

INFLUENCE OF EXTRACURRICULAR PHYSICAL TRAINING ON MOTOR PREPAREDNESS OF ADOLESCENTS LIVING IN RURAL AREAS

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Annotation. *Purpose:* the problem of motor readiness of younger students. *Material:* in the formative pedagogical experiment involved 32 rural students thirteen years, control group consisted of 223 rural schoolchildren. *Results:* the trend of deterioration of physical fitness of students in rural schools indicates a problem and the lack of software development and methodological support of physical education of younger students. Developed and put into practice the procedure elective physical training for adolescents in rural schools to improve their physical condition. In the experimental group increased significantly in children dynamic and static strength endurance and speed of movement of the upper limbs. Girls involved in elective classes in physical education, were shrewd they also tend to improve explosive power and flexibility. *Conclusions:* it was established that the introduction of electives in the process of physical education is one of the most effective means of improving their motor readiness.

Keywords: fitness, motor, elective, rural, schoolchildren.

Introduction

Urbanization, climatic-geographical and social-economic conditions of children's and teenagers' living influence on their adaptation to environment and on motion condition, which require differentiated approach to organizational methodic principles of physical education [15]. In compliance with scientific data and results of our researches of countryside schoolchildren in comparison with urban ones there was found a number of functional, morphological and motional peculiarities of development [1, 20, 21, 26, 27]. V.V. Veselova and O.V. Pidvalna [6] determined that only 10% of girl students, who study at pedagogic university, practiced sports in schools and all of them were urban residents. That is why, searching, working out and application of effective forms, means and methods of physical education, who would facilitate health strengthening, progressing of countryside pupils' motion skills, to day require attention of scientists.

Analysis of available works shows, that a number of authors [9, 23] did not find serious distinctions in physical condition of countryside and urban schoolchildren. Other authors [2, 4, 8, 14, 20 et al.] proves presence of such distinctions.

If in 60-s – 80-s years of the past century such scientists as T.S. Kryvoruchko [12], Ye.A. [22], G.I. Yakovenko [24], Yu. Ye. Savosin [17], wrote about approaching of indicators by main features in physical development of urban and countryside schoolchildren, then up-to-date data witness expressive opposite trend [15; 20, 26, 27, 28]. In particular, excessive mass is higher among countryside children in USA (25%, $p < 0.001$), comparing urban children (19%) [26]. Inveterate material-technical base, absence of modern sport facilities, unavailability of choosing of sport circle, material and social problems of countryside schoolchildren do not facilitate forming of interests, demands and motives of countryside schoolchildren for practicing of physical exercises and healthy life style in future [26; 27]. Countryside schoolchildren have problem of season activity: they are more active in summer, while urban pupils are more active in winter [27]. V. Khakhulia and O. Burla [20] basing on results of researches, on example of pupils from Sumskaya region, point at trend of worsening of countryside pupils' physical condition. S Prymak and L. Kuziomko [15] in their researches also stress that physical condition of countryside children is relatively on low level in opposite to urban children.

Testing of Sumskaya region pupils V. Khakhulia and O. Burla [20] came to conclusion that trend to worsening of countryside schoolchildren's physical condition points at presence of problem and insufficient level of program and methodic provisioning of countryside pupils' physical education.

Parallel studying of physical condition of urban and countryside schoolchildren's physical condition in one region, fulfilled by the same researches are of great interest. Though in our country there is quite a little of such researches [1, 3, 14, 19, et al.]. It is noted that existing pedagogic approaches to physical education of countryside schoolchildren do not consider age and sex peculiarities of countryside children [20].

So, strengthening of countryside pupils' health by optimization of training process is, as on to day, one of urgent tasks. Besides, the problem of countryside schoolchildren's motivation for physical exercises' training also requires its solution. It is noted that physical culture trainings can be made more attractive and interesting at the account of optional (group, circle) work [11]. That is why study of influence of optional trainings on motion fitness of countryside teenagers is urgent and requires special attention.

The work has been fulfilled in compliance with combined plan of scientific-research work in sphere of physical culture and sports for 2006-2010 of Ministry of Ukraine of family, youth and sports by topic 3.2.7.1 "Physical workability and somatic vegetative and motor provisioning of different contingents of children and teenagers" (state registration number 0107U001186).

Purpose, tasks of the work, material and methods

The purpose of the research is to study influence of author's methodic of physical culture optional trainings on countryside teenagers' motion fitness.

The methods and organization of the research: in forming pedagogic experiment 32 pupils of 13 years old age from village Vyderta Kamin (Kashpirskiy district, Volynskaya region) participated. Control group consisted of 223 schoolchildren of Kamin-Kashpirskiy, Ratnivskiy and Rozhyschenskiy districts.

Teenagers, who were the members of experimental group, besides two and half hours of compulsory physical training weekly, trained additionally once a week in extra-curriculum time, in free of physical culture days. The program of additional trainings of experimental group included mainly exercises for aerobic abilities – long, low intensive run, track and field elements, cross-country, skiing, outdoor games. Duration of aerobic work gradually increased from 5 minutes at the beginning to 30 minutes at the end of academic year. Load was with pulse 130-150 b.p.m. Such work ensures intensity of energetic processes of teenagers approximately 50% of MIIK and relates to zone of moderate intensity, which is recommended for development of teenagers' endurance [10, 13]. Before training, after the most intensive work and at the end of training pupils independently controlled pulse, then they repeated it 5 minutes after training. In compliance with obtained in such a way data, we promptly corrected individual intensity of loads in process of training.

Physical fitness of schoolchildren was analyzed with the help of tests "Eurofit" [25]. We used the following methods of teenagers' physical fitness testing. Test "Frequency of knocking" was used for measuring of quickness of upper limb's movement and by its results we evaluated frequency of local movements. Test for balance "Flamingo" was used for measuring of static balance. It implies balancing on one leg on support of certain dimension. Results of tests were quantity of attempts made by schoolchild for keeping steady balance on support during 1 minute. Tests "Mobility in ball joint" (Sit and Reach – SAR) were used for measuring of flexibility. The tested, bending in ball joint, moved arms forward, putting them on plank, moving a rule. Result of test was evaluated in cm. For testing of dexterity we used test "Shuttle run (10[5m)". It was fulfilled as jerk at maximal speed from high start with turn at limiting lines. Evaluation: time of fulfillment of full 5 cycles (to and fro) in seconds. Test "Keeping of body on horizontal bar" was fulfilled in the following way: from position "hanging on straightened arms on horizontal bar" bend arms in elbows and touch the bar with chin. Evaluation: time of position with bent arms (in seconds). Test "Long jump from the spot" was fulfilled in three attempts; the best attempt was estimated. For measuring of dynamic power endurance of torso muscles we used test "Rising in sitting position, lying on back". During 30 seconds it is necessary to make maximal quantity of repetitions. Quantity of full cycles (lying – rising) during 30 seconds is to be estimated. For example 15 full cycles is evaluated as 15.

Results of the research

It is known that level of children and teenagers organism's physical workability depends on complex of factors. The most important of them are physical education and way of life. Implementation of additional trainings in schoolchildren's physical education creates conditions for improvement of physical workability and state of health that is proved by V. Romaniuk on implementation of additional football trainings [16].

Test "Rising in sitting position, lying on back" is intended for measuring of strength and power endurance of torso muscles. Determination of dynamic power endurance by results of this test, applied for 13 years old pupils of countryside comprehensive schools, who had optional physical culture trainings, showed its confident increasing ($p < 0.05$) in both experimental groups by 9.2% (boys) and 16.6% (girls) (see table 1, fig.1).

Confident improvement by 18.8% ($p < 0.05$) of boys and highly confident improvement by 45.9 % ($p < 0.01$) of girls' static power endurance by results of test "Hanging on bent arms" were demonstrated by experimental groups in comparison with control one (see table 1, fig.1).

Progressing of speed-power qualities was evaluated by results of long jump from the spot. In this test final result depends on power of movement at the moment of take off, i.e. on greater force, demonstrated for short period of time. By result of this test there were found no significant difference in experimental and control groups of teenagers ($p > 0.05$), though experimental group girls showed trend to increasing of explosive power by 4.9% (see table 1, fig.2). Test "Frequency of knocking", used for measuring of upper limb's quickness, permitted to evaluate frequency of local movements. Quickness of upper limb's movement as per this test was statistically confidently higher at experimental group (boys – by 12.3% ($p < 0.001$) and girls – by 13.7% ($p < 0.001$) (see table 1, fig.2). Static balance, measures with test "Flamingo" (see table 1, fig.3) showed absence of difference between control and experimental groups ($p > 0.05$).

Flexibility is a motion quality, which is characterized by human ability to fulfill movements with high amplitude. On the base of test "Forward bent from sitting position" we determined that flexibility of experimental group girls showed trend to improvement by 8.2% (see table 1, fig.3). As per data of I.D. Glazyrin [7] age of 13 years old is a sensitive period for development of flexibility and endurance of both boys and girls, of coordination of boys and strength of girls.

Table 1

Development of motion abilities and sensor-motor functions of countryside teenagers of 7th form in experimental and control groups after forming research

Indicator	Sex	Group	n	X	Sx	S	V %	± %	t	P
"Risinf in sitting position from lying" for 30 seconds, <i>quantity of times</i>	boys	Control	112	24.5	3.6	0.3	14.5	9.2	2.072	<0.05
		Experimental	18	26.7	4.4	1.0	16.4			
	girls	Control	111	17.8	3.3	0.5	18.8	16.6	2.153	<0.05
		Experimental	14	20.7	4.7	1.3	22.7			
Static power endurance by test "Hanging on bent arms", <i>seconds</i>	boys	Control	112	19.7	9.2	0.87	46.97	18.8	2.359	<0.05
		Experimental	18	23.4	5.5	1.30	23.68			
	girls	Control	111	6.5	4.7	0.77	71.71	45.9	2.763	<0.01
		Experimental	14	9.5	2.9	0.76	29.98			
Explosive power by test "long jump from the spot", <i>cm</i>	boys	Control	112	176.4	21.2	2.01	12.04	-1.8	-0.810	>0.05
		Experimental	18	173.2	14.1	3.33	8.16			
	girls	Control	111	153.6	24.4	4.00	15.86	4.9	1.161	>0.05
		Experimental	14	161.1	18.8	5.03	11.69			
Quickness of upper limb by test "Frequency of knocking", <i>seconds</i>	boys	Control	112	15.2	2.0	0.19	12.94	-12.3	-4.133	<0.001
		Experimental	18	13.3	1.7	0.41	13.09			
	girls	Control	111	15.2	2.5	0.40	16.12	-13.7	-3.040	<0.01
		Experimental	14	13.1	2.1	0.55	15.78			
Flexibility by test "Forward bent from sitting position", <i>cm</i>	boys	Control	112	21.3	6.3	0.60	29.68	1.3	0.386	>0.05
		Experimental	18	21.6	1.7	0.41	8.05			
	girls	Control	111	24.6	4.0	0.66	16.21	8.2	1.498	>0.05
		Experimental	14	26.6	4.4	1.18	16.56			
Balance by test "Flamingo", <i>quantity of times</i>	boys	Control	112	14.4	4.4	0.41	30.19	2.7	0.626	>0.05
		Experimental	18	14.8	2.0	0.47	13.35			
	girls	Control	111	11.1	3.5	0.58	32.01	-0.5	-0.054	>0.05
		Experimental	14	11.0	3.5	0.95	32.18			
Dexterity by test "Shuttle run" 4x9 m, <i>seconds</i>	boys	Control	112	16.9	1.2	0.11	7.03	-1.4	-1.008	>0.05
		Experimental	18	16.7	0.9	0.21	5.33			
	girls	Control	111	18.4	1.2	0.20	6.47	-3.9	-2.369	<0.05
		Experimental	14	17.7	0.9	0.23	4.92			

Dexterity takes special place among motion skills. It is connected with other abilities, especially with motion skills, that is why it has complex character. Dexterity is combination and interaction of functions of central and periphery nervous systems of control in quick changes of organism's functioning in compliance with changes, connected with solution of motion tasks.

Dexterity is ability to master new movements and reconstruct motion functioning in compliance with requirements of external variable circumstances. Dexterity is a complex motion ability, which has no single criteria of evaluation. They are chosen depending on circumstances and conditions of action [18]. Analysis of dexterity by results of test "Shuttle run" showed that statistically confidently better by 3.9% indicators belonged to girls from experimental group with optional trainings ($p < 0.05$); concerning boys' group we found no substantial differences in indicators ($p > 0$). (see table 1, fig.4).

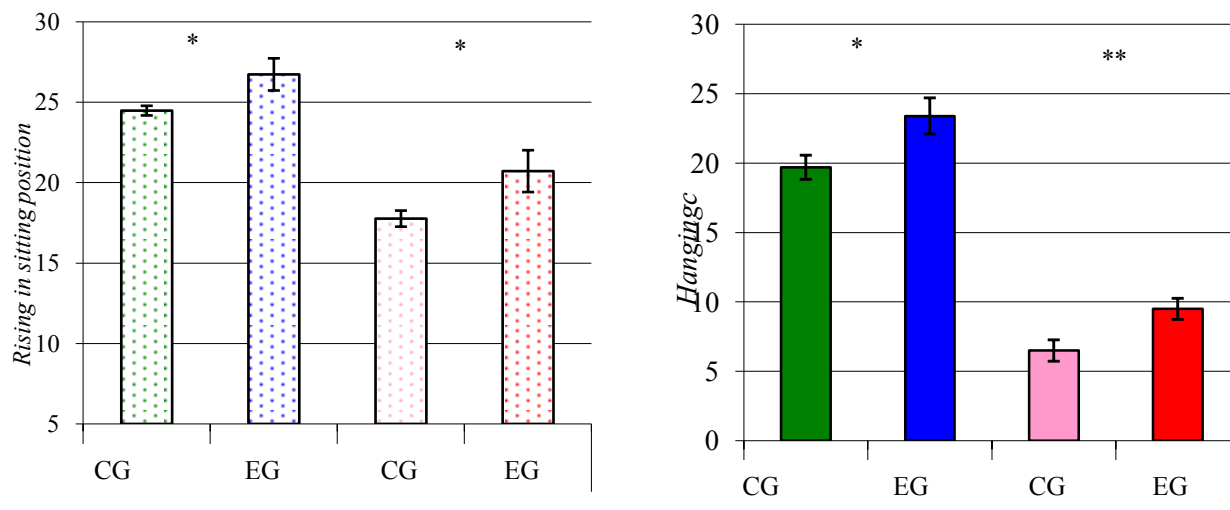


Fig.1 Dynamic and static endurance of countryside teenagers of 7th form in control (CG) and experimental (EG) groups after forming research

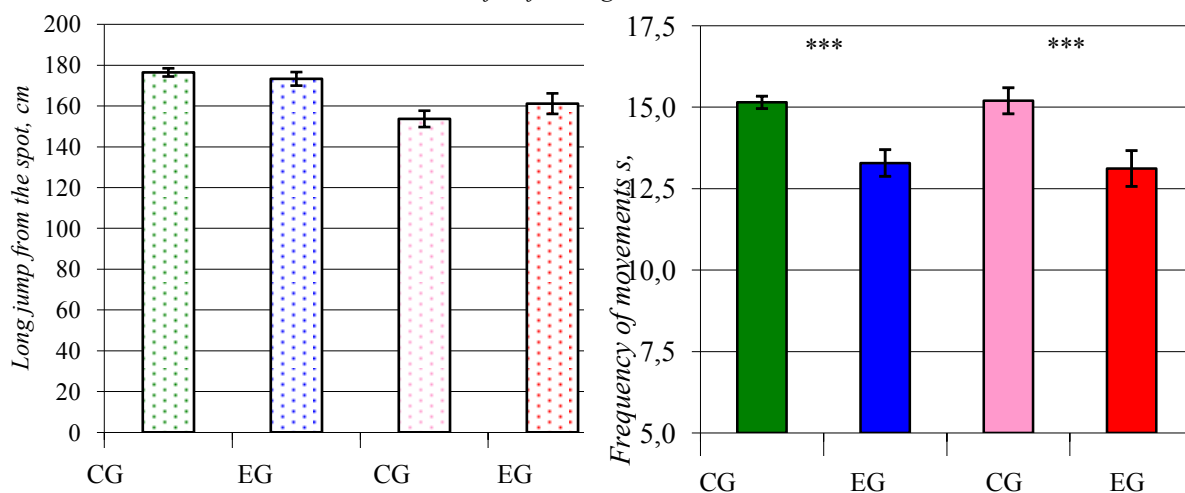


Fig.2 Explosive power and movements' frequency of countryside teenagers of 7th form in control (CG) and experimental (EG) groups after forming research

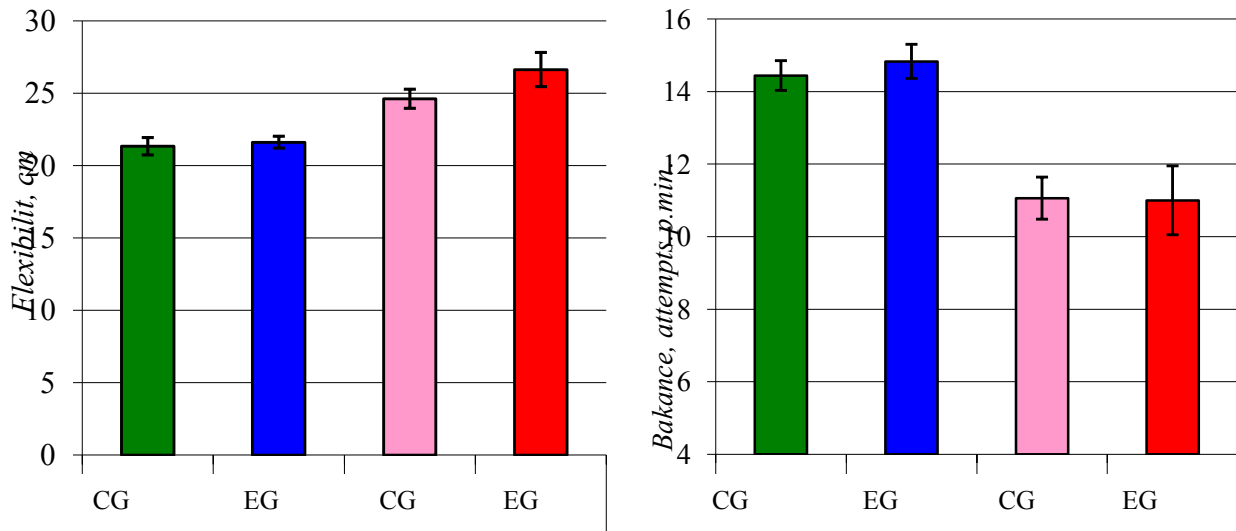


Fig.3 Flexibility and static balance of countryside teenagers of 7th form in control (CG) and experimental (EG) groups after forming research

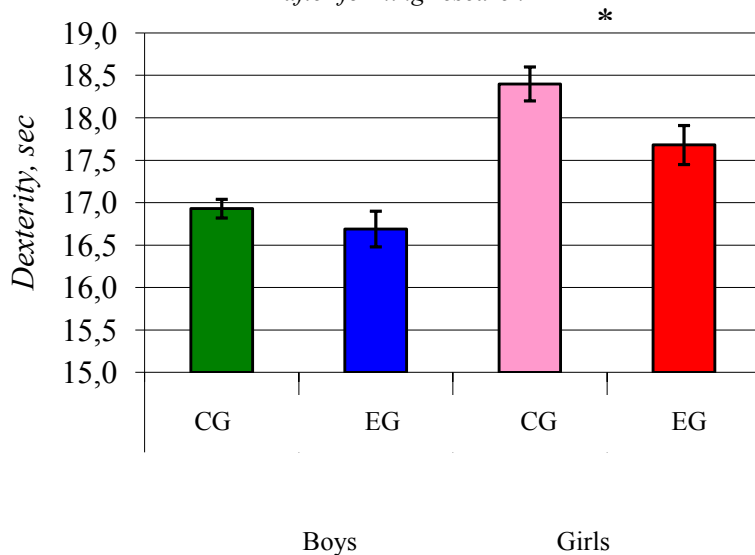


Fig.4 Dexterity of countryside teenagers of 7th form in control (CG) and experimental (EG) groups after forming research by test "Shuttle run 4x9m"

So, forming research showed that boys and girls of experimental group had confidently better dynamic and static power endurance. Teenagers from experimental group showed statistically confidently better quickness of upper limb. Confidently higher dexterity was demonstrated by girls from experimental group, who had optional; trainings. This group's girls showed trend to improvement of explosive power and flexibility. Thus, we can note that above said witness effectiveness of experimental methodic of optional physical culture trainings.

Conclusions:

1. Optional physical culture trainings positively influence on motion fitness of countryside teenagers.
2. Countryside boys and girls had confidently better dynamic and static power endurance, quickness of upper limb.
3. Countryside girls of experimental group had confidently better dexterity and showed trend to improvement of explosive power and flexibility.

Further researches in this direction can be oriented on searching of new methodic approaches to programming of optional trainings of health related character. Besides, it is necessary to have systemic works on optimization of countryside schoolchildren's physical condition because physical culture lessons, as main form of physical education of comprehensive schools' pupils can not ensure organism with required scope of motion functioning.

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