

**IMPACT ON THE DISPLAY OF POWER CHEERLEADING ABILITY OF UNIVERSITY STUDENTS I-II  
LEVELS OF ACCREDITATION**

Kryvoruchko N.V., Masljak I.P., Zhuravlyova I.N.  
Kharkov Humanitarian Pedagogical Academy  
Kharkov State Academy of Physical Culture

**Annotation.** Reflects the dynamics of indicators of the level of development of power abilities of students under the influence of specially selected exercises cheerleading. The study involved 385 students (age 15-17 years). The level of the forces will determine by tests: flexion-extension hand-ups, lifting the torso in the saddle for 1 minute, jumping on one leg with the progress, carpal dynamometry. Revealed low levels of manifestation of the power in the first stage. Most significantly improved the results of flexion-extension hand-ups (I course to 32,28%, II course at 21,77%, III course for 25.60%;). According to the results of the lifting body in the saddle improved results of 12.41%, 10.80%, 11.98%, respectively. According to the results of the hops on one foot with the progress - by 5.78%, 4.70%, 4.97%, respectively. According to the wrist of the dynamometer, at 6.31%, 5.36%, 5.89% respectively. The most significant growth results have been observed mainly at students aged 15 years.

**Key words:** students, power capabilities, physical education, cheerleading.

**Introduction**

Recent time, in Ukraine there is a steady trend to worsening of students' health and physical condition [2,4]. The area of priority in solving of this problem is physical education – important element of comprehensive students' development, formation of their principles of healthy life style, organization of useful, active leisure, development and restoration of physical and mental forces, strengthening, rehabilitation and correction of health, education of moral and will qualities and so on [2,5]. With it, in the works by O. Mitchik, O. Sapoznik et al. [6, 10] There are presented data, which reflect reduction of youth's interest to physical exercises' practicing. That is why there appears a necessity to improve physical education process at HEE at the account of implementation of new means, methods and forms of physical education [4,5].

As a result of questioning, which was carried out by us [6], we determined that students are attracted by non-traditional or new kinds of academic material, in particular, cheerleading. Cheerleading is a kind of sports, including great number of different movements: acrobatic, gymnastic, dancing and etc. Under competent guidance of an instructor cheerleading is a powerful, complex mean of human motion sphere's formation [9].

With it, it should be noted that the problem of cheerleading's influence on different aspect of students' physical condition (of 1<sup>st</sup>, 2<sup>nd</sup> accreditation level HEEs) has not been studied yet.

In human development one of leading places is taken by power training, on which, to large extent, person's social adaptation and labor potential depend. A number of authors dealt with problems of power abilities' level improvement in the process of physical education of different age contingent. For example, T. Bala, I. Masliak [1] applied cheerleading exercises for strength training of secondary classes' pupils; S. Nikolayev, Yu. Nikolayev [10] trained 10-11 forms pupils with means of athletic gymnastics; S. Grytsiliak, B. Zubritskiy – used basketball exercises for students' training [3]; A. Fangina trained students with health related kinds of swimming with the help of computer programs [14,16] et al.

Analysis of recent scientific publications showed that in modern scientific sphere different aspects of physical culture and sports are regarded, but, in our opinion, the problem of physical education of 15-17 years old students has not been paid sufficient attention to. This age - is age of early youth, when world vision is formed, ideas and positions, when formation of full fledged idea about oneself is formed. Attitude of growing personality to own self is based both: on own analysis of own intellectual, moral and physical abilities and on the base of appraisals of other people.

The research was carried out in compliance with combined plan of scientific & research works in the sphere of physical culture and sports for 2011-2015 of ministry of education & science, youth & sports of Ukraine in direction 3. "Theoretical-methodological and technological principles of physical education and sports for everybody", by problem: "Improvement of program-normative principles of physical education in educational establishments" (State registration number 0111U001733).

**Purpose, tasks of the work, material and methods**

*The purpose of the research* is to determine degree of influence of specially selected cheerleading exercises on level of 15-17 years old students' power abilities.

*The tasks of the research:*

1. Determination of power abilities' level of 1<sup>st</sup>-2<sup>nd</sup> accreditation's level HEEs students.
2. To find out changes of the studied parameters after application of specially selected cheerleading exercises in the process of physical education.

*The methods of the research:* analysis and generalization of scientific-methodic literature, stating and formation comparative pedagogical experiment, pedagogical testing, methods of mathematical statistics. For

determination of power abilities' level we used tests, offered by V.A. Romanenko [13]. They are: pressing ups in lying position (quantity of times), raising of torso from lying position in sitting one for 1 minutes (quantity of times), one-leg jumps, moving forward (meters), hand dynamometry (kg).

#### *Organization of the research*

The research was carried out on the base of pedagogic college of Kharkov humanitarian-pedagogical institute during 2009-2010 academic year. It covered 385 1<sup>st</sup>-3<sup>rd</sup> year girl-students of non-physical culture profile, from whom we formed 3 control and 3 experimental groups: 1<sup>st</sup> group – girl-students of 1<sup>st</sup> year of study, 2<sup>nd</sup>- 2<sup>nd</sup> year girl students and 3<sup>rd</sup>- 3<sup>rd</sup> year girl students. Experimental groups included 278 persons (1<sup>st</sup> group – 75, 2<sup>nd</sup> – 108 and 3<sup>rd</sup> – 95), control groups included 107 persons (23, 34, 50 girl students accordingly). All girl students, who participated in experiment, were related to main and preparatory health groups. In the course of experiment students of control group were trained as per commonly accepted physical education program for HEEs of 1<sup>st</sup> and 2<sup>nd</sup> level of accreditation, while for experimental group, academic process on physical education included specially selected cheerleading exercises. Cheerleading exercises were trained as a separate component of physical education program.

#### **Results of the researches**

The level of power abilities we determined by results of the following tests: pressing ups in lying position (quantity of times), raising of torso from lying position in sitting one for 1 minutes (quantity of times), one-leg jumps, moving forward (meters), hand dynamometry (kg).

Analysis of the obtained results showed absence of confident differences between experimental and control groups' indicators ( $p > 0.05$ ).

Analyzing power abilities' indicators in age aspect we found that results of pressing ups in lying position and hand dynamometry are improved with age, but these differences are, mainly, unconfident ( $p > 0.05$ ). Exclusions are only indicators of hand dynamometry of 1<sup>st</sup> and 3<sup>rd</sup> groups and pressing ups in lying position of 2<sup>nd</sup> and 3<sup>rd</sup> experimental groups' girl students and 1<sup>st</sup> and 3<sup>rd</sup> control groups, the differences between which were ( $p < 0.05$ ). When analyzing rising of torso from lying position into sitting one and one leg jumps we found that girl students of 2<sup>nd</sup> group have better results than 1<sup>st</sup> and 3<sup>rd</sup>, but these differences were not confident ( $p > 0.05$ ). Exclusions were only one leg jumps' results of 2<sup>nd</sup> and 3<sup>rd</sup> groups students as well as torso rising from lying into sitting position of 1<sup>st</sup> and 2<sup>nd</sup> experimental groups' girl students, the differences between which were confident ( $p < 0.05 - 0.01$ ).

Comparing results of pressing ups in lying position with normative, represented in state program on physical education, we determined that they corresponded to mark 3 points (1<sup>st</sup> group girl students), 2 points (2<sup>nd</sup> group girl students) and 1 point (2<sup>rd</sup> group).

Comparing results of torso rising from lying into sitting position with normative, represented in state program on physical education, we determined that they corresponded to mark 3 points (girl students of 1<sup>st</sup> and 2<sup>nd</sup> age group) and 2 points (girl students of 3<sup>rd</sup> group).

Comparing results of one leg jumps with normative marks, offered by V.A. Romanenko [13], we determined that they corresponded to mark 1 point for all age groups.

Comparing results of hand dynamometry with normative marks, offered by V.A. Romanenko [13], we found that they correspond to 4 points (students of 1<sup>st</sup> group) and 3 points (students of 2<sup>nd</sup> and 3<sup>rd</sup> groups).

Thus power abilities level of 1<sup>st</sup>-3<sup>rd</sup> year girl students correspond in average to mark "unsatisfactory".

Studying the data obtained after application of specially selected cheerleading exercises at physical culture classes (see table 1) we determine that all indicators of experimental groups girl students significantly and confidently improved ( $p < 0.05 - 0.001$ ).

For example results of experimental group's 1<sup>st</sup> year girl students of pressing ups in lying position improved by 32.28%, of 2<sup>nd</sup> year girl students – by 21.77%, of 3<sup>rd</sup> years – by 25.60%; results of torso rising from lying position into sitting one improved by 12.41%; 10.80%; 11.98% accordingly; results of one leg jumps with forward moving improved by 5.78%; 4.70%; 4.97% accordingly; results of hand dynamometry – by 6.31%; 5.36%; 5.89% correspondingly. Thus, the most substantial changes happened in indicators of pressing ups in lying position. The highest increment of power abilities results was observed among girls of 15 years old.

Regarding control groups' data, obtained after experiment, we determined that they also improved to some extent, but these changes were not as substantial as in experimental groups and there were unconfident ( $p > 0.05$ ) (see table 1). For example, results of pressing ups in lying positions of 1<sup>st</sup> group girl students improved by 17.57%; 2<sup>nd</sup> – by 14.37%; 3<sup>rd</sup> – by 11.77%; indicators of torso rising from lying position into sitting one improved by 9.12%, 9.81%; 8.85% correspondingly; results of one leg jumps improved by 2.92%; 2.13%; 3.23% accordingly; indicators of hand dynamometry – by 4.26%; 3.65%; 3.22 % accordingly.

Analysis of repeated data in age aspect showed absence of significant differences in comparison with initial data. With it, it should be noted that in experimental groups differences became confident ( $p < 0.05 - 0.001$ ), excluding only pressing ups, indicators of which were completely unconfident ( $p > 0.05$ ) (see table 1).

Comparing of pressing ups in lying position experimental groups' results, obtained after experiment with state normative, showed that 2<sup>nd</sup> group girl students improved their mark by 1 point, and became 3 points. Marks of 2<sup>nd</sup> and 3<sup>rd</sup> groups remained unchanged, in spite of significant and confident improvement ( $p < 0.05$ ), i.e., like before experiment they were 3 and 1 points accordingly.

Table 1

*Dynamics of power abilities' indicators of experimental and control groups' girl students before and after experiment*

Groups	I		II		III	
	Indicators $\bar{X} \pm m$					
	Experimental	Control	Experimental	Control	Experimental	Control
<i>Pressing ups in lying position (quantity of times)</i>						
Before experiment	7.31± 0.78	7.17± 0.74	8.22± 0.34	7.79±0.45	8.63± 0.67	9.00±0.44
After experiment	9.67± 0.76	8.43± 0.81	10.01± 0.34	8.91± 0.49	10.84± 0.64	10.06±0.41
t	2.16	1.15	3.71	1.67	2.39	1.77
p	<0.05	>0.05	<0.001	>0.05	<0.05	>0.05
<i>Torso rising from lying position into sitting one (quantity of times)</i>						
Before experiment	32.69± 1.04	33.43± 1.23	36.66± 0.83	36.56± 1.77	33.29± 0.80	32.98± 1.18
After experiment	36.75± 0.96	36.48± 1.19	40.62± 0.77	40.15± 1.65	37.28± 0.76	35.90± 1.12
t	2.87	1.78	3.50	1.48	3.63	1.79
p	<0.01	>0.05	<0.001	>0.05	<0.001	>0.05
<i>One leg jumps (meters)</i>						
Before experiment	4.15± 0.06	4.10± 0.09	4.25± 0.04	4.21± 0.06	4.02± 0.04	4.02± 0.06
After experiment	4.39± 0.07	4.22± 0.09	4.45± 0.04	4.30± 0.06	4.22± 0.04	4.15± 0.06
t	2.62	0.96	3.56	1.07	3.26	1.45
p	<0.01	>0.05	<0.001	>0.05	<0.001	>0.05
<i>Hand dynamometry (kg)</i>						
Before experiment	26.75± 0.54	26.48± 0.72	27.19± 0.39	27.35± 0.63	28.83± 0.51	29.12± 0.76
After experiment	28.44± 0.54	27.61± 0.68	28.65± 0.38	28.35± 0.62	30.53± 0.50	30.06± 0.73
t	2.23	1.14	2.66	1.14	2.37	0.89
p	<0.05	>0.05	<0.01	>0.05	<0.05	>0.05

The same comparison of control groups students' results did not show any changes in marks.

Comparison of repeated data of experimental girl students' torso rising from lying position into sitting one with normative marks from state program showed that the mark of 3<sup>rd</sup> groups' girl students increased by 1 point and became equal to 3 points. The marks of 2<sup>nd</sup> and 1<sup>st</sup> groups' students remained unchanged in spite of confident and significant increment of indicators ( $p < 0.01 - 0.001$ ) and were 3 points. Comparing control groups marks did not show any changes.

Comparison of repeated data of experimental girl students' one leg jumps with normative marks, offered by V.A. Romanenko [13], showed that in 1<sup>st</sup> and 2<sup>nd</sup> age groups marks improved by 1 point and became 2 points. Evaluation of 3<sup>rd</sup> group's indicators, in spite of significant and confident increment of results ( $p < 0.01 - 0.001$ ), showed no changes of mark; it remained equal to 1 point as it was before experiment.

Comparison of repeated data of experimental girl students' hand dynamometry with normative marks, offered by V.A. Romanenko [13], points at increasing of mark by 1 point (from previous 3 points to 4 points) of 3<sup>rd</sup> group students both of experimental and control groups. Marks of 1<sup>st</sup> and 2<sup>nd</sup> experimental groups remained unchanged, in spite of significant and confident increment of results ( $p < 0.01 - 0.001$ ). Comparing of 1<sup>st</sup> and 2<sup>nd</sup> control groups marks did not show any changes. Thus, power abilities' level increased and nearly approached 3 points' mark.

In our opinion, positive changes in indicators of power abilities' level, which were registered after experiment, were not reflected in mark scale, to certain extent, owing to imperfection of existing normative criteria.

#### Conclusions:

1. Results of preliminary researches witness about low level of 15-17 years old girl students power abilities, which, in average, correspond to mark "unsatisfactory". In age aspect indicators, mainly, do not differ confidently. With it there are observed changes of different character with common trend to improvement of results with age.

2. After introducing of specially selected cheerleading exercises in process of physical education of experimental groups' girl students we revealed significant and confident increment of indicators of power abilities' level of 15-17 years old girl students by all parameters ( $p < 0.05$ ). The most significant improvement was of indicators of pressing ups in lying position.

3. The most significant increment of results was registered among 15 years old students.

4. Results of the conducted researches permit to recommend introduction of cheerleading's elements in process of physical education of students of 1<sup>st</sup> and 2<sup>nd</sup> accreditation level.

*Further prospects* in this direction can be realized by mean of determination of cheerleading exercises' influence on level of other motion abilities' progressing.

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**Information about the authors:**

**Kryvoruchko N.V.:** natikakr@mail.ru; Kharkov Humanitarian Pedagogical Academy; Sh.Rustaveli alley 7, Kharkov, 61000, Ukraine.

**Masljak I.P.:** infiz@kharkov.ukrtel.net; Kharkov State Academy of Physical Culture; Klochkovskaya str. 99, Kharkov, 61022, Ukraine.

**Zhuravlyova I.N.:** irinazhuravlyova\_ukr@mail.ru; Kharkov Humanitarian Pedagogical Academy; Sh.Rustaveli alley 7, Kharkov, 61000, Ukraine.

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