ETHIOPIAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 12, December-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

A.Djabbarov

Tashkent State University of Economics

Teacher of the Department of Physical Culture and sports activities

EFFECTIVENESS OF IMPROVING SHOT THROW TECHNIQUE BASED ON BIOMECHANICAL ANALYSIS

Abstract. The article presents data reflecting the features of the shot put technique of athletes of the II category and the I youth category. Quantitative values of individual kinematic parameters in the jump and final effort phases are given for athletes of mass categories.

Keywords: shot put, athletes of the category, jump, final effort, speed and acceleration of the shot.

INTRODUCTION

It is well known that achieving high sports results is possible under the condition of not isolated, but complex manifestation of various aspects of training: physical, technical, tactical, psychological, theoretical. Moreover, in the process of sports training, each of the aspects is aimed at solving certain problems. One of the most important tasks is mastering the technique of the chosen sport, in particular the shot put technique, which meets certain requirements. Knowledge of the patterns, composition and structure of the motor action allows you to manage the process of forming a motor skill, which, in turn, affects the assessment of the technique of the competitive exercise. Therefore, the study of the biomechanical features of a specific physical exercise is focused on finding a rational technique, on improving their kinematic and dynamic structure [1].

MATERIALS AND METHODS

Many specialists have studied the issues of studying the technique of shot put. In different years, studies were conducted concerning the analysis of the competitive exercise in two ways: linear technique (linear swing) and rotational method (circular swing, "A. Baryshnikov's method"). The phases and features of their implementation in the structure of the integral motor action are described [2, 3, 4]. In addition, the researchers provide kinematic and dynamic characteristics of the technique of shot put. The indicators under consideration, as a rule, were obtained during the analysis of the technique of the strongest athletes [2].

The aim of the study: analysis of some biomechanical parameters of the shot put technique (linear technique) of athletes of the ranks.

Objectives of the work:

1. To determine the kinematic parameters of the shot put technique of athletes of the 2nd rank and the 1st junior rank.
2. To study the nature of the change in the speed and acceleration of the shot in the jump and final effort phases in the competitive exercise of putters, performed by athletes of the 2nd rank and the 1st junior rank.

RESULTS AND DISCUSSION

When analyzing the technique of shot put, the following elements are distinguished:

– holding the shot;
– preparatory phase for the run-up (jump – linear swing, turn – circular swing);
– run-up with a jump (turn);
– final effort;
– braking or balance maintenance phase [3].

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 12, December-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

Holding the shot and the preparatory phase for the run-up create conditions for the effective implementation of the main actions in the subsequent phases.

The run-up is an important phase in shot put. It begins with a swinging movement of the left leg, which, unbending at the hip and knee joints, is directed towards the segment. The phase ends with a two-support position.

The main phase in shot put, on which the effectiveness depends, is the final effort. It is in this phase that the initial velocity of the projectile is communicated at an optimal angle [4].

As a result of solving the first problem, the following data were obtained. The entire process of putting from the jump to the shot being thrown out lasts about 1 sec for athletes of the 2nd category. In this case, the run-up and jump take about 0.7 s, and the final effort takes about 0.3 s. The jump length reaches 0.75–0.8 m. As studies have shown, the length of force application to the shot in the final effort is 1.7 m.

According to the measurement results, the total time of the jump and final effort for athletes of the 1st junior category is about 1.1 s (run-up and jump – 0.75 s and final effort – 0.35 s). The jump length in this case reaches 0.65–0.7 m. As a result of the calculations, it turned out that the length of force application to the shot in the final effort is 1.6 m.

In the process of solving the second problem, the shot velocity and acceleration in the jump and final effort phases were found. During this period of time, an increase in the shot velocity is observed, which is a consequence of the run-up and the thrower's efforts applied to the shot. At the same time, the nature of the change in speed is somewhat different for athletes of the presented categories. At the moment of release of the projectile, the speed of the shot for athletes of the II category was more than 10 m/s, and for athletes of the I youth category 9 m/s.

CONCLUSION

1. As a result of the conducted study, quantitative indicators of the technique of competitive exercise of shot putters were obtained. Thus, the duration of the jump and final effort phases is longer for athletes of the 1st junior category. The length of the jump and application of force to the shot in the final effort, on the contrary, is longer for athletes of the 2nd category. 2. There are also differences in the dynamics of speed and acceleration. The highest value of the speed imparted to the shot by athletes of both categories is observed at the end of the final effort phase. However, their values differ and are more than 10 m / s for athletes of the 2nd category, and 9 m / s for athletes of the 1st junior category. The maximum acceleration for athletes of the 2nd category is noted at the moment of release of the shot, and for athletes of the 1st junior category in the jump phase.

REFERENCES:

1. Alisherovich T. F. PRE-COMPETITION PSYCHOLOGICAL PREPARATION SYSTEM FOR SHORT-DISTANCE TRACK AND FIELD ATHLETES //Ethiopian International Journal of Multidisciplinary Research. – 2024. – Т. 11. – №. 11. – С. 80-83.
2. Гафурова, С. Ш., & Юсупходжаева, С. Т. (2023). Ta'sirlangan ichak sindromida nevrotik buzilishlarni differensial taxlili va tibbiy psixologik yordamni takomillashtirish (Doctoral dissertation).
3. Ibodullayev, Z. R., Karakhanova, S. A., Gafurova, S. S., & Yusuphadjayeva, S. T. (2023). EFFECTIVE PSYCHOPHARMACOLOGICAL THERAPY IN ANXIETY-DEPRESSIVE DISORDERS. Open Access Repository, 4(3), 241-246.
4. Ishanhojaeva, G. T., & Kodirova, Z. M. (2024). SUBACUTE SCLEROSING PANENCEPHALITIS IN CHILDREN: COGNITIVE IMPAIRMENT. Journal of Modern Educational Achievements, 10(10), 233-238.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 12, December-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

5. Maxamatjanova, N. M., Mirxaydarova, F. S., & Mirxaydarova, S. M. (2023). DEPRESSIYA RIVOJLANISHIDA QANDLI DIABETNING AHAMIYATI. Академические исследования в современной науке, 2(7), 19-20.
6. Рашидов, А. У. (2024). ТРЕБОВАНИЯ К СОВРЕМЕННОМУ РУКОВОДИТЕЛЮ В СФЕРЕ ФИЗИЧЕСКОЙ КУЛЬТУРЫ И СПОРТА. INTERNATIONAL JOURNAL OF SCIENCE AND TECHNOLOGY, 287-290.
7. Malika, X., & Fayoza, E. (2023). FUNCTIONAL FEATURES OF TERMS IN PRESENT DAY ENGLISH. PEDAGOGICAL SCIENCES AND TEACHING METHODS, 380.
8. Xakimov, S. (2024). USING ANECDOTES IN TEACHING FOREIGN LANGUAGE. Инновационные исследования в современном мире: теория и практика, 3(1), 28-29.
9. Nomuratova, M. K. (2024). EXPANDING THE SCOPE OF PSYCHOLOGICAL OPERATIONS IN THE GUERILLA WARFARE CONTEXT. American Journal of Interdisciplinary Research and Development, 26, 59-63.
10. Erkinovna, Y. F. (2024). Politeness in Digital Communication. Web of Semantics: Journal of Interdisciplinary Science, 2(4), 102-105.
11. Odilzhonovich, K. I. (2024). THE SYSTEM OF PROFESSIONAL TRAINING OF MILITARY PERSONNEL IN FRANCE. Ethiopian International Journal of Multidisciplinary Research, 11(10), 185-192.
12. Сафаров, Ю. Б. (2023). HISTORICAL STAGES OF THE DEVELOPMENT OF MILITARY SCIENCE: MILITARY SCIENCE OF THE NEW ERA. American Journal of Interdisciplinary Research and Development, 23, 84-93.
13. Urinov, F. S. (2024). COMBAT DRONES–DANGEROUS AND PERSPECTIVE WEAPON OF THE FUTURE ARMED CONFLICT. HARBIY PEDAGOG, 1(2), 73-80.
14. Tashpulatov F. A. DEVELOPMENT OF SPORTS ACTIVITY IN STUDENTS, TAKING INTO ACCOUNT THEIR INDIVIDUALITY //INTERNATIONAL SCIENTIFIC JOURNAL: LEARNING AND TEACHING. – 2024. – Т. 1. – №. 1. – С. 7-10.
15. Khamraeva, Z. B., Tashpulatov, F. A., Carmen, P., & Setiawan, E. (2024). Elements of dynamics in gymnastic exersicess. Revista iberoamericana de psicología del ejercicio y el deporte, 19(1), 54-59.
16. Alisherovich T. F. Hygienic basics of physical exercise //World scientific research journal. – 2024. – Т. 23. – №. 2. – С. 67-74.
17. Alisherovich T. F. ОСОБЕННОСТИ МОРФОФУНКЦИОНАЛЬНОГО СОСТОЯНИЯ И ФИЗИЧЕСКОЙ ПОДГОТОВЛЕННОСТИ СТУДЕНТОВ СПЕЦИАЛЬНОЙ МЕДИЦИНСКОЙ ГРУППЫ //ISSN 2181-3523 VOLUME 2, ISSUE 23 DECEMBER 2023. – 2023. – С. 432.
18. Karimov, F. K. (2022). Developing A Combination of Health Exercises for Middle-Aged Men Aged 45-60. Eurasian Scientific Herald, 8, 201-204.
19. Karimov, F. K. (2022). PRIMARY SCHOOL STUDENTS HOLD NATIONAL MOVEMENT GAMES IN PHYSICAL EDUCATION CLASSES. Journal of Integrated Education and Research, 1(5), 254-258.
20. Khurramovich, K. F. (2022). DEVELOPING A SET OF WELLNESS EXERCISES FOR MIDDLE AGED MEN (45-60 YEARS OLD) ACCORDING TO PHYSICAL PREPARATION. Academicia Globe: Inderscience Research, 3(04), 165-169.
21. Khurramovich, K. F. (2022). DEVELOPING A SET OF WELLNESS EXERCISES FOR MIDDLE AGED MEN (45-60 YEARS OLD) ACCORDING TO PHYSICAL PREPARATION. Academicia Globe: Inderscience Research, 3(04), 165-169.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 11, Issue 12, December-2024 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980 2024: 7,662

22. Khurramovich, K. F. (2022). METHODOLOGY OF WEIGHTLIFTING WITH ATHLETES. Web of Scientist: International Scientific Research Journal, 3(4), 1228-1233.
23. Karimov, F. X. (2022). Scientific and Methodological Bases of Normalization of Loads in Physical Education and Mass Sports-Health Training. EUROPEAN JOURNAL OF BUSINESS STARTUPS AND OPEN SOCIETY, 2(2), 24-28.
24. Muxamedov, A. (2023). PROBLEMS AND SOLUTIONS FOR THE DEVELOPMENT OF PHYSICAL EDUCATION AND MASS SPORTS. Евразийский журнал социальных наук, философии и культуры, 3(2), 63-69.