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THE LEVEL OF POWER SKILLS AND COGNITIVE & VALUABLE ORIENTATION OF SENIOR SCHOOL AGE GIRLS

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Abstracts

Novelty. The development of power skills has a peculiar significance for save and improvement of girl's health. Power loading positive influence on the health state, work capacity, speed endurance, agility. So research of power development at senior school girls is an important condition for designing of optimum parameters their motor activity. **Research Task.** To define the level of power development at senior age girls and factors that motivate to execute the power loads. **Methods and Materials of Research.** Include theoretical analysis of science and methodical literature, pedagogic supervision, questioning, statistic methods. 269 girls of senior school age participated in research, among them 135 girls from 10th class and 134- from 11th class. **Result of Research.** In the paper the peculiarities of strength training of senior school age girls are clarified. It was shown the explosive strength of standing long jump is 162,3±21,01 sm; upward jump – 26, 92±7,33 sm; medical ball throwing from sitting position – 417,2±22,3. The investigation of strength endurance verify that indexes of 60s arising from lay position equal 40,54±6,12 times, bent suspension- 31,85±7,39 in 10th classes schoolgirls. In 11th classes schoolgirls 60s arising from lay position was equal to 38,74±4,19 times, bent suspension – 33,11±6,16. According to data of handgrip test it was shown that maximum strength of 10th classes schoolgirls corresponds to 13,99±6,17 kg, the same index in 11th classes schoolgirls was equal to 15,08±5,28 kg. The research results prove that only 16,33 % 10th classes schoolgirls and 14,28% of 11th classes girls have a real interest to physical trainings. 44,76 of 10th classes schoolgirls and 42,36 % of 11th classes schoolgirls have average and above - average interest to physical trainings. **Conclusions.** It was found out the tendency of decreasing of strength level on senior schoolgirls. It was stated that only 4,38 % of girls has maximum strength level , 33,6 % – average and above-average, 50,3 % – below average, 11,72 % – unsatisfied level. Also it was defined the place of strength loads in system of cognitive and valuable orientation of senior schoolgirls.

Key words: strength, properties, senior schoolgirls, motivation, physical training, strength -building activities.

Людмила Черкашина, Роман Черкашин, Андрій Сітовський. Рівень розвитку силових здібностей та мотиваційно- ціннісних орієнтацій дівчат старшого шкільного віку. Актуальність. Особливе значення для зміцнення й збереження здоров'я дівчат має розвиток силових здібностей. Силові навантаження позитивно впливають на стан здоров'я, працездатність, витривалість, спритність, швидкість. Тому вивчення стану розвитку сили в дівчат старшого шкільного віку – важлива передумова розробки оптимальних параметрів їхньої рухової активності. **Завдання дослідження** – визначення рівня розвитку сили дівчат старшого шкільного віку та чинників, які спонукають до виконання силових фізичних навантажень. **Матеріал і методи дослідження** включають теоретичний аналіз й узагальнення науково-методичної літератури, педагогічне спостереження, анкетування, педагогічне тестування, методи математичної статистики. У дослідженні взяли участь 269 дівчат старшого шкільного віку. Із них 135 дівчат 10-х і 134 – 11-х класів. **Результати дослідження.** У статті розкрито особливості силової підготовленості дівчат старшого шкільного віку. Виявлено, що вибухова сила за показниками стрибка в довжину з місця становить 162,3±21,01 см, стрибка вгору з місця – 26,92±7,33 см, метання набивного м'яча 1кг сидячи – 417,2±22,3 см. Дослідження силової витривалості засвідчило, що показники підйому тулуба з положення лежачи за 60 с дівчат 10-х класів – 40,54±6,12 разів, вис на зігнутих руках – 31,85±7,39. У дівчат 11-х класів підйом тулуба з положення лежачи за 60 с склав 38,74±4,19 разів, а вис на зігнутих руках – 33,11±6,16. За показниками кистьової динамометрії виявлено, що максимальна сила перебуває на рівні 13,99±6,17 кг у дівчат 10-х класів, та 15,08±5,28 кг – у дівчат 11-класів. Результати дослідження свідчать, що лише 16,33 % дівчат 10-х, 14,28 % дівчат 11-х класів мають високий рівень інтересу до фізичних вправ. Середній або вищий від середнього інтерес до виконання фізичних вправ показали 44,78 % дівчат 10-х класів та 42,36 % – 11-х. **Висновки.** Виявлено тенденцію до зниження рівня розвитку сили в старшокласниць відповідно до вимог навчальних програм. Установлено максимально високий рівень сили лише в 4,38 % дівчат, середнього та вищого від середнього – у 33,6 %. 50,3 % респондентів мають нижчий за середній рівень, а незадовільний –

11,72 %. Визначено місце силових навантажень у системі мотиваційно-ціннісних орієнтацій дівчат старшого шкільного віку.

Ключові слова: силові якості, дівчата старшого шкільного віку, мотивація, фізичне виховання, силова підготовленість.

Людмила Черкашина, Роман Черкашин, Андрей Ситовський. Уровень развития силовых способностей и мотивационно-ценностных ориентаций девушек старшего школьного возраста. Актуальность. Особое значение для укрепления и сохранения здоровья девушек имеет развитие силовых способностей. Силовые нагрузки положительно влияют на состояние здоровья, работоспособность, выносливость, ловкость, скорость. Поэтому изучение состояния развития силы у девушек старшего школьного возраста является важной предпосылкой разработки оптимальных параметров их двигательной активности. **Задача исследования** – определение уровня развития силы девушек старшего школьного возраста и факторов, побуждающих к выполнению силовых физических нагрузок. **Материал и методы исследования** включают теоретический анализ и обобщение научно-методической литературы, педагогическое наблюдение, анкетирование, педагогическое тестирование, методы математической статистики. В исследовании приняли участие 269 девушек старшего школьного возраста. Из них 135 – девушки 10-х классов и 134 – 11-х. **Результаты исследования.** В статье раскрыты особенности силовой подготовленности девушек старшего школьного возраста. Выявлено, что взрывная сила по показателям прыжка в длину с места составляет $162,3 \pm 21,01$ см, скачка вверх с места – $26,92 \pm 7,33$ см, метание набивного мяча 1 кг сидя – $417,2 \pm 22,3$ см. Исследование силовой выносливости показало, что показатели подъема туловища из положения лежа за 60 с девушек 10-х классов составили $40,54 \pm 6,12$ раза, вис на согнутых руках – $31,85 \pm 7,39$. У девушек 11-х классов подъем туловища из положения лежа за 60 с составил $38,74 \pm 4,19$ раза, а вис на согнутых руках – $33,11 \pm 6,16$. По показателям кистевой динамометрии выявлено, что максимальная сила находится на уровне $13,99 \pm 6,17$ кг у девушек 10-х классов, $15,08 \pm 5,28$ кг – у девушек 11-х. Результаты исследования свидетельствуют, что только 16,33 % девушек 10-х классов и 14,28 % – 11-х имеют высокий уровень интереса к физическим упражнениям. Средний или выше среднего интерес к выполнению физических упражнений показали 44,78 % девушек 10-х классов и 42,36 % – 11-х. **Выводы.** Выявлена тенденция снижения уровня развития силы в старшеклассниц в соответствии с требованиями учебных программ. Установлено, что максимально высокий уровень силы наблюдается только в 4,38 % девушек, среднего и выше среднего – в 33,6 %. 50,3 % респондентов ниже среднего уровня, а неудовлетворительное – 11,72 %. Определяется место силовых нагрузок в системе мотивационно-ценностных ориентаций девушек старшего школьного возраста.

Ключевые слова: силовые качества, девушки старшего школьного возраста, мотивация, физическое воспитание, силовая подготовленность.

Introduction. Strengthening of health, increasing of the level of physical preparedness of pupils' youth, engagement them in a healthy lifestyle are the most acute problems of social policy today. They acquire a particular importance at school age when the basis of future health and prosperity of the nation are formed [1]. Scientists give data [4; 5; 10; 12] that about 70–80 % of comprehensive schools' pupils have a low level of the motor abilities development and have certain deviations of health. Analysis of factors which determine the occurrence of different pathological conditions of pupils, shows ineffective physical education at school and at place of residence, low level of students' knowledge in the field of physical culture and health technologies, negative motivation to systematic physical education and lack of care about their healthy lifestyle [2].

The basis for improving the health of students makes proper motor activity (a natural biological need determined by a complex of movements carried out by a person in the process of life). Many investigations have been made for decades in which the role and significance of motor activity for the human body, interconnections of motor activity and physical condition of students, daily and weekly volumes were well-grounded [4; 8; 10]. The leading value for optimal rationing of physical activity in the process of physical education is information about the physical preparedness of schoolchildren [6; 3]. Physical preparation is generally considered as one of the indicators, which shows the quality of physical health. And the level of motor activity of younger generation. One of the most important components of physical preparation – physical quality “strength” has the particular importance for strengthening and maintaining of health [5; 12; 13].

Power abilities is one of the most important types of motoric qualities of senior pupils, which affect all aspects of physical preparation. Trainings with power exercises are carried out under the influence of certain incentives and motives that have a role the routine forces of educational activity. Such motivating forces are interests, beliefs, ideals, value orientations [4; 10; 11].

The level of power preparation does not only reflect the development of motor functions in general, but and is one of the main and most noticeable signs of physical improvement. Power load positively affects the state of health, working capacity, endurance, agility, speed. Besides, they create self-confidence that enables them to cope with the work that requires a lot of physical effort, which are and will always be in our life. Many girls of the senior school age underestimate the role of physical activity in force, that in the future negatively affects not only the formation of the female body and their health, but also on the future reproductive function [6; 8; 9].

Insufficient amount of muscle tissue can lead to the development of metabolic diseases – diabetes, obesity, atherosclerosis, hypertrophic illness. Insufficient corset function may appear primarily due to diseases of the spine – breach of posture, flat-foot, functions of organs of the abdominal cavity disturbance etc [3, 9].

In this regard, the study of the dynamics of muscular strength of the senior school age girls in the process of education is, according to S.V. Novakivsky, L.S. Dvorkina, SV, Stepanova (2002), is of both scientific and practical interest. This allows to identify pedagogical and physiological regularities in the development of power capabilities and on this basis, more independently, plan the power load at the Physical Education lessons. Therefore, the study of the state of force development of the senior school girls is an important prerequisite for the development of optimal parameters of their motor activity.

The task of research is to determine the level of development of the strength of senior school age girls and factors that induce exercise physical activity.

Material and methods of research include theoretical analysis generalization of scientific and methodical literature, pedagogical observation, questionnaire, pedagogical testing, methods of mathematical statistics. 269 senior school age girls of Lutsk comprehensive schools № 11, 18 participated in the research. There were 135 of them from the 10th form, 134 from the 11th. All participants gave written consent to participate in our research.

Motivational component of performing physical activity by senior school age girls was determined by using questionnaire. Definition of power qualities development was carried out with the help of generally accepted means and methods. Explosive power was determined by the results of the standing long jump and standing high jump, throwing of 1 kilo stuffed ball from sitting position, strength endurance – by sit-up, bending and unbending of hands in the lying down position, bent suspension, speed-strength endurance – by the number of jumps from full squat, maximum strength – by handgrip test. The obtained results were processed by methods of mathematical statistics [7].

The results of research. According to the generalized results of testing the level of development of power qualities, we can state that, explosive power of senior school age girls by indicators of the standing long jump is $162,3 \pm 21,01$ centimeters, standing high jump is $26,92 \pm 7,33$ centimeters, throwing 1 kg stuffed ball from the position sitting is $417,2 \pm 22,3$ centimeters.

We have found out, that 6,21 % of girls have the high level of explosive power, 32,73 % have above average power, 23,62 % have average, 28,1 % – below average and 9,23 % – unsatisfactory level (table 1).

Investigation of strength endurance showed that the indicators of sit-up in 60 seconds of the 10th form girls were $40,54 \pm 6,12$ times, bent suspension – $31,85 \pm 7,39$. For the 11th form girls, sit-up in 60 seconds was $38,74 \pm 4,19$ times, bent suspension was $33,11 \pm 6,16$ times.

It is established that only 2,19 % of students have a high level of development of this motor quality, average – 14,86 %, higher than average – 15,37 %, below average – 51,48 % and unsatisfactory level – 16,10 % girls of the senior school age.

Determination of maximum strength showed that bending and unbending of hands in the lying down position from the bench of the 10th form girls is $18,08 \pm 3,63$, and of the 11th form girls is $16,97 \pm$

2.76 times. According to the indicators of handgrip test it was found that the maximum force is at the level of 13,99–6,17 kg of the 10th form girls, and 15,08–5,28 kg – for the 11th form girls.

Table 1

Level of power qualities development of the senior school age girls, %

Level of power qualities development	Power qualities		
	Explosive power	Maximum power	Strength endurance
High	6,21	4,38	2,19
Above average	32,73	17,54	15,37
Average	23,62	16,06	14,86
Below average	28,11	50,30	51,48
Unsatisfactory	9,23	11,72	16,10

We have found that the highest level of power have only 4,38% of senior school age girls, the average and above average – 33,6 % of girls. 50,3 % of respondents have below average, and unsatisfactory level – 11,72 %.

Exercise performance is carried out according to interest, certain incentives and motivation for sports and recreation activities. The results of the survey show that only 16,33% of girls of the 10th form and 14,28 % of girls of the 11th form have a high level of interest in performing physical exercises (Table 2).

Table 2

Level of girls' interest to performing physical exercises, %

Level of interest	Form of study	
	10 th	11 th
High	16,33	14,28
Above average	24,36	20,05
Average	20,42	22,31
Below average	25,72	26,09
Low	8,33	10,47
Lack of interest	3,22	4,24
Negative attitude	1,62	2,56

44,78 % of girls of the 10th form and 42,36 % of girls of the 11th form have an average or above average interest to performing physical exercises. It should be noted that a minority of girls of the 10th form have no interest in physical exercises (3,22 %), or have a negative attitude (1,62 %). It was found that 4.24 % of the 11th form girls have no interest to physical exercises, 2.56 % have a negative attitude.

It is important to note that interest in physical education and sports in general does not determine yet the active healthcare behaviour of senior school age girls. Therefore, the motives for exercising with physical activity were determined. The results of the survey show that the motives for exercising exercises by respondents are different. Most of the girls tend to perform power exercises to increase physical fitness (19,94 – 20,74%) or to improve the body structure (16,44 – 20,52 %).

Anxiety is caused by the fact that the incentive for physical education (compulsory classes) of a significant number of girls of the senior school age, is the desire to avoid trouble because of classes misses (8,93 – 14,15 %). A small number of girls (3,07 – 3,22 %) attend physical education classes because of their interest to the person of the specialist.

15.67 % of respondents of the 10th form and 17.23 % of the 11th form are involved in sports sections. The largest number of respondents are engaged in sports games, track and field athletics, swimming and

fitness with power. It can be assumed that senior school age girls regard strength exercises as the means of complex effect which provide high level of physical preparation and body structure correction opportunity.

Discussion. The results of research have shown that majority of senior school age girls have below average, average and above average levels of strength features progress. Such data are similar to the results of other authors research and speak about general tendency in different regions of Ukraine. In this regard girls strength progress is the major task of secondary educational establishments.

Simultaneously, the analysis of the investigation results attests that the level of interest in Physical Education falls. In particular, the high level of interest in Physical Education has dropped by 2,05 % during the period of studying in comprehensive schools. In its turn low level of interest in Physical Education has increased by 2,14 %. The fact that the amount of senior school age girls with negative attitude to the Physical Education have increased causes concerns. In this regard it is necessary to put into practice of Physical Education of pupils new types of motor activity which could stimulate the positive attitude to the implementation of physical exercises.

Conclusions. The results of research show the insufficient strength training of senior school age girls. In general the progress level of strength abilities remains low and doesn't meet the requirements which the society imposes to the physical preparation of pupils. Such state is conditioned by low motor activity of girls which decreases every year.

Received data show that among all types of motor activity girls prefer strength exercises. The main motive is correction of body structure. So the big interest to carrying out of strength exercises creates favourable prerequisites for the effective recreational activity of girls.

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