

Results of the research and their discussion. We distributed physical activity as follows. It passed in the control groups for the effective program of physical training that is using all volume of the dynamic exercises which are offered by its contents. The experimental groups were engaged according to other program which is provided in tab. 1, 2.

Table 1

The plan-schedule of carrying out classes by the gymnastics module with boys of the 5th classes (10 years old)

Nº	Content of classes	Quantity of hours
1.	1. Static exercises without subjects. 2. Complex exercises with the connected tension of opposite muscles.	2
2.	1. Static exercises on a gymnastic lava. 2. High-speed exercises with the rubber shock-absorber.	2
3.	1. Static exercises on a gymnastic pellet. 2. Acrobatics.	2
4.	1. Static exercises on a low crossbeam. 2. Vault.	4
5.	1. Static exercises, in an emphasis on parallel bars. 2. Exercises on flexibility.	4
6.	1. To take tests by the effective program of physical training.	4
7.	Total:	18

An ability to use static force in the course of studies takes the special place in a motive regime of a pupil. Therefore we aimed a large number of times at acquired of this module at the development of this quality where the main priority was provided to static exercises with a body weight of a body (pic. 1-5). Dynamic exercises, just as exercises on flexibility, at this age, in our program have auxiliary character more. At lessons they only get acquainted with them and carry out the previous mastering, and their final assimilation which is necessary for independent work during a performance of home works. Contents of other sections of the module of acrobatics and vault don't differ from the standard school program, but it is much reduced on classes. A pupil is offered to master five static exercises on a low crossbeam and five static exercises on parallel bars in 18 hours which are taken away for studying of the module, which is provided in tab. 1.

Table 2

The plan-schedule of classes by the gymnastics module with boys of the 6th classes (11 years old)

Nº	Content of classes	Quantity of hours
1.	1. Static exercises in an emphasis on parallel bars. 2. Exercises on flexibility.	2
2.	1. Static exercises on a low crossbeam. 2. Vaults.	2
3.	1. A combination of static poses in an emphasis on bars. 2. Acrobatics.	4
4.	1. A combination of static poses on a low crossbeam. 2. Exercises on estimation of three-dimensional motion on usual conditions.	4
5.	1. Exercises on estimation of three-dimensional motion on a gymnastic shell. 2. Dynamic exercises in scales and an emphasis.	2
6.	1. To take tests by the effective program of physical training.	4
7.	Total:	18

Static loadings are the most difficult section in the program for the sixth classes; they take 8 hours in the scheduling. Four hours are allocated by static loading in an emphasis on parallel bars and as much on low a crossbeam. Behind essence, there is a combination of earlier studied static poses to short combinations, with the accurate fixed delay of each of provisions. Exercises on estimation of three-dimensional motion are carried out under the leadership of a teacher, by an order or a sound signal. These exercises have nature of a game and are carried out at complete subjects (tab. 2). The example of the content of a game: lying on a back, feet together of a hand along a trunk, by a signal to raise the right hand against an angle 30°, and to take away precisely sideways the left hand, to hold situation. Sitting on a floor, feet together, a back is equal, holding straight arms to the mountain, by a signal, to execute fast bending of hands in elbows on an angle 90°, and feet, bending in knees, to attract to a breast, to hold situation. On classes it is enough to carry out two or three such series, on one exercise in everyone. Thus, the technique of assimilation of static exercises with a body weight of a body of the experimental groups at lessons of physical training in the 5-6th classes certainly has a considerable difference in comparison with the existing program of physical training. A very considerable difference with advantage of experimental



Pic. 1. Static exercises on a crossbeam



Pic. 2. Static exercises on bars



Pic. 3. Static exercises without subjects



Pic. 4. Static exercises on a gymnastic pellet



Pic 5. Static exercises on a gymnastic lava

group is observed so on a condition of somatic health, physical state, physical and intellectual working capacity (tab. 3, 4), only this difference has personally the certain differences and needs explanations.

The general point of somatic health (tab. 3) for the present is the only indicator which in general characterizes a condition of cheerfulness of a child that is his preparedness for academic loads. The data of the research testify that the use of dynamic loadings in the process of general education study is much more harmful at eleven years old, than at ten-year age. Unlike them the use of static exercises with a body weight of a body influences positively only intellectual working capacity. A number of indicators of intellectual working capacity in these conditions improves due to the growth of an indicator of "firmness of intellectual attention" which had a difference of limits the control and experimental groups ($P < 0,05$) at ten years old and a reliable difference increased till $P < 0,001$ at eleven years old. However there are not only positive changes among a number of functional indicators, but also a tendency to deterioration. So, the indicator of an index of Ruffie worsens at eleven-year age to a difference $< 0,05$, and the indicator of an index of Robinson improves ($P < 0,001$), meanwhile the indicator of the heart rate (HR) worsens ($P < 0,05$). It leads that the majority of functional indicators have considerably a smaller difference at eleven years old, than at ten years old (tab. 3, 4). However it influences compassionately only a condition of intellectual working capacity whereas physical capacity remains invariable (tab. 4) in both age groups ($P < 0,05$). The general point of an indicator of a physical state (tab. 4) is direct display of the general point of somatic health which defines, will be able to accept an organism of a pupil an academic load or not. It explains the lack of growth of reliable differences of an indicator of an index of explosive force (10 years old the contr. gr. – $1,01 \pm 0,01$; exper. gr. – $1,06 \pm 0,02$; 11 years old contr. gr. – $0,99 \pm 0,01$; exper. gr. – $1,03 \pm 0,01$), speed index indicator (10 years old contr. gr. – $3,29 \pm 0,1$; exper. gr. – $3,6 \pm 0,08$. but 11 years old contr. gr. – $3,63 \pm 0,07$; exper. gr. – $3,84 \pm 0,03$) ($P < 0,05$), but in the meantime the usual indicator of an index of force at eleven years old changes for the better ($P < 0,001$) (tab. 3). In other words, cheerfulness is enough only for it, and both most important indicators which characterize the development of qualities (an index of explosive force, a speed index), specify that in these conditions of the modern present, not depending on age, at advantage of intellectual loading, use of static physical activities, with a body weight of a body is more favorable for health of pupils, than dynamic. In this research we confirmed conclusions of the previous authors [14]. As always, and now, the academic load consists of hours on each subject. Weight of subjects grows constantly. Each teacher motivates pupils only on his subject that exhausts pupils emotionally and influences indicators of a somatic state of health and physical and intellectual working capacity.

Table 3
**Indicator of somatic health, intellectual, physical working capacity
at the beginning of the second semester**

Indicator	Group	10 years old, n=70			11 years old, n=70		
		$\bar{X} \pm m$	t	P	$\bar{X} \pm m$	t	P
Index of Ruffie (s.u.)	Contr.	10,13±0,44	=4,84	<0,001	9,25±0,89	=3,35	<0,05
	Exper.	7,35±0,37			5,56±0,65		
Vital index (s.u.)	Contr.	52,06±1,2	=1,58	>0,05	50,31±0,9	=0,45	>0,05
	Exper.	49,91±0,65			50,97±1,16		
Index of force (kg)	Contr.	47,43±1,36	=2,36	<0,05	40,06±0,7	=4,34	<0,001
	Exper.	53,11±1,99			44,94±0,87		
Index of Robinson (s.u.)	Contr.	103,49±2,17	=2,77	<0,05	98,34±1,49	=3,59	<0,001
	Exper.	96,09±1,56			91,77±1,06		
Length of a body (sm)	Contr.	146,11±0,38	=1,42	>0,05	157,77±0,99	=0,91	>0,05
	Exper.	144,43±1,12			156,57±0,88		
Weight of a body (kg)	Contr.	44,26±0,56	=0,44	>0,05	47,51±0,91	=0,28	>0,05
	Exper.	43,06±2,65			47,94±1,27		
Intellectual productivity	Contr.	1716,51±71,15	=5,9	<0,001	1475,09±72,47	=6,02	<0,001
	Exper.	2286,37±65,39			2000,63±48,77		
Intellectual working capacity	Contr.	0,89±0,01	=4,95	<0,001	0,87±0,01	=6,36	<0,001
	Exper.	0,96±0,01			0,96±0,01		
Firmness of intellectual attention	Contr.	3,87±0,07	=3,38	<0,05	2,97±0,17	=8,85	<0,001
	Exper.	4,34±0,12			5,36±0,21		
Physical capacity PWC ₁₇₀	Contr.	430,8±4,91	=2,08	<0,05	476,31±9,09	=2,09	<0,05
	Exper.	479,06±22,7			513,97±15,59		
Maximum consumption of oxygen MCO	Contr.	31,54±1,77	t=2,04	P<0,05	29,17±1,5	=2,26	<0,05
	Exper.	36,96±1,99			33,78±1,38		
Total	Contr.	0,9			2,8		
	Exper.	5,3			6,5		

Table 4

Indicators of physical state at the beginning of the second semester

Indicator	Group	10 years old, n=70			11 years old, n=70		
		$\bar{X} \pm m$	t	P	$\bar{X} \pm m$	t	P
VCL (ml)	Контр.	2189,75±1,01	=1,78	>0,05	2366,51±15,32	=1,08	>0,05
	Експ.	2187,45±0,81			2392,87±18,98		
Index of heterochrony	Контр.	100,09±0,9	=0,18	>0,05	100,29±1,58	=1,42	>0,05
	Експ.	100,46±1,89			97,31±1,37		
Heart volume	Контр.	110,0±0,74	=0,81	>0,05	109,69±4,64	=0,13	>0,05
	Експ.	108,8±1,29			110,31±1,28		
OT	Контр.	64,66±0,62	=0,04	>0,05	67,74±0,05	=1,83	>0,05
	Експ.	64,63±0,25			66,46±0,43		
HR speed. (bpm ⁻¹)	Контр.	92,43±1,54	=4,56	<0,001	96,31±0,62	=2,24	<0,05
	Експ.	84,87±0,96			92,57±1,55		
ATsyst. (mm. mer. col.)	Контр.	114,37±0,98	=2,11	<0,05	102,03±2,08	=2,14	<0,05
	Експ.	111,71±0,79			99,74±1,07		
ATdiast. (mm. mer. col.)	Контр.	76,94±1,08	=2,32	<0,05	77,57±1,18	=2,25	<0,05
	Експ.	71,14±2,26			72,71±1,81		
Index of explosive force (s.u.)	Контр.	1,01±0,01	=2,24	<0,05	0,99±0,01	=2,83	<0,05
	Експ.	1,06±0,02			1,03±0,01		
Speed index (s.u.)	Контр.	3,29±0,1	=2,42	<0,05	3,63±0,07	=2,76	<0,05
	Експ.	3,6±0,08			3,84±0,03		
Inclination from sitting situation (sm)	Контр.	2,49±0,61	=0,34	>0,05	2,66±0,44	=0,14	>0,05
	Експ.	2,21±0,55			2,57±0,49		
Total	Контр.	10,1			11,23		
	Експ.	15,5			15,97		

Conclusions:

1. It is established that static exercises with a body weight of a body well influence a condition of somatic health, physical and intellectual working capacity at boys of 10-11 years old, however it is small for distribution of the motive experience and development of vital physical qualities. But the fact in evidence of beneficial influence on a state of health of pupils gives an opportunity to recommend a use of typical loadings at lessons of physical training for the purpose of improvement of children's cheerfulness.

2. It is necessary to apply carefully exercises of dynamic character, especially intensive orientation, after all they can negatively affect as physical, and intellectual working capacity in the conditions of the modern present at "schools of a new type" at constant increase in intellectual loading on 10-11 annual pupils.

3. The general condition of cheerfulness significantly decreases through intellectual loading, it is confirmed by reliable differences among indicators of intellectual working capacity and among indicators of a functional condition of a children's organism. The difference between indicators of a functional state gradually decreases at the same time as the difference between indicators of intellectual working capacity, on the contrary, grows.

4. The results of researches of children of eleven years old testify that the use of static loadings with a body weight of a body at this age conducts to bigger improvement of indicators of intellectual working capacity, than at ten years old.

Prospects of the subsequent researches. It is planned to devote to the factorial analysis of data which will allow finding personal lines, the necessary accounting of children's opportunities when planning physical activities in the modern general education pressure.

References:

1. Verbenko M. M., Kalinichenko I. O. // VII (IX) mizhnarodna naukovo-praktichna konferentsiya. Zbirnik. Adaptatsiyni mozhlivosti ditey ta molodi [VII (IX) international scientific conference. Collection. Adaptation opportunities for children and youth], Odesa, 2008, p. 55–58. (ukr)
2. Gozak S. V., Serikh L. V., Stankevich T. V. VII (IX) mizhnarodna naukovo-praktichna konferentsiya. Zbirnik. Adaptatsiyni mozhlivosti ditey ta molodi [VII (IX) international scientific conference. Collection. Adaptation opportunities for children and youth], Odesa, 2008, p. 80–85. (ukr)
3. Gozak S. V., Serikh L. V., Stankevich T. V., Savchenko G. I., Makarova O. V. Dovkillya ta zdorov'ya [Environment and Health], 2008, vol. 4(47), p. 53–56. (ukr)
4. Gozak S. V., Elizarova O. T., Kalinichenko I. O. Dovkillya ta zdorov'ya [Environment and Health], 2012, vol. 1, p. 60–65. (ukr)
5. Kamayev O. I., Proskurov Ye. M. Slobozans'kij nauk.-sport. visn. [Slobozhanskyi science and sport bulletin], Kharkiv, 2013, vol. 5(38), p. 117–122. (rus)
6. Kotsur N. I., Godun N. I. Pedagogika zdorov'ya. Zbirnik naukovikh prats [Pedagogy health. Collected Works], 2011, p. 115–119. (ukr)
7. Makarenko M. V. Fiziologichnij zhurnal [Physiological magazine], 2002, vol. 5, p. 56–61. (ukr)
8. Proskurov Ye. M. Pedagogika, psikhologiya ta mediko-biologichni problemi fizichnogo vikhovannya i sportu [Pedagogy, psychology

and medical-biological problems of physical education and sports], 2012, vol. 11, p. 79. (rus)

9. Proskurov Ye. M. *Pedagogika, psikhologiya ta mediko-biologichni problemi fizichnogo vikhovannya i sportu* [Pedagogy, psychology and medical-biological problems of physical education and sports], 2013, vol. 02, p. 61. (rus)

10. Sirenko R. R. *Mekhanizmi formuvannya vzaemoz'yzkiv fizichnoi ta rozumovoi pratsezdatsnosti u pidlitkiv pid vplivom m'yazovoi diyalnosti : avtoref. dis. na zdobuttya nauk. stupenya kan. nauk* [Mechanisms of forming relationships of physical and mental abilities of teenagers under the influence of muscle activity : PhD thesis], 2001. (ukr)

11. Coe D. P., Pivarnik J. M., Womack C. J., Reeves M. J., et Malina R. M. *Effect Physical education and activity level on the progress in children. Med Sci Sports Exerc.* 2006; 38 (8): 1515-9.

12. Donnelly J. E., Lambourne K. *class-based physical activity, cognition and academic performance. Prev Med.* 2011; 52 (Suppl 1): S. 36-42.

13. Fedewa A. L., A.N S. *Influence of physical activity and physical fitness for children's achievement and cognitive outcomes: a meta-analysis. Res Q Exerc Sport.* 2011; 82 (3): 521-535.

14. Fredericks T. K., Choi S. D., J. Hart, Butt S. E. and Mital A. (2005). "The investigation of myocardial aerobic capacity as a measure of physical and cognitive load" *International Journal of Industrial Ergonomics* 35 (12):.. 1097-1107 DOI: 10.1016 / j.ergon.2005.06.002.

15. *The Institute of Medicine. Educating students accepting physical activity and physical fitness for school. Washington, DC: National Academy of Sciences; 2013 Available at: www.iom.edu/Reports/2013/ Education – Student-Body-taking, physical activity and Physical Education to School. aspx. Access 8 October 2014.*

16. Tomporowski P. D. *Influence of acute attacks of exercises poznaniya. Acta psychol.* 2003; 112 (3): 297-324.

17. Welk G. J., Jackson A. W., Morrow J. R., Haskell W. H., Meredith M. D., Cooper K. H. *Association of health-related fitness with academic performance in Texas schools. Res Q Exerc Sport.* 2010; 81 (Supplement 3): S. 16-23

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