

**PERFECTION OF PHYSICAL FITNESS OF LYCEUM WITH ADVANCED MILITARY PHYSICAL TRAINING PUPILS BY MEANS OF SPORTS WRESTLING**

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**Abstract.** *Purpose:* to theoretically-methodically substantiated application of sport wrestling means in physical training of lyceum with advanced military physical training pupils. *Material:* in pedagogic observation 10 form pupils (n=119) participated. In pedagogic experiment 49 pupils participated (experimental group, n=24 and control group, n=25). *Results:* the weakest points of lyceum's pupils were found. Experimental program combined common means of physical qualities' training (70% from total time of lesson) and means of sport wrestling (30% of lesson time). In the frames of the program four typical complexes of exercises for physical culture lessons were worked out. Complex of exercises for wrestler's general physical fitness was applied in main part of lesson, which took 15-20 minutes. *Conclusions:* wrestler's physical training shall be oriented on development of different physical qualities: strength, quickness, endurance, flexibility, coordination. Optimal construction of general physical training process facilitates comprehensive and proportional development of pupil's physical qualities.

**Key words:** physical fitness, sport wrestling, pupils, lyceum, program.

**Introduction**

Physical training is a targeted controlled process of military officers' physical perfection, which is realized, considering specificities of their military-professional functioning [15, 26-28]. Physical training system shall be interpreted as organized in compliance with combat activity requirements combination of interconnected components, which are conceptual basis; the process of military officers and control over this process.

Physical education and pre-service training of lyceum pupils is realized as per academic programs of comprehensive schools with traditional methodic approaches and pedagogic conditions, which are rather ineffective concerning optimization of physical conditions [5, 8, 19] and personality's characteristics of senior pupils [19, 21].

Recent time the problem of pupils' physical perfection has been being regarded in a number of research works. In particular, by many authors much attention was paid to content and structure of school age children's physical training, its orientation and organization [10, 23]. Other authors [6, 7, 12, 16, and 23] note that new social, economic and ecological conditions require studying of a number of pedagogic influences and methodic principles. It shall ensure increase of children's workability and physical fitness.

In our previous works we regarded the following: peculiar features of physical fitness of lyceum with advanced military-physical training pupils; level of physical qualities of lyceum with advanced military-physical training pupils [1, 2]. We recommended main directions of lyceum pupils' educational process correction. It was found that by index method the best boys' results were observed in index of quickness. The worst results were registered by power index results. Optimization of pupils' physical fitness permits to increase their physical potential.

Analysis of researches and publications [13, 14, 17, 22, 24, 25] shows that there are unsolved the problems of theory, methodic and organization of physical education in system of personnel training for Ministry of Defense. Actually there is no sufficient scientific data on physical training of military profile specialists; on their physical condition in domestic scientific-methodic literature.

*The purpose of the research* is to theoretically-methodically substantiate application of sport wrestling means in physical training of lyceum with advanced military physical training pupils.

**Material and methods**

*Participants:* in pedagogic observation 10 form pupils (n=119) participated. In pedagogic experiment 49 pupils participated (experimental group, n=24 and control group, n=25).

*Organization of the research:* the research was fulfilled on the base of State lyceum with advanced military-physical training, named after Heroes of Krut (Lviv).

At *first stage* we studied physical fitness level of State lyceum with advanced military-physical training pupils [17–18]. Besides, we substantiated and worked out program of physical trainings with application of sport wrestling means.

At *second stage* we carried out comparative pedagogic experiment for testing of effectiveness of the worked out program. The experiment was conducted in second semester of academic year from January 20<sup>th</sup> to May 23<sup>rd</sup>, 2014. The pupils of the 1<sup>st</sup> group were trained by the worked out by us program, which combined commonly accepted means of physical qualities' training (70% of total time of lesson) and sport wrestling means (30% of lesson time).

*Statistical analysis:* the results were processed with standard methods of mathematical statistic. We determined mean arithmetic and standard deviation; confidence of differences by Student's t-criterion; temps of increment of physical fitness indicators by Braudy's formula.

### **Results of the research**

State system of tests and normative for assessment of Ukrainian population's physical fitness is a basis of standard requirements to population's physical fitness as criterion of physical health, life activity, ability for efficient work and defense of Motherland. The main purpose of State tests for assessment of Ukrainian population's physical fitness is stimulation and further development of physical culture among all population strata for ensuring of their health [9].

Analyzing the data of our research we were guided by the following scale for assessment of lyceum pupils' physical fitness: 1 – 3 points – low level; 4 – 6 – average; 7 – 9 – sufficient; 10 – 12 points – high level.

Sufficient level of physical fitness was registered by three indicators from 11. They included: angle of emphasis on bars (7.29±4.53 points), pressing ups on bars (7.64±4.14 points), 3000 meters run (8.14±3.88 points). By the rest of indicators we registered average level of physical fitness. The results varied in average from 4.57±7.92 points (the rise of the coup on crossbar) to 6.96±3.82 points (throw of grenade F-1).

Thus, physical fitness level is assessed as average. For improvement of lyceum pupils' physical fitness it is necessary to pay attention to training all physical qualities.

At next stage we substantiated the structure and content of physical training program for lyceum pupils with application ports wrestling means. Besides, we studied its influence on physical fitness of lyceum with advanced military-physical training pupils.

The worked out program of pedagogic experiment implies application of sport wrestling means in educational process of pupils. Methodological principles of the worked out by us program is division of lesson into two parts. In one part of lesson (70% of lesson time) pupils fulfilled main tasks, and in other (30% of lesson time) lyceum pupils trained means of sport wrestling for development their quickness, strength, coordination and flexibility.

Sport wrestling is a kind of sports, in which physical fitness level is one of the main and important factors, determining success of sport perfection (in our case – physical fitness) [3].

In the frames of the program we worked out four typical complexes of exercises for lessons by topics:

- Gymnastic (exercises with weights, with loading by own body mass; acrobatic exercises; general warming up exercises; special wrestling exercises; easy wrestling; exercises for stretching);
- Light athletic (exercises with loading by partner's body mass, general warming up exercises, special wrestling exercises, skipping rope exercises);
- Athletic exercises (usage of weights, exercises on simulators, with barbell, general warming up exercises, special wrestling exercises, stretching);
- Volleyball (exercises with filled balls, exercises with expanders, general warming up exercises, special wrestling exercises, stretching).

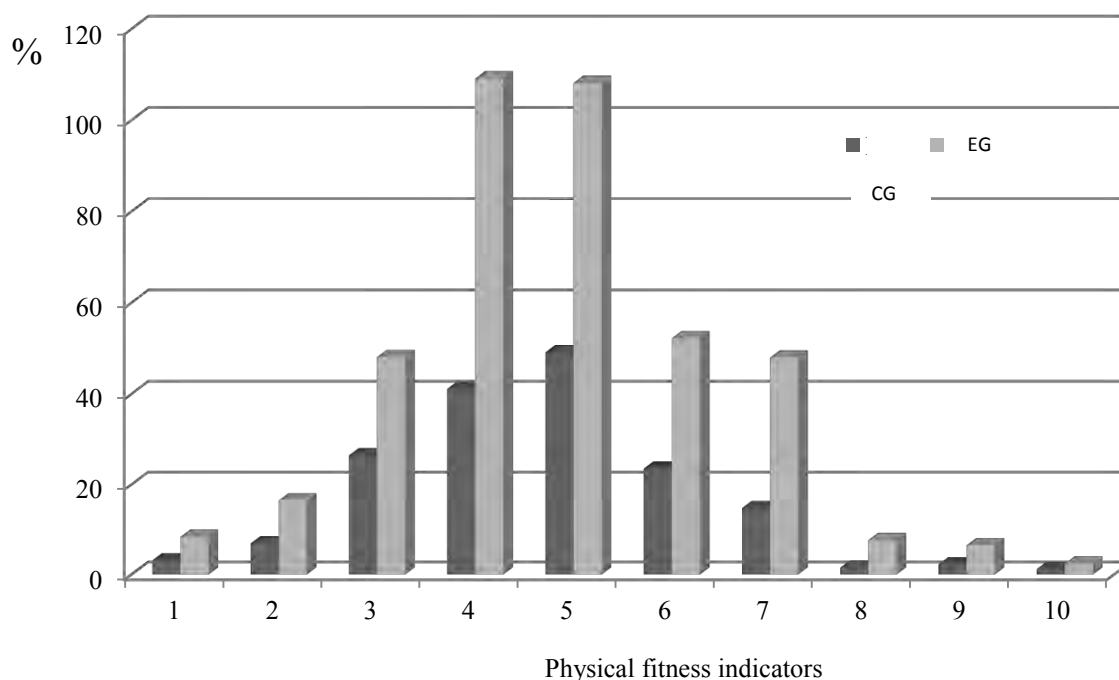
Complex of general exercises of wrestlers physical trainings was used in main part of lesson, which took 15-20 minutes; method of training – repeated, interval. For special wrestling exercises we used frontal method, for easy wrestling kinds – game and competition methods.

Analysis of research's results witnesses that as on beginning of experiment there were no confident differences between 1<sup>st</sup> and 2<sup>nd</sup> groups ( $p > 0.05$ ).

By most of indicators (long jump from the spot and from run, rise by strength and rise of the coup; angle of emphasis on bars; 100 meter, 1000 meters and 3000 meters run) second group pupils were ahead of the first group (though not confidently,  $p > 0.05$ ).

For the period of experiment positive changes took place practically in all indicators of physical fitness, though temps of increment were different (see fig. 1).

By the end of experiment 1<sup>st</sup> group pupils were ahead of 2<sup>nd</sup> group by all indicators of physical fitness. In 2<sup>nd</sup> group temps of increment varied from 1.22 to 49.15%. The highest level was observed in the following indicators: rise of coup (49.15%) and by strength (41.13%) on crossbar, chin ups (26.54%), pressing up on bars (23.59%), and angle of emphasis on bars (14.77%). The rest of indicators were within 1.22 – 6.92%.



**Fig.1.** Increment of physical fitness indicators of 1<sup>st</sup> group pupils (n=25) and 2<sup>nd</sup> group (n=24) in the period of pedagogic experiment

1 – long jump from the spot; 2 – long jump from run; 3 – chin ups; 4 – rise by strength on crossbar; 5 – rise of coup on crossbar; 6 – pressing up on bars; 7 – angle of emphasis on bars; 8 –100 meters run; 9 –1000 meters run; 10 – 3000 meters run.

In 1<sup>st</sup> group the best increment was by indicators of strength of arms and girdle muscles (rise by strength – 109.16%, rise of coup – 108.20%). Increment of arms’ strength (pressing up on bars, chin ups), abdomen muscles (angle of emphasis on bars) were lower: 52.19%, 48.09% and 47.98% accordingly. Indicators of general endurance, quickness and speed power qualities of legs’ muscles had the lowest increment temps (2.44 – 16.47%).

It was found that in 1<sup>st</sup> group increment temps were much higher, comparing with group 2. It witnesses about effectiveness of the author’s program of physical qualities’ training.

In both groups we observed the lowest increment temps by indicators of speed-power qualities (long jump from the spot and from run), quickness (100 meters run), power endurance (1000 meters run) and general endurance (3000 meters run).

After pedagogic experiment first group pupils were ahead of second group by all indicators of physical fitness. By 7 from 10 indicators differences were confident ( $p < 0.05$ ).

Sufficient level of lyceum pupils’ physical fitness was registered by 3 indicators from 11: angle of emphasis on bars ( $7.29 \pm 4.53$  points); pressing up on bars ( $7.64 \pm 4.14$  points); 3000 meters run ( $8.14 \pm 3.88$  points). By the rest of indicators we observed average level of physical fitness. The results vary in average from  $4.57 \pm 7.92$  points (rise of coup on crossbar) to  $6.96 \pm 3.82$  points (throw of F-1 grenade).

## Discussion

Thus, we can state that in our research the following was developed: results of researches, concerning physical condition and physical fitness of senior school age children [4, 18, and 20].

*For the first time:*

– We experimentally proved effectiveness of methodological approach to working out physical training program for lyceum with advanced military-physical training pupils, which combines traditional means of physical qualities' training (70% of lesson time) and sport wrestling means (30% of lesson time).

– We substantiated program of pupils' physical education with priority application of sport wrestling means that facilitates more expressed increment of lyceum pupils' physical fitness indicators.

Modern requirements of society to youth physical fitness determine need in comprehensive training of physical qualities that is one of main directions of physical education. It significantly facilitates formation of motor skills, required in everyday life. Domestic [7, 15, 23] underline that a person with high physical fitness is characterized by great volume of motor skills and abilities, high functional potentials of cardio-vascular, respiratory and thermo-regulation systems; correct body constitution and healthy life style.

A number of scientists determined main approaches to re-estimation of targets, tasks and content of physical culture lessons in educational establishments. The first – is health related approach, when pupils' health is of first priority as well as physical condition and physical fitness [11, 21, and 22]. The second approach – is training with training effect being of first priority (mainly at the account of increase of compulsory physical culture lessons) [6, 8, and 23]. The third approach is curriculum – extra curriculum, which is based on rational correlation of physical culture lessons and sport training in circles [14, 17].

Pupils shall be offered system of motor (physical culture) functioning according to commonly accepted principles. These principles reflect specific laws of physical education construction. Its orientation is on development of motor skills, formation of special physical culture knowledge; understanding of demand in physical culture practicing. The mentioned system is the most perfect in technology of sport training. That is why adapted and scientifically comprehended introduction of sport training elements in physical education process is one of directions of perfection of pupils' physical functioning organization [14, 17].

Sports activity provides wide spectrum of simulation of conditions and opportunities, which can perfectly be used for moral-will training. During physical training it is necessary to overcome pain and fatigue, keep self-control, regulate emotions, sustain workability in unfavorable environmental conditions and etc. Besides, in physical trainings the most radical will qualities' cultivation is load, level of which is regulated by the character of the fulfilled exercises. With it, it should be practiced regularly, but not from time to time and gradually increase loads and complexity of tasks. Just because of this fact physical exercises shall be considered to be the best mean of physical fitness ensuring and method of will qualities' cultivation [7, 29-32].

Wrestler's physical fitness is oriented on development of different physical qualities: strength, quickness, endurance, flexibility, coordination. Optimal construction of general physical training process facilitates comprehensive and proportional development of pupil's and sportsman physical qualities. Application of sport wrestling means at physical culture lessons permits to optimize and vary trainings. Physical exercises can be used for solution of general and special tasks of physical training.

## Conclusions

1. After pedagogic experiment differences in physical fitness of control and experimental groups became more expressed. Experimental group pupils confidently became ahead of control group by girdle arms muscles' condition (chin ups, rise on crossbar by strength and of coup, pressing ups on bars), by strength of abdomen (angle of emphasis on bars), quickness (100 meters run), endurance (1000 meters run).

Final testing showed that in experimental group there were confident changes ( $p < 0.05$ ) by all indicators of physical fitness, except general endurance (3000 meters run,  $t = 1.38$ ).

2. Results of pedagogic experiment witness that author's program with application of sport wrestling means facilitated confident ( $p < 0.05$ ) increase of physical fitness. The program permits to achieve confidently ( $p < 0.05$ ) increment of physical fitness without increasing training loads.

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### Conflict of interests

The author declares that there is no conflict of interests.

### References

1. Balushka L, Okopnij A. Riven' rozvitku fizichnikh iakostej uchniv liceiu z pogliblenoiu vijs'kovo-fizichnoi pidgotovkoiu [Physical qualities' level in pupils of lyceum with advanced military-physical training]. *British Journal of Education and Science*, 2014;1:147–151. (in Ukrainian)
2. Balushka LM, Okopnij AM. Osobennosti fizicheskoiu podgotovlennosti uchashchikhsia liceia s uglublennoj voenno-fizicheskoiu podgotovkoju ispol'zuia metod indeksov [Peculiar features of physical fitness of lyceum with advanced military-physical training pupils on the base of indices' method]. *Nauka i mir*, 2014;2 (6):31–34. (in Russian)
3. Bojko VF, Dan'ko GV. *Fizicheskaia podgotovka borcov* [Physical training of wrestlers], Kiev: Olympic Literature; 2004. – 223 s. (in Russian)
4. Bortniuk OS. Fizichnij stan uchniv liceiu z posilenoju vijs'kovo-fizichnoi pidgotovkoju: somatotipologichni osoblivosti dinamiki v umovakh tradicijno organizovanogo fizichnogo vikhovannia [Physical condition of pupils of lyceum with advanced military-physical training: somatic-typological features of dynamic in conditions of traditionally organized physical education]. *Slobozhans'kij naukovno-sportivnij visnik*, 2005;5:223–229. (in Ukrainian)
5. Vishnevskij VA. Zdorov'esberezenie v shkole [Health preservation in school]. *Teoriia i praktika fizicheskoi kul'tury*, 2002;2:12-15. (in Russian)
6. Vil'chkovskij ES. Naukovo-metodichni vimogi do skladannia program z fizichnoi kul'turi [Scientific-methodic requirements to building physical culture programs]. *Fizichne vikhovannia v shkoli*, 1997;4:2-4. (in Ukrainian)
7. Volkov LV. *Teoriia i metodika detskogo i iunosheskogo sporta* [Theory and methodic of children's and junior sports], Kiev: Olympic Literature; 2002. (in Russian)
8. Glazirin ID. *Osnovi diferencijovanogo fizichnogo vikhovannia* [Principles of differentiated physical education], Cherkassy: Echo Plus; 2003. (in Ukrainian)
9. Zubalij MD. *Derzhavni testi i normativi ocinki fizichnoi pidgotovlenosti naseleennia Ukraini* [State tests and standards for assessment of Ukrainian population's physical fitness], Kiev; 1997. (in Ukrainian)
10. Dubogaj OD, Zvac'kij VI, Korop IuO. *Metodika fizichnogo vikhovannia studentiv, vidnesenikh za stanom zdorov'ia do special'noi medichnoi grupi* [Methodic of physical education of students – members of special health group], Lutsk: Nadstyr'ya; 1995. (in Ukrainian)
11. Zajceva VV. *Metodologija individual'nogo podkhoda v ozdorovitel'noj fizicheskoi kul'ture na osnove sovremennykh informacionnykh tekhnologij. Kand. Diss.* [Methodology of individual approach in health related physical culture on the base of modern informational technologies. Cand. Diss.], Moscow; 1995. (in Russian)
12. Kozlova I, Dmitrenko S, Asauliuk I. Modul'na tekhnologija stimulacii rozvitku shvidkiso-silovikh zdibnostej iunakiv starshikh klasiv na urokakh fizichnoi kul'turi [Module technology of stimulation of senior form boys' speed power abilities at physical culture lessons]. *Fizichne vikhovannia, sport i kul'tura zdorov'ia u suchasnomu suspil'stvi*, 2008;2:149 – 150. (in Ukrainian)
13. Kolomijceva OE. Riven' fizichnoi pidgotovlenosti i rozvitku psichomotornikh iakostej vijs'kovo-iuridichnogo fakul'tetu [Physical fitness level and psycho-motor qualities of military-law faculty students]. *Slobozhans'kij naukovno-sportivnij visnik*, 2014;1 (39):53-57. (in Ukrainian)
14. Krasota VM. Vijs'kovo-prikladna fizichna pidgotovka kursantiv [Military applied physical training of cadets]. *Slobozhans'kij naukovno-sportivnij visnik*, 2014;2 (40):85-89. (in Ukrainian)
15. Krucevich TIu, Petrovskij VV. *Upravlenie processom fizicheskogo vospitaniia* [Control over physical education process], Kiev: Olympic Literature; 2003. (in Russian)
16. Krucevich TIu, Vorobjov MI, Bezverkhnia GV. *Kontrol' u fizichnomu vikhovanni ditej, pidlitkiv i molodi* [Control in physical education of children, adolescents and youth], Kiev: Olympic Literature; 2011. (in Ukrainian)

17. Iedinak GA. *Metodika fizichnogo vikhovannia v liceiakh z posilenoiu vijs'kovo-fizichnogo pidgotovkoiu* [Methodic of physical education in lyceums with advanced military-physical training], Kamenetz Podolsky; 2003. (in Ukrainian)
18. Misiv VM. *Tekhnologiia optimizacii fizichnogo stanu uchniv liceiu z posilenoiu vijs'kovo-fizichnoi pidgotovkoiu. Kand. Diss.* [Technology of physical condition optimization of lyceum with advanced military-physical training pupils. Cand. Diss.], Lviv; 2006. (in Ukrainian)
19. Nagorna AM, Bepal'ko VV. *Reproduktivne zdorov'ia ta stateve vikhovannia molodi* [Reproductive health and sex education of youth], Kiev: European University; 2004. (in Ukrainian)
20. Svereda Iu. Fizichna pidgotovlenist' liceistiv Luc'kogo NVK «ZOSh – internat, pravoznavchogo liceiu z posilenoiu fizichnoi pidgotovkoiu» [Physical fitness of lyceum pupils Lutsk EC “Residential school of law lyceum with advanced physical training”]. *Sportivnij visnik Pridniprov'ia*, 2008;3–4:74 – 75. (in Ukrainian)
21. Slabkij GO, Teriaieva OG. Vikhovannia zdorovoi liudini iak zasib pervinnoi profilaktiki zakhvoriuvan' [Nurturing of healthy person as mean of primary prophylaxis of diseases]. *Medichni perspektivi*, 2001;6(1):118–120. (in Ukrainian)
22. Fajchak R. Osoblivosti ozdorovcho-sportivnoi diial'nosti ta motivaciia do zaniat' fizichnimi vpravami u liceistiv [Health related sport activity and motivation for physical exercises' practicing in lyceum pupils]. *Vseukrains'ka nauково-praktichna konferenciia “Udoskonalennia fizichnogo vikhovannia ta special'noi fizichnoi pidgotovki kursantiv VNZ MVS Ukraini”*, Ivano-Frankivs'k [All-Ukrainian scientific-practical conference “Perfection of physical education and special physical training of cadets of HEE MHA of Ukraine”, Ivano-Frankivsk], 2005. P. 247 – 251. (in Ukrainian)
23. Shiiian BM. *Teoriia i metodika fizichnogo vikhovannia shkolariv* [Theory and methodic of schoolchildren's physical education], Ternopol: Educational book – Bogdan; 2001. (in Ukrainian)
24. Alekseev NA, Kutergin NB, Kulinichev AN, Gorbatenko AV. Integrated method development of general and special students stamina involved in the fight. *Physical Education of Students*, 2014;3:3-8. doi:10.6084/m9.figshare.974476
25. Anatskyi RV, Kolomiitseva OE. Assessment of official combat mission's fulfillment by higher educational. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2016;4:4-10. doi:10.15561/18189172.2016.0401
26. Bartone PT, Snook SA, Forsythe GB, Lewis P, Bullis RC. Psychosocial development and leader performance of military officer cadets. *The Leadership Quarterly*. 2007 Oct;18(5):490–504.
27. Danylchenko VA, Khabinets TA. Typical mistakes, made by the cadets, mastering the submission locks, of the higher educational establishments of the Ministry of Internal Affairs of Ukraine. *Physical Education of Students*, 2014;4:20-25. doi:10.6084/m9.figshare.974478
28. Kajmovic H, Kapur A, Radjo I, Mekic A. Differences in performance between winners and defeated wrestlers in the European Championships for cadets. *International Journal of Performance Analysis in Sport*. 2014;14(1):252–61.
29. Kyrpenko VN. Dynamic of professionally important qualities' changes in cadets of higher flight establishments. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2015;6:10–13. doi:10.15561/18189172.2015.0602
30. Saygin O. Examination of some physical, Hematological parameters and iron status of greco-roman wrestlers in the age category of cadets by weight classes. *Anthropologist*. 2014;18(2):325–34.
31. Serebryak VV, Popov SV. Features of cadets' adaptation universities Ukrainian Interior Ministry to study the art of sambo. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2014;5:55-59. doi:10.6084/m9.figshare.971064
32. Singh SKS, Nasir AQ binti A. Code-Switching among Military Cadet Officers During Group Interaction. *Procedia - Social and Behavioral Sciences*. 2012;66:64–75.

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