Bulletin of the *Transilvania* University of Braşov
Series IX: Sciences of Human Kinetics • Vol.10 (59) No. 2 - 2017

NORMATIVE BASE FOR EVALUATION OF THE MOTIVE QUALITY OF SPEED WITH HIGHER STUDENTS

S. POPOVA[1] M. GRIGOROVA[2]

Abstract: *The present publication presents the methodology for evaluating the motive quality of speed by a test applying track and field means. Research has been made with 283 men and women higher students. The normative base we have prepared can be used for an adequate evaluation of the quality of speed as a part of the wholesome evaluation of the physical ability of higher students who do not practice sport actively.*

Key words: *motive quality of speed, condition, higher students.*

1. Introduction

The present publication presents the methodology for evaluation of the motive quality of speed by a test applying track and field means. The indicators we have selected reflect our expert evaluation in respect of the choice of informative indicators. The choice of the applied tests is first on the bases of the possibility of their practical implementation as part of the wholesome evaluation of the physical ability and condition.

According to Kr. Rachev [5], conditional training is inherently a combination of the potential human potential for high performance motor activity. The lack of such activity leads to the emergence of immobilization (hypodynamia or hypokinesia).

In a sedentary life, the functional reserves of the heart are reduced, the heart rate decreases, the heart rate decreases, the heart rate decreases, its ability to recover better.

The walls of the blood vessels are thinner, become less rigid, brittle and fragile, their illumination diminishes, cholesterol is accumulated (an indicator of atherosclerosis disease). As a result, the danger of heart attacks, atherosclerosis, diseases of the cardiovascular system are significantly increased [6, 7].

Yves. Popov (Popov, Y. TMFV, MF, S., 1979) [1] considers conditional training as "a set of physical qualities of man", considering, above all, their quantitative value. According to the author, "physical activity is in a process of continuous development".

From a medical-biological point of view, L. Petkova and M. Kvartirnikova [4] present conditional training as the state of man achieved as a result of the adaptation processes to a wide range of external environment influences. It is primarily

[1] National Sports Academy "Vassil Levski", Sofia, Bulgaria.
[2]"Angel Kanchev" University, Russe, Bulgaria.

determined by the level of functional adaptation of individual organs and systems, especially those who take a direct part in a particular motor activity.

2. Research target

The target of the present research is to establish a normative base for evaluating the quality of speed with higher students who do not practice sport activity actively.

3. Organization of the Research

We have carried out a pedagogical experiment with higher students at "Angel Kanchev" University in the city of Russe applying track and field tests. The research was held on the track and field track in the city stadium and in the sports halls of the University during the school years 2013-2014 and 2014-2015.

The results for the 60m run, the Cooper's test at 2413m, long jump from standing position, vertical jump from standing position, throwing compact ball 3 kg with both hands from above the head, presses up have been registered for the same period of time, which shall be presented in following publications.

4. Contingent of the Research

177 women and 106 men higher students from "Angel Kanchev" University have been studied. The latter visit regular lessons in physical education – sport on their choice. The present publication provides analysis of the results at the end of the respective semester.

5. Methods of the Research

Measuring the results for the 30m run. The 30m run is measured by a given signal. The commands used are as follows:

- March to the start – the higher students line up at two meters behind the start line;
- Move to the start line – The higher students take position at the start line for a low start;
- Ready – the higher students raise up their heads above the level of the shoulders;
- Signal – following the signal given, the higher students start.

The above-mentioned conditions for the run discipline are explained to the students just prior the test.

Mathematic-statistical analysis

The results from the research have been subjected to statistical procession while all calculations had been made by IBM –PC-AT-16 MHz computer using Excel under Microsoft Windows standard programs. Depending on the concrete tasks of the study, the following mathematic-statistical methods and indicators had been applied [2]:

Variation analysis

The following indicators have been applied for establishing the average values and the variety:

- X Mean – Average arithmetic quantity;
- Range – Scope between the lowest and highest value;
- X Minimum – The lowest measured quantity;
- X Maximum – The highest measured quantity;
- S – Standard deviation and other indicators.

Graphic analysis

It is applied for illustrating the figure values of the calculated inter-dependences between the indicators under study. It serves to disclose the tendencies for the

development of the separate processes, for modeling of the phenomena under study in the plain and the space.

6. The Motive Quality of Speed

It is difficult to deny the importance of the individual speed potential of the separate individual about his/her realization. The speed potential in its completeness is a result manifestation of the development level of the physical quality of speed [3]. The quick movements of man depend on his/her natural abilities. 30 m and 60 m run are best suitable for testing the speed by track and field means.

We recommend to our colleague, experts in the field of the physical education to effect tests researches with higher students of various physical qualities, which shall stimulate an interest and wish for individual perfection.

Quality of speed Table 1

Quality under test	Evaluated characteristics	Test contents
Speed	Sped of the run	1. 30 m – run 2. 60 m – run

7. Characteristics of the Indicators

Indicator 1. 30 m run – the test evaluates the quality of speed. Run from standing position along track and field tracks. The person under test starts under a sound signal. A chronometer measures the result with exactness up to 0,1s.

Indicator 2.60m run – the test is executed as the one for indicator 1.

Establishment of normative base. The physical development and ability of the various offspring of the new generation vary which require a periodical update of the normative base. In practice at „Angel Kanchev" University and as far as we know in other higher establishments in Bulgaria normative base for evaluation of the physical qualities and physical abilities of the higher students who do not practice sport actively, are lacking.

The development of norms for evaluating the results in the sport pedagogical tests are based most often on the qualities of the normal distribution of the extracts. Norms are often applied to the scientific and applied activities in sport and physical education.

The limit value of the result which allows the person under study to be listed to a given classification group is called a norm in the sport science.

The limit values are calculated based on the normal distribution law.

The quality of the normal distribution is used in practice for the development of the norms according to the so-called sigma method. It uses the average value (X) and the standard deviation (S). The number of the degrees, the oral evaluation and the percentage of the cases attached to them is defined by the researcher.

The following important conditions should be followed when developing the norms: They are produced on the base of the real study of the state of the indicators under study on the reason of a representative extract sufficient in volume, which is the case of our study.

The figure 1 presents by a graphic manner the distribution of the 30m run results for women (n=177). In their greatest part the results are within the limit of 5,5 and 6s, followed by the interval between 5-5,5s.

The average value of the 30m run for the 177 women under study is 5,74s. The best registered result is 4,45 while the lowest result is 8,5s. There is a substantial difference in the results.

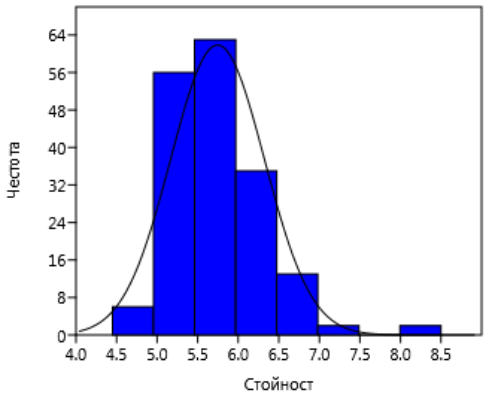

Fig. 1. *30 m run results women (n=177)*

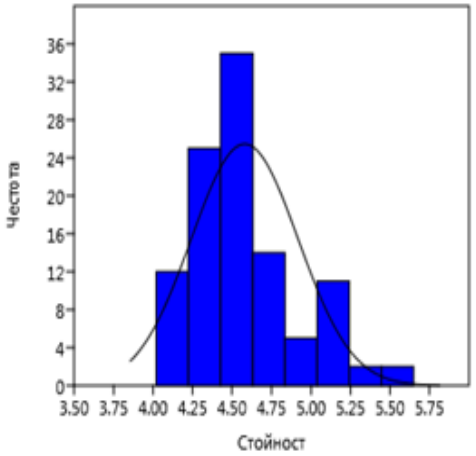

Fig. 2. *30 m run results men (n=106)*

The figure 2 presents by a graphic manner the distribution of the 30 m run results for higher students men from the University (n=106). In their greater part the results are within the limit between 4,25 and 4,75s.

Table 2

Variation analysis of 30 m run indicator for women (n=177)

	n	X min	X max	R	X Mean	S	V	As	Ex
women students	177	4,45	8,5	4,05	5,74	0,58	10,05	1,317*	3,676*

Table 2 shows the variety of 30 m run, men indicator. The average value for the 30 m run of the 106 men under study is 4,58s. The best result is 4,02s and the lowest is 5,65s. In comparison with the women, the scope is considerably lower.

On the base of the test and the results, we prepare the basis for the quantitative evaluation.

Table 4 presents base for creating the norm for the evaluation of the 30m run, women from the contingent under study (n=177).

Table 3

Base for creating the norm for the evaluation of the 30 m run, women

Score	Percentage	n
Excellent	~ 10 %	18
Very good	~ 25 %	44
Good	~ 40 %	71
Satisfactory	~ 20 %	35
Poor	~ 5 %	9

The results of the higher students we have studied have been distributed by percentage (table 3) according to our discretion in such a manner that approximately 10% of the results correspond to “Excellent 6”, 25% - by “Very good 5”, 40% - “Good 4”, 20% - Mean 3”and 5% - Poor 2” (Table 4).

Table 5 demonstrates the variety of the 30m run women indicator according to the quality evaluation.

Table 4

Variation analysis for the 30 m run indicator for men (n=106)

	n	**X min**	**X max**	**R**	**X Mean**	**S**	**V**	**As**	**Ex**
Men students	106	4,02	5,65	1,63	4,58	0,34	7,39	0,89*	0,564

Table 5

Variety of the 30 m run women indicator according to the quality evaluation

	n	**X min**	**Xmax**	**R**	**X Mean**	**S**	**V**	**As**	**Ex**
Excellent	18	4,45	5,11	0,66	4,97	0,21	4,14	-1,703 *	2,192 *
Very good	44	5,2	5,46	0,26	5,3	0,07	1,33	-0,298	-0,523
Good	71	5,49	6,1	0,61	5,7	0,18	3,22	0,695*	-0,464
Satisfactory	35	6,1	6,8	0,7	6,3	0,19	2,98	0,952*	0,214
Poor	9	6,8	8,5	1,7	7,3	0,63	8,69	1,259	0,368

Table 6

Variety of the 30 m run men indicator according to the qualitative evaluation

	n	**X min**	**Xmax**	**R**	**X Mean**	**S**	**V**	**As**	**Ex**
Excellent	11	4,02	4,2	0,18	4,11	0,05	1,31	0,685	0,671
Very good	27	4,2	4,43	0,23	4,3	0,07	1,53	-0,09	-0,973
Good	42	4,44	4,7	0,26	4,6	0,08	1,66	0,285	-1,079
Satisfactory	21	4,7	5,21	0,51	4,9785714	0,20	3,92	-0,122	-1,668
Poor	5	5,23	5,65	0,42	5,396	0,17	3,23	0,881	-0,923

Table 7

Norm base for 30 m run low start women

Excellent	Very good	Good	Satisfactory
< 5,2	5,2 – 5,5	5,6 – 6,0	6,1 – 6,6

Table 6 presents the norm we have made; when developing the norm we have taken in mind both the real results of the higher students under study and our expert opinion. We consider it necessary that the higher students having poor mark to put additional efforts to improve their speed abilities.

The principle for the distribution of the results is similar to the one we have used for the men students, described herein above.

Table 8

Base for creating a norm for the evaluation of the 30 m run men, according to the contingent we have studied (n=106)

Score	**Percentage**	**n**
Excellent	~ 10 %	11
Very good	~ 25 %	27
Good	~ 40 %	42
Satisfactory	~ 20 %	21
Poor	~ 5 %	5

Table 8 demonstrates the variety of the 30m run men indicator according to the qualitative evaluation.

On the base of the results and the variety of the indicator according to the qualitative evaluations as well as our expert opinion, we have prepared the norm base indicated in table 6.

Norm base for 30 m run low start men Table 9

Excellent	Very good	Good	Satisfactory
< 4,1	4,1 –4 ,3	4,4 – 4,6	4,7 – 5,0

The results for the quality of speed are as a whole relatively better than those for the women while having in mind not the absolute values, but in comparison with the active sportsmen on the base of our practical experience.

8. Conclusions

The results registered for the 30 m run, men and women, during the last school years present a good base for the establishment of objective norm base for the evaluation of the quality of speed of the higher students at Ängel Kanchev" University in the city of Russe.

The norm base we have prepared can serve for an adequate evaluation of the quality of speed as a part of the wholesome evaluation of the physical fitness of the higher students who do not practice sport actively.

9. Recommendations

For improving the general condition of the higher students particularly and of the young people in general, it is necessary that they be engaged in motive activity, which is related directly to the improvement of the quality of life and their health status.

References

1. Gevrenova, M.: P*hysical education and sports in Bulgaria – a system of traditions and patterns.* In: Sports and Science, LIII, № 3, p. 119-129, Sofia, 2009.
2. Gigova, V.: *Statistic methods in the physical education*. Sofia. NSA Press, 2009.
3. Gadev, M.: *Motive quality of speed.* Sofia. NSA Press, 2014.
4. Obreshkov, D.: *Experimental methods for the impact of strength exercises on the organism of women between 16 and 22*. Dissertasion, Sofia, 2011.
5. Popova, S.: *Control and management of competitions in sprint running in view of realization at accountable exercises*. In: Sports and Science, №3, Sofia, 2009.
6. Spasov, G.: *Sports and Condition.* Sofia. Medicine and Physical Education, 1998.
7. Tsanev, A., Hristov, V.: *Obesity*. Sofia. Medicine and Physical Education, 1988.