ASSESSMENT OF STUDENT ACHIEVEMENTS AT THE NATIONAL SPORTS ACADEMY „VASIL LEVSKI“ (BULGARIA) IN THE ACADEMIC DISCIPLINE „ATHLETICS“

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ABSTRACT
This article presents a study of the sports results of students studying at the National Sports Academy “Vassil Levski” in the discipline of Athletics. The study aims to assess the motor abilities of students in individual athletics disciplines. A total of 2915 results of students (men and women) were analyzed. The results are recorded in athletics activities during the semesters of study, encompassing the athletics disciplines of Cooper's test, 800m, 60m, 60m hurdles, 100m, Javelin throw, Shot put, High jump, Long jump, and Triple jump. The data were processed using Microsoft Excel and the IBM SPSS software platform. Descriptive statistics were used. The students' assessment is based on a normative table on a six-point system, according to the achieved result. The grading system used in Bulgaria is based on the following five-digit grades, as 6 is the highest possible grade that students can receive. 6 - Excellent; 5 - Very Good; 4 - Good; 3 - Sufficient; 2 – Poor. The study found substantial differences in the abilities of female students in the disciplines Cooper's test, 800 m, 60 m, 100 m, Javelin throw, and High jump. In men, large differences are noticeable in all disciplines except the Triple jump. Men in four out of ten disciplines received a high score (“Very good”), while women in only two disciplines. The average achievement in the 800 m discipline for both genders is assessed as “Poor”. In conclusion, we note that men tend to achieve better results in sprint disciplines than in technical disciplines. A similar trend is not observed in women.

***Keywords**: results, norms, men, women, track and field athletics*

INTRODUCTION

National Sports Academy “Vassil Levski” (NSA) is a higher education institution in Bulgaria. It educates students in the fields of Sports, Pedagogy of Physical Education, and Public Health. Education is provided in three faculties: the Faculty of Pedagogy (FP), the Faculty of Sports (FS), and Public Health, Healthcare, and Tourism (PHHT) (https://www.nsa.bg/documents_/spravochnik-ksk-2025.pdf). The preparation of students requires the study of several mandatory, special, elective, and optional disciplines. One of the mandatory disciplines is Athletics, which is studied within 4 semesters for FP students and 3 semesters for FS students (https://www.nsa.bg/bg/page,1100). During this period, lectures and seminars (practical) exercises are held, in which students get acquainted with and practice all athletic disciplines. Thanks to its variety of disciplines with a naturally applied nature, athletics is the most accessible sport. To achieve a result in a given discipline, technical preparation and a level of development of a certain motor quality or set of such qualities are required (Stoykov et al., 2014).

On the other hand, achievements in the disciplines are expressed numerically and can be used as a criterion for determining the level of motor abilities among practitioners. The study of each discipline ends with a practical exam and a current assessment. The assessment is based on a normative document using a six-point system, according to the achieved result. These assessments provide information about the level of preparedness of the trainees, the mastered technique, and the desire to achieve a high sports result.

This study aims to evaluate the achievements of students in individual track and field disciplines and to determine the level of their motor abilities.

METHODOLOGY

A total of 2915 results from NSA students (1649 men and 1266 women) were analyzed. The results were recorded over the last three academic years, 2022/2023, 2023/2024, and 2024/2025, in practical

athletics classes. The achievements were achieved in the disciplines 800 m, Cooper's test (1.5 miles = 2413.5 m), 60 m, 60 m hurdles, 100 m, Javelin throw (600 gr for women and 800 gr for men), Shot put (3 kg for women and 4 kg for men), High jump, Long jump, and Triple jump. In running disciplines, the start is from a high start. The results are manually timed. In technical disciplines, three attempts were made, and the best result was taken. In the high jump, the bar was raised by 5 cm. The grades were established by regulatory requirements prepared by teachers from the Department of Athletics in 1989 (Vasilev, 2019; Popova & Petkova, 2016) and updated in 2022 (Petkova, 2023). The grading system used in Bulgaria is based on the following five-digit grades, as 6 is the highest possible grade that students can receive. 6 - Excellent; 5 - Very Good; 4 - Good; 3 - Sufficient; 2 – Poor.

The study's results were subjected to statistical analysis (descriptive statistics) (Gigova, 2009) using the Microsoft Excel program and the IBM SPSS software version 19 (IBM, USA, NY).

RESULTS

The descriptive statistics for the study's data are presented in Tables 1 and 2. On average, women covered the distance of 2413 m in 14:95 min, and the difference between the best and the worst achievement was more than 9 min (Table 1). For men, the data are similar. The average result is 11 minutes. The achievements fall within the range of 11:10 minutes to 20:24 minutes (Table 2). In the 800m run, the average achievement for women is 3:52 minutes, while for men it is 2:70 minutes. It can be seen that for both sexes, the difference between the best and the worst result is over two minutes. A female student ran the distance in over 5 minutes, and a male student ran it in over 4 minutes. These data are indicative of the general endurance of the students, as well as the manifestation of their willpower.

From the group of sprint races (60 m and 100 m), the value of R in women (w) is 5.7 s, and in men (m), 6.9 and 9.9 s. We define these differences in the speed capabilities of the students as large. The average values for the shorter distances are 10.8 s and 16.8 s (w) and 8.7 s and 13.3 s (m). For the longer distance, the average achievements are from 13.1 s to 18.8 s (w) and from 11.1 s to 21.1 s (m).

The range of hits in javelin throwing for women is from 8.80 m to 22.50 m, and for men from 10.11 m to 40.00 m. The values of R 13.70 m and 29.89 m can be defined as the largest of all disciplines.

Table 1. *Descriptive statistics of women's results*

Test	*n*	X min	X max	*R*	*Mean*	*SD*	V %	As	Ex
Cooper's test (min)	136	11.10	20.24	9.1	14.95	2.295	15	0.539	-0.32
800 m (min)	152	2.31	5.09	2.80	3.52	0.581	17	0.133	-0.199
60 m (s)	137	9.0	14.7	5.7	10.8	1.303	12	1.432	2.44
100 m (s)	121	13.1	18.8	5.7	16.8	1.760	11	-0.639	-0.664
60 m h. (s)	126	11.2	18.0	6.8	13.2	1.343	10	0.783	1.113
Jevelin throw (m)	145	8.80	22.50	13.70	13.96	3.676	26	0.644	-0.376
Shot put 3 kg (m)	120	6.27	8.94	2.70	7.70	0.796	10	-0.227	-0.536
High jump (cm)	120	120	160	40.0	135	14.605	11	0.185	-1.315
Long jump (m)	144	2.18	5.43	3.30	3.51	0.874	25	0.665	-0.398
Triple jump (m)	65	6.50	9.34	2.84	8.03	0.864	11	-0.064	-1.127

The shot put is the discipline with the closest capabilities for women. The results are within 6.27 m and 8.94 m. On average, they threw the 3-kilogram shot put to 7.70 m. For men, a result of 5.80 m is noticeable, which is also weaker than that of women. The average result is 9.26 m.

For women, the long jump results vary from 2.18 m to 5.43 m, and for men, from 2.20 m to 5.80 m. It can be seen that the best jump of a male student is only 37 cm better than that of a female student. This suggests that women performed better than men in this discipline. The registered results of 2.18 m (w) and 2.20 m (m) in the long jump are achievable in the "Standing long jump with two legs" test. The value of R is 2.84 m (w) and 3.15 m (m). The average achievement for women is 8.03 m, and for men, 9.19 m. The difference between the students with the best results is only 1 meter.

The variation in values for women in the 60m hurdles and shot put is slight (V = 10%), whereas in the other disciplines within the groups, an average dispersion is noticeable. In men, the studied groups again turn out to be homogeneous at 60 m/h in high jump and triple jump.

Table 2. *Descriptive statistics of men's results*

Test	*n*	X min	X max	R	*Mean*	*SD*	V%	As	Ex
Cooper's test (min)	169	8.48	16.26	7.78	11.03	1.489	13	1.115	1.314
800 m (min)	161	2.14	4.11	1.97	2.70	0.413	15	0.875	0.112
60 m (s)	176	7.0	14.0	6.9	8.7	0.955	11	1.515	5.069
100 m (s)	169	11.1	21.1	9.9	13.3	1.271	10	1.648	8.121
60 m h. (s)	135	9.1	15.4	6.3	10.9	1.168	11	1.277	1.943
Jevelin throw (m)	162	10.11	40.00	29.89	22.38	5.363	24	0.31	0.169
Shot put 4 kg (m)	156	5.80	12.50	6.70	9.26	1.187	13	0.139	0.295
High jump (cm)	176	110	165	55	140	12.898	9	0.099	-0.774
Long jump (m)	172	2.20	5.80	3.60	4.12	0.711	17	-0.353	0.28
Triple jump (m)	173	7.25	10.40	3.15	9.19	0.793	9	-0.107	-1.022

The average performance ratings for the 2413 m run for both sexes are "Good" 4, and for the 800 m, "Poor" (Figure 1). These data determine an average level of general endurance of students from both faculties and a low level of motor qualities necessary for the 800 m run. The best results from the two runs of the students are rated "Excellent", while those with the lowest are rated "Poor" (Figure 2 and Table 1). "Very good" is received by men in the three sprint runs and the long jump. This rating is an expression of their speed and speed-power abilities. For their achievements in the high jump, triple jump, javelin throw, and shot put, they receive a "Good" rating. For women, the ratings are more diverse. The average time for which the 60 m distance is covered is rated "Very good", and the one with obstacles is rated "Good". Unlike the men, another notable poor rating is evident here in the 100 m run. They also receive a "Good" rating for the average achievement in the horizontal jumps, and in the high jump – "Very good". The only "Sufficient" rating from all disciplines is that of the Javelin throw. In conclusion, the average speed ability of women, as expressed in the 100-meter distance, is lower than that of men. In the other disciplines, the ratings are similar. Given the complexity of the technical execution of the obstacle course and the differences in the speed abilities of the students, the results of both sexes can be considered similar. The differences in achievements are below 7s. This is also confirmed by the coefficient of variation, which is 10% and 11%. We attribute the significant differences in the students' javelin throwing results to the level of coordination abilities and technical training required by the discipline. In addition to the differences in speed and strength capabilities among the students.

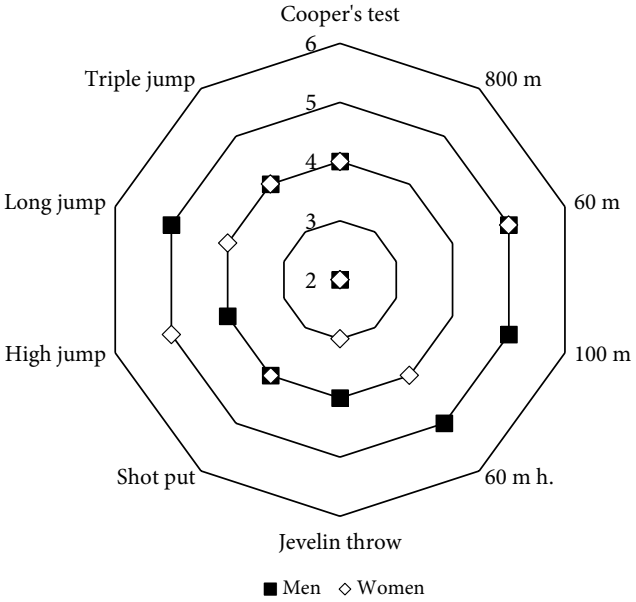

Figure 1. *Assessment of the average achievement of students by discipline*

Students' best and worst achievements were assessed according to the normative basis (Figures 2 and 3). In running disciplines, the maximum achievements are for an excellent grade, except

for the 60 m hurdles. (w). The worst achievements are not sufficient for a grade other than "Poor". At 800 m 40% have the indicated grade. In the shot put and triple jump, none of the women's results received an "Excellent" grade (Figure 3). The best ones are for "Very good". The assessments of the maximum results in javelin throwing are the same for both sexes - "Excellent". Only 3% managed to get an excellent grade. Among women, 32% did not meet the standard, while among men, only 13%.

The high jump is accessible to women, since the lowest overcome height is assessed as "Good". More than half of the women (58%) were rated as excellent. The same cannot be said for men, for whom it is 8% "Poor" grade. The best result for men is only 5 cm better than that for women (Table 1). In our opinion, this is due to the presence of a more prominent female student or to insufficient efforts on the part of the men. The picture is similar in the long jump. The triple jump for men turns out to be the only discipline in which they could not achieve the maximum score, and the weakest result is for "Sufficient".

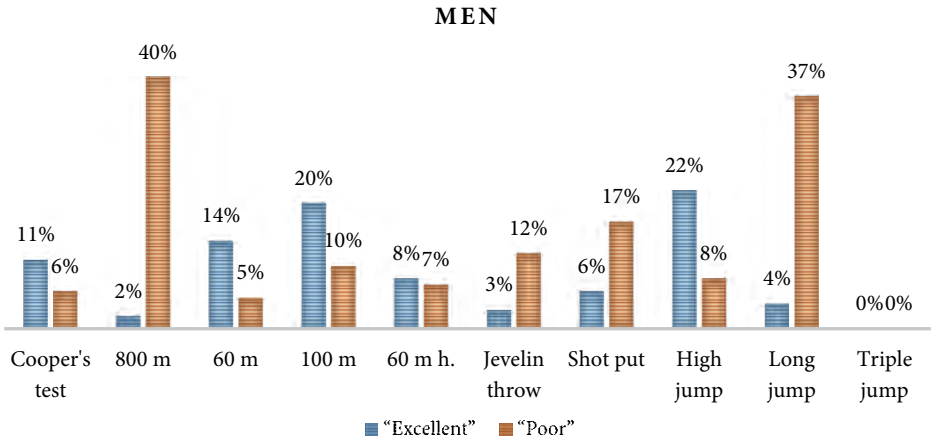

Figure 2. *Percentage ratio of poor and excellent assessment - men*

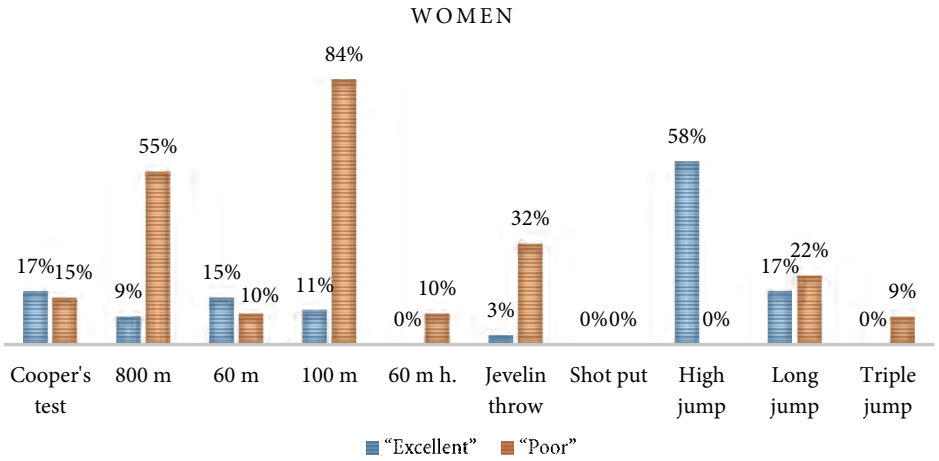

Figure 3. *Percentage ratio of poor and excellent assessment – women*

The percentage expression of "Poor" ratings shows that 40% of men in the 800 m event, 37% in the long jump, and 6% in the Cooper Test have this rating (Figure 2). In the other events, the range is from 5% to 17%.

For both men and women, the 800 m race is the discipline with the highest number of "Poor" scores (55%). The 100 m standard is the most challenging for women to cover. Eighty-four per cent of them did not manage to run the distance, even for a "Sufficient" score (Figure 3). Long jump and javelin throw are also disciplines that have made it difficult for some girls to cover the standard score (22% and 32%). In other disciplines, the percentages range from 9% to 15%.

The realization of speed-power abilities in the vertical plane, expressed in the high jump, is more achievable for students. The average grade

is "Good" (m) and "Very good" (w). The assessment of the maximum results is "Excellent", the minimum for women is "Good", and among men, only 14 out of 176 failed to cover the assessment standard.

The assessments in horizontal jumps show that the triple jump has a higher standard than the students' capabilities. No student achieved a high grade (0%, Figure 2). We attribute this to the complexity of the discipline in a technical aspect and the required high level of coordination abilities. In the long jump, 37% of men and 22% of women were rated with a poor score. Throwing is an interesting discipline for most students, but they also experience difficulties with technique when performing it, which leads to lower results when taking the exam. Only 3% of the students met the standard for the shot put with an "Excellent" score, and a large portion of the women (32%) received a "Poor" grade. In the shot put, the women had grades of "Very Good" and " Sufficient". 6% of the men were excellent, and 17% had a poor grade.

DISCUSSION

Summarizing the data from the analysis, we can conclude that more than half of the women surveyed (55%) failed to meet the 800 m standard for a grade other than "Poor". For men, the percentage is also high at 40%. That is indicative of a low level of motor skills necessary for running 800 m. Vassilev (2019) also reached the same conclusion. The students' general endurance is at a good level. This is confirmed by the average grades, as well as the highest (11% men and 17% women) and lowest (6% men and 15% women) results in the Cooper Test.

Developing maximum speed and maintaining it for a shorter period (in the 60m discipline) is more achievable for women. At the same time, for the 100-meter distance, which requires solid physical training and a properly mastered technique (Popova & Petkova, 2016), the standard turns out to be uncovered for 84% of the test subjects. Only 11% received the highest grade. If we apply the normative base proposed by the authors, 11% of women will receive an "Excellent" grade, and 52% will receive a "Poor" grade. These results are close to theirs and indicative of a trend of lower results for women. The authors Popova and Petkova (2019) claim that after updating the norms, female students will receive higher grades; however, our study found that on both assessment scales, more than half of the women again received poor grades. That indicates that their physical condition deteriorates over time. The authors' research in this direction indicates that the current regulatory framework (until 2023) for assessing the practical exam in the 100 m discipline maintains the general level of fitness in men. These conclusions also apply to our study, since 90% of men have covered the standard for assessing "Poor". The high percentage of poor grades in the long jump and the lack of excellent grades in the triple jump provide us with a reason to propose updating the grading scale for both events, for both genders.

In conclusion, we will note that a large part of the students fail to meet the practical standards in athletics for a grade other than "Poor". This suggests a decline in the physical abilities of present-day students. Factors that may have an impact include irregular attendance at practical classes, low motor activity, or a lack of self-training outside of mandatory classes. Miletiev (2025) and Kabakov (2025) also reach the same conclusion.

Based on the findings, we recommend that students of the National Athletics Academy "Vassil Levski" make additional efforts outside of mandatory classes to prepare for their practical athletics exams. Our recommendation to teachers is to utilize the regulatory framework, in addition to academic discipline control, to also apply it in monitoring the level of motor qualities among students. That allows us to consider including additional physical training hours for students.

Conclusion

In conclusion, we can say that men generally achieve better average results in sprint disciplines than in technical disciplines. A similar trend is not observed in women. The general endurance of students from both faculties is at a good level. Better results are registered in the 2413 m run than in the 800 m run. In one of ten disciplines (triple jump), the best results of men do not receive an "Excellent" rating, while in women, in three of them (60 m h.., shot put, and triple jump). The highest percentages with a "Poor" rating are in the disciplines of 800 m (40%) and long jump (37%) in men, and javelin throw (32%), 800 m (55%), and 100 m (84%) in women. To more precisely determine the capabilities of students, it is necessary to conduct a study by the faculty. That will provide information about the differences in motor capabilities between students from both faculties. Given the latest update of the exam standards in 2022, we propose increasing the number of prac-

tical classes in athletics by including classes for physical training of students and more classes for self-training.

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