



## DYNAMICS OF PHYSICAL QUALITY FORCE OF STUDENTS AT THE TODOR KABLESH-KOV UNIVERSITY OF TRANSPORT AFTER RUGBY-WOMEN TRAINING

D. Peeva\*

Todor Kableshkov University of Transport, Sofia, Bulgaria

### ABSTRACT

To offer of a new sport to students is a reason of new emotions and diligence for improvement. The essence of the new approach is to optimize students' training. The methods used to study the initial and final condition of students include statistical processing and analysis of the obtained data.

The results of study have proved the positive impact of applying new and innovative sport in educational process that can be included in the physical education and sport syllabi such as rugby-women in order to improve fitness of students.

**Keywords:** capability, sport, innovation, test battery, descriptive statistics.

### INTRODUCTION

The classes in training rugby as an optional sport are regularly conducted with newly-enrolled female students at the Todor Kableshkov University of Transport. The aim to offer this relatively new and unconventional sport in the curricula of higher educational institutions is to optimize the physical training of young people as well as search new methods to improve their individual physical qualities.

While examining the physical characteristics of newcomers, a test battery of 10 tests is used one of which called "hand strength" is basic to define force abilities.

In sports practice, force finds large application influencing significantly on the other aspects of motor activity (it determines the speed of movements, etc.).

The terms used with evaluating the magnitude of muscle efforts are absolute and relative strength. Absolute strength is the marginal effort that an individual can develop in a given mode of operation, and the relative one is the effort made in relation to a kilo of bodyweight.

The strength exercises in training are divided into general and special or into exercises for speed strength, resistance endurance, etc. The exercises of the first group develop force within the framework of general physical training while the special exercises develop muscle strength necessary for the particular kind of sport (1).

### METHODS

The study presented in this paper examined force associated with the notion of absolute hand strength.

The experiment included 28 first-year students and the duration of study was 2 academic years. The tests were carried out in the sports facilities of the University of Transport (VTU) and of the National Sports Academy (NSA).

### RESULTS AND DISCUSSION

Having constituted the group for training rugby as an optional kind of sport, an input test was carried out to establish the capabilities of participants and the work guidelines to improve students' achievements. The input results are presented in **Table 1**.

*Table 1. Input results*

Indicator	$\bar{X}$	$S_x$	V %	$A_s$	$E_x$	Min	Max	R
Hand strength	76,7	11,4	13,4	2,23	1,3	59	112	53

\*Correspondence to: D. Peeva, Todor Kableshkov University of Transport, 1574, Sofia, Bulgaria, E-mail: [diana\\_peeva\\_1972@abv.bg](mailto:diana_peeva_1972@abv.bg)

The achievements of female students playing rugby are comparable to the results of students who participated in earlier studies (2-5). These results are close to those reported in the later

studies on female students in later experiments but in contrast to the national examinations. The comparison is presented in **Table 2**.

**Table 2.** Compared to another results

Authors	Yanev, B. (2)	Petkova, L. (3)	Slanchev, P.(4)	Ivanov, I.(5)
Indicator				
Hand strength	65,7	81,2	64,8	74,7

The reasons could be searched in several directions:

- the positive experience of introducing compulsory physical education modules at secondary schools (during the academic year 2005/2006), which are conducted with the necessary effectiveness and proven results, is reported as a new moment;

- the increased interest of young people to keep a satisfactory fitness profile, i.e. increasing part of them practice sports out of the mandatory classes at secondary schools or institutions of higher education.

The classes in non-traditional sports at the Todor Kableskov University of Transport,

such as rugby, are based on the available methods, examinations and manuals. Training rugby is carried out on the basis of a number of papers and manuals, written mainly by authors working for the NSA (6, 7). With their help, new methods of physical training, which are subject to further development, have been introduced.

Once the experiment has been completed, the initial testing is repeated in order to establish the dynamics of force quality development of the female students training rugby. The second test takes into account the input objective circumstances during the first one. The results obtained are presented in **Table 3**.

**Table 3.** Output results

Indicator	$\bar{X}$	$S_x$	V %	$A_1$	$E_x$	Min	Max	R
Hand strength	79,2	9,9	9,8	1,7	0,5	68	114	46

The analysis of dynamics in the students' achievements shows a significant improvement of the physical quality "force" as well as reduction in the difference between minimal and maximal achievements. It has proved that the methods chosen to increase the results in rugby have been appropriate.

The detailed analysis of achievements reached by each female student in rugby group shows that there are students who have improved their results by more than 25 units while at the same time the input and output results of some participants in the experiment coincide. The explanation of that coincidence should be searched in the their very high input results.

**CONCLUSIONS**

The conclusions that can be drawn from the experiment carried out with students who preferred classes in rugby to other kinds of sport are as follows:

1. It can be observed that the entry level of incoming students at the VTU is good in terms of physical quality "force" and the reasons are described above. On their turn, these initial results can enable teachers to develop a system of improving physical qualities.

2. The improvement in test results was continuously observed in the course of experiment, with the exception of 4 people (or 14% of the group). Their achievements shown in the input test were highest and determined their maximum capabilities.

3. As a final conclusion, it can be reported that the positive overall change in terms of physical quality force was a result of rugby activities of female students. This fact confirms that sports such as rugby, which are not traditional at the higher educational institutions, can take an important place in Physical Education syllabi.

**REFERENCES**

1. Rachev, K. et al. Theory and Methods of Physical Education, Sofia, 1984
2. Yanev, B. et.al. Physical Development, Capability and Neuro-Psychic Reactivity of Population, Sofia, 1982
3. Petkova, L., Kwartirnikova, M. Tests for Assessment of Physical Capability, Sofia, 1985
4. Slanchev, P. et al. Physical Development, Physical Capability and Neuro-Psychic Reactivity of Population, Sofia, 1992
5. Ivanov, I. Physical Education at Higher Educational Institutions. Theory and methods, Sofia, 1996
6. Kolev, N. Rugby for Children and Adolescents, Sofia, 2002
7. Kolev, N., Velkov, P., Peeva, D. Manual of Practical Exercises for Students at Higher Educational Institutions, Sofia 2004