

ASSESSMENT OF THE PHYSICAL ENDURANCE OF HIGHER STUDENT IN SPORT AT NATIONAL SPORTS ACADEMY “VASSIL LEVSKI”, BULGARIA

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Abstract: *The quality of endurance is of essential importance for achieving high sports results. It is namely that importance that has provoked the scientific studies of a range of researchers, as well as particularly our interest in it. The purpose of the paper is to establish the level of the physical endurance of women and men higher students at “V. Levski” National Academy of Sport” in the city of Sofia, Bulgaria. A modified Cooper test – running a distance of 2413 m is made use of as a basic method of study. The analysis of the results we have received provides us with the reason about the following summary: the persons under study are of a high level of general status of physical endurance; the level of the women high students’ physical endurance is better than the level of the men higher students under study; the physical endurance level of the track and field competitors is better in comparison to the other kinds of sports.*

Key words: *endurance, workability, track and field, higher students.*

1. Introduction

The issues related to the physical fitness of man have been moving and still are moving a range of generations. The all-round physical development of the growing up generations has got primary importance about their mastering of the motive habits and skills for the sports discipline they have chosen to compete in. High sports results can be achieved on the ground of a high level of the physical qualities like endurance, speed, strength,

etc. Endurance as a basic physical quality is defined by the fact that it provides characteristics about the health status of the young generation. The deep research and study of the regularities of the status, development and perfection of the endurance shall contribute for increasing the workability of the athlete, improvement of his/her health and achieving high sports results in the sports he has chosen to practice. V.S. Farfel (1960) gives one of the first definitions of endurance. In his work he defines

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endurance as quality of the organism to preserve workability, while overcoming stepping fatigue and later on as ability to perform work although stepping fatigue. Similar definition of endurance provide many authors: [1, 2, 3], [8, 9, 10, 11], [13, 6], who treat endurance as an ability for prolonged execution of any work without decreasing its effectiveness.

From physiological aspect, endurance is the ability of the organism to perform continuing work. Endurance as a whole provides for the increase of the organism's functional abilities. It depends on many factors but first of all on the cortex cerebrum which defines and regulates the state of the central nervous system and the workability of all other systems and organs. Athlete's endurance depends on the muscle strength, speed of the movement, mobility of the joints, perfection of the technique, the skill for the more economic manifestation of the functional abilities without unnecessary pressure. Endurance depends as well on the will and psychic stability of the athlete.

We can generalize that the physical qualities are mutually related and the manifestation of each one depends on the degree of the development of the others. The question relates to the correct methodological succession in year and many years aspect of their development. From this point of view, endurance appears as a leading quality within that complicated conglomeration, called educational and training process.

It is on the level of the endurance development at the beginning of the sports career of the beginner athlete and reciprocally at the beginning of the year educational and training process of all athletes that the further manifestation of their growth depends.

2. Objective

In the present paper we have set as our objective to establish the degree, the level of the physical endurance of women and men higher students at "V. Levski" National Academy of Sport in the city of Sofia, Bulgaria.

3. Research Methods

To achieve these objectives, we have studied first year men and women higher students on individual plan. During the track and field regular lessons we have tested the mentioned higher students by a modified Cooper's test - running a distance of 2413 m. Cooper's test is listed in the "Track and field" curriculum as compulsory requirement to the first-year higher students at NSA. The total number of students under study is 86, out of which 33 women and 53 men. The students are between 20 and 21 years of age.

The normative evaluation for current control on the persons under study for this range of age is presented in Table 1.

Table 1
Normative evaluation

EVALUATION	MEN	WOMEN
Excellent status	under 9,40 min	under 12,30 min
Very good status	from 9,45 to 12 min	from 12,35 to 13,30 min
Good status	from 10,45 to 12 min	from 13,35 to 15 min
Satisfactory status	from 12,05 to 14 min	from 15,05 to 17,30 min
Non satisfactory status	above 14,05 min	above 17,35 min

4. Results

Table 2
Absolute average values

	MEN n=53	WOMEN n=33
Track and field	9,17min	12,08 min
Gymnastics sports	10,57min	13,05min
Sport games	9,30min	12,27min
Water sports	9,48 min	12,15min
Winter sports	10,59 min	12,31min
Single combat and weightlifting	10,22min	12,48

Table 2 presents the absolute average values of the results grouped in kind of sport for men and women respectively. Track and field competitors are best both for men and women, followed by sport games for men and water sports for women.

Qualitative evaluation of the physical status endurance (men) n=53

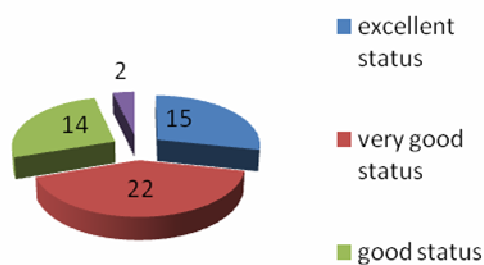


Fig.1. Physical status endurance (men)

Figure 1 presents the qualitative evaluation of the physical status endurance of the men higher students (n=53). The greatest number of students have got very good evaluation mark for their status (n=22) followed by excellent status (n=15) and good status (n=14). Only few men have got satisfactory mark and nobody – unsatisfactory.

Qualitative evaluation of the physical status endurance (women) n=33

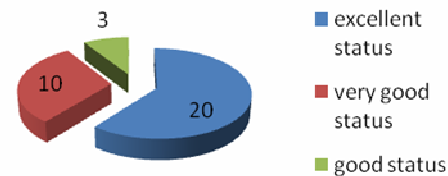


Fig. 2. Physical status endurance (women)

Figure 2 presents the qualitative evaluation of the physical status endurance of the women higher students (n=33). The greatest number of women higher students have got evaluation mark for excellent status (n=20) followed by those of very good status (n=10). Only few are the women higher students having got a good status mark (n=3). No women have received satisfactory or non satisfactory mark.

Correlation of the qualitative evaluation of the physical status of endurance of the men and

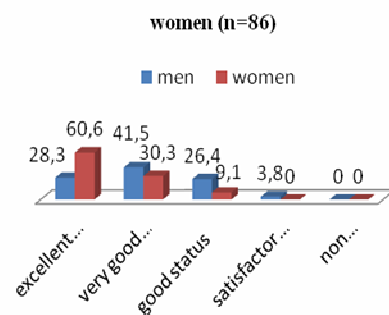


Fig. 3. Corelation Physical status endurance women and men

Figure 3 presents the percentage correlation of the qualitative evaluation of the physical status of endurance of the men and women higher students under study. Impressive is the difference of the better results in general for the women;

60,6% of them are in excellent status while this percentage for the men is 28,3%.

5. Discussion

Running is a basic, accessible and applied means for perfecting the functions of the basic systems of the organism resulting in improvement of endurance and increasing the level of health. When defining the quality of endurance, authors relate it to fatigue. Fatigue is treated as a state during which man in the process of work decreases his workability. The fight of organism with fatigue is first of all a fight for preserving workability. The ability of the organism to fight fatigue is improved by improving the level of endurance. Fatigue is the main factor for decreasing the abilities of the athlete in any kind of sport. Yonov and Bonov [11] standing point is interesting in that respect; he treats the health status of the individual as a function of the quality of endurance too. According to him each individual has got his/her own level of health, the criteria about which appear to be the physiological, motive and mental workability and most of all, their complex manifestation. Consequently, the changes in the general workability of man lead to changes in the level of his health. In harmony with these thoughts, the author generalizes that the factors for the general endurance appear as criteria for the health of the individual.

On the basis of the general foundation of the organism's functional abilities reached during the general preparatory period, the striving is to set up the base of highly specific functional level, tolerance to high training load and quick restoring after them.

The scientific studies have proved that on the base of the preliminary strengthening of the organism, future results can be obtained. The perfection of the organism under the influence of training sessions of high intensity shall guarantee the development of the specific endurance which is preceded by the development of the general endurance [5, 6, 7].

This maxim is of particular importance as all changes and improvements of the organism have exactly to answer the requirements of the specific foundation of the sports specialization. This relates not only to the motive qualities but to the will and the psychological stability too. We accept that the general endurance acquired by cross run, is the foundation for the development of the specific endurance too in a lot of the cyclic sports. This is true and wholly refers to the middle- and long-distance runners. For the rest of the sports cross run is a means for improving the general endurance as part of the general physical preparation. This is not sufficient for attaining high sports results for the given sport. A specific functional foundation is needed, transformed within the process of execution not in a "foreign" but its own training work. This foundation is organically connected to the subtleties of the selected sport technique. This stage of the preparation is most important because it is through it that the standard generally accepted means for development of one or another leading quality is used and this is the moment to bind and execute exercises similar to the selected sport.

The creation of a specific foundation for sports of very complicated movements is a difficult task to solve. This can be attained

in two ways – by multiple repetitions of the basic parts of the concrete sport or multiple repetitions of the whole performance.

Exercises appearing as means for creating specific foundation should be performed by moderate intensity. This is necessary mainly because training work in great volume is done without decreasing the intensity of the performance. It is well known as well that work of average and submaximal intensity gives much more results during the preparatory period which is related to the creation of long-lasting changes in the organism. And the most important, the moderate intensity is needed as the functional restructuring of the wholesome state of the organism is achieved as a result of the changes of the activity of the central nervous system.

The morphological changes appear much later. That is why if intensity is applied earlier (forcing the state of training) the organism is not prepared functionally and the hidden reserves of the workability cannot be mobilized.

It is proved that the volume of the training work should be increased gradually. Exhaustion, nervous strain, sharp decrease of the workability may appear as a result of incorrectly dosed training volume for the athletes. Data from medical control received within the process of great training load – walks and runs, show that the organism of athletes of average preparedness successfully enters prolonged work and acquires high functional abilities [13]. Similar walks and runs clearly witness that performing training sessions of great volume under moderate intensity is expedient for setting up the bases of the specific foundation.

Following this target, the volume of the training sessions may not be the same for

the various kinds of sports as well as for the various disciplines of one and the same sport but great differences in the volume of the training sessions, for instance for sprinters, jumpers, gymnasts, on one side and long distance runners, road cycling, rowers, etc., on the other should not exist.

Endurance to prolonged work - continuously performing exercises from 2 to 4 hours per day is needed in many types of sports. The considerable increase of the duration of continuous repetition of exercises in the selected sport is a very perspective way to achieving high sports result. It is a pity that this approach is not sufficiently applied in practice but it is not everybody that climbs the honorable stairs during republican, Balkan, European, World championships and Olympic Games.

The effectiveness of the sports shape management in highly qualified athletes is determined not only by the applied cumulative workload volumes but also by the rational load organization in the individual mesocycles of the macrocycle. The ratio between the different types of preparation, as well as between the different training tools within each mesocycle determines the direction of preparation, the priorities in the development of individual aspects of the sports preparation, thus outlining the way to improve the sports result as an integral indicator for the sports shape [4].

6. Conclusions

The study we have made in relation to the degree of the physical endurance of the women and men higher students at the National Academy of Sport provides us with the reason to make the following conclusions:

High level of the general status of the physical endurance is at hand both in between men and women, which is a function resulting from the active sport and competitive activity.

The level of the physical endurance of the women higher students under study is statistically considerably better than the level of the men higher students.

The analysis of the results for the various kinds of sports both for men and women higher students shows better level of the track and field competitors in comparison with the other kinds of sports.

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