.70 | 198.87 | 12.56 | 1612.30 | 209.23 | 12.98 | 28.60 | 1.81 | 0.42 | >0.6 |
| 4 | 29.84 | 3.45 | 11.56 | 29.41 | 3.52 | 11.97 | 0.43 | 1.44 | 0.37 | >0.7 |
| 5 | 29.71 | 3.74 | 12.59 | 30.32 | 3.94 | 12.99 | 0.61 | 2.05 | 0.48 | >0.6 |
| 6 | 5.73 | 0.78 | 13.61 | 5.83 | 0.82 | 13.98 | 0.10 | 1.75 | 0.38 | >0.7 |
| 7 | 5.68 | 0.83 | 14.56 | 5.74 | 0.86 | 14.95 | 0.06 | 1.06 | 0.21 | >0.8 |
| 8 | 8.14 | 1.18 | 14.55 | 8.29 | 1.24 | 14.96 | 0.15 | 1.84 | 0.37 | >0.7 |
| 9 | 14.93 | 2.03 | 13.60 | 14.63 | 2.04 | 13.94 | 0.30 | 2.01 | 0.44 | >0.6 |

Note : AF-a absolute difference; NF-relative difference.

Analyzing the data presented in this table, at the beginning of the pedagogical experiment, the average arithmetic values of the results of the tests performed by the students belonging to the control and experimental groups to determine the level of physical development are within the range of 0.06 and 28.60 normalized unit values. changes and their average for the five studied tests is 3.79 normalized units, their relative differences

compared to the indicators of the control group vary between 1.06% and 2.16%, allowed to determine that the average of nine tests was 1.75%.

At the same time, at the beginning of the pedagogical experiment, the results of each physical fitness test recorded by students belonging to the control and experimental groups were calculated, the average arithmetic values, the absolute differences, the critical values of the Student distribution, the number of the specified degrees of freedom and the levels of significance. that the statistical reliability estimates determined by all of the nine tests studied differed significantly in different bad and different very bad (between $t_{q0.21}$ and $t_{q0.48}$ and $P > 0.8$ and $P > 0.6$) levels of significance. was determined. This fact, as mentioned above, confirms that pedagogical experience is methodologically correctly organized.

Conclusions

The data obtained in the first phase of the preliminary research showed that the traditional program of physical education in the general education school does not help to maintain the physical activity of the students at the required level. Similarly, the irrationality of the movement mode of the 1st-year students at the higher educational institution was also known, they are in a state of hypokinesia for about half of the daily time, taking into account the night sleep, the time they are in this state reaches 80% on average. All this leads to a pronounced lack of physical activity and, as a result, not only a high level of morbidity (up to 30%), but also a low level of physical development, physical fitness and health.

The analysis of preliminary data showed that the level of physical development of the testing contingent was insufficient. For example, the excursion of the chest was 8 cm on average, the OTS was around 2620-2680 cm, the strength of the right hand palm was 25 kg. The indicators of physical fitness of female students were much lower than the normative indicators of physical education provided for higher education institutions. For example, Cooper's test results averaged 1800 m, standing long jump averaged 170 cm.

A clear confirmation of the negative consequences of a significant lack of movement activity during the period of study in a comprehensive school is an initial indicator of the health levels of female students. Against the background of sufficiently high indicators of their temperament, mental and neurodynamic components of health (45-60 absolute units on average), the level of development of the energetic component of health did not exceed 20 absolute units instead of the required average of 40-50 normalized units. and the level of aerobic endurance was even lower than the critical level and averaged 12 absolute units. At the next stage of the preliminary research, it was possible to choose the means of physical training of the students, taking into account the requirements of the optimal health effect, that is, to carry out the loads in the mode of mixed energy supply. A set of physical exercises consisting of the basic tools of handball and auxiliary tools of other types of sports, which is not only convenient in terms of energy supply, but also helps to master the basic skills of the handball game and develop the basic movement qualities, has been developed. Among the handball tools, it has a much higher priority in terms of health-giving effect - based on the approved rule, energy supply up to 60% in mixed mode and carrying the ball in various ways during movement, passing, throwing into the goal (up to 54%) is considered a two-way game. Among other types of sports, running exercises - up to 42% and rhythmic gymnastic complexes - up to 41% had the greatest opportunity to carry out loading in auxiliary equipment. In order to determine the optimal ratio of basic (handball) and auxiliary means of physical training - physical training means, two experimental regimes of physical exercises were approved. The first regimen consisted of primarily playing handball - 85% of the total time and was used in the training of the experimental group (TG1). The second mode of physical loads (TG2) is characterized by the combined use of handball tools - 58% and auxiliary exercises from other types of sports - 42%. The control group did not differ from TG-1 in terms of the use of physical training tools in percentages, but they differed significantly in the amount of mixed energy supply, that is, they practiced on the basis of the state exercise complex. Repeated, collaborative, game and competition methods were used in both experimental groups. Despite the differences in the tools used, the intensity of loading was approximately the same, and the exercises that required the largest volume of energy were used. In the experimental groups, the process of physical training was structured primarily in the mixed mode of energy supply (on average, 45% - in the high power zone), and in the control group - in the priority aerobic mode (on average, 72% - in the moderate power zone). The dynamics of the volume of loads in the large power zone had a wave character, in which its maximum coincided with the middle of the initial experiment. Evaluation of the health-improving effectiveness of the mode of selected loadings showed a clear positive dynamics of the effect on the body of female students during the priority use of physical exercises with a mixed orientation of providing them with energy. For example, the combined use of the basic tools of handball with rhythmic gymnastics and low-volume athletics, basic and athletic gymnastics contributed to the

development of neurodynamic health, and especially the energy and movement components, most of them at an average level - 40- 50 absolute units. The effectiveness of the physical training regimen based on pure handball equipment was less, although it contributed to a significant improvement of movement fitness and increased health of female students. The indicators of physical development, physical fitness and health level of the control group students remained at the initial low level, which confirms the ineffectiveness of the traditional system of physical training of the female students. Thus, the results of the preliminary experiment allowed to choose the most effective mode of physical loading that provides the optimal health-improving effect of the selected physical exercises, and to base them in the experiment, which was necessary for the development of a whole set of exercises for the physical fitness of female students.

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