THE ROLE OF COORDINATION ABILITIES IN IMPROVING SHOT PUT TECHNIQUE AMONG UNIVERSITY STUDENTS

Sarvinoz Iskandar qizi Saidova
asia international university of
department of physical culture
Email: saidovasarvinoz@oxu.uz

Abstract: The development of technical skills in track and field events remains one of the key challenges in modern sports education. Among throwing disciplines, shot put requires a combination of strength, speed, balance, and coordination abilities. The effectiveness of mastering shot put technique largely depends on the athlete's ability to control body movements and maintain optimal coordination throughout the movement phases.

This study examines the role of coordination abilities in improving shot put technique among university students. Particular attention is paid to balance, spatial orientation, movement differentiation, and rhythm control as fundamental components of technical performance. The research highlights that students with better-developed coordination abilities demonstrate higher accuracy in technical execution, fewer movement errors, and improved throwing performance.

The findings suggest that the integration of coordination-oriented exercises into physical education and athletics training programs contributes significantly to the development of technical proficiency in shot put. Therefore, coordination training should be considered an essential component of teaching methodology for university students specializing in physical education and sports sciences.

Keywords: shot put, coordination abilities, technical training, athletics, university students, physical education, motor skills, sports performance.

Introduction

In recent years, the improvement of technical skills in athletics has become one of the primary objectives of sports education and training systems. Among track and field disciplines, shot put is considered a technically complex event that requires the integration of strength, speed, coordination, and movement control. Successful performance in shot put depends not only on the athlete's physical fitness but also on the ability to execute technical movements accurately and efficiently.

Coordination abilities play a fundamental role in the acquisition and improvement of motor skills. They enable athletes to control body position, maintain balance, regulate movement rhythm, and adapt movements to changing conditions. In technically demanding events such as shot put, coordination abilities contribute significantly to the effectiveness of movement execution and overall athletic performance.

University students studying physical education and sports sciences often encounter difficulties in mastering the technical phases of shot put, including the preparation phase, glide or rotational movement, power position, and final release. These difficulties are

frequently associated with insufficient development of coordination abilities. Therefore, improving coordination skills may facilitate faster learning of technical elements and reduce movement errors during training.

Despite the growing interest in athlete preparation, limited attention has been paid to the relationship between coordination abilities and shot put technique acquisition among university students. Therefore, investigating this relationship is important for developing effective teaching methodologies and improving the professional training of future physical education specialists.

The purpose of this study is to examine the role of coordination abilities in improving shot put technique among university students and to identify the coordination factors that most strongly influence technical performance during the learning process.

Main Part

Coordination abilities are fundamental components of motor performance and play a crucial role in the acquisition and refinement of shot put technique. These abilities enable athletes to regulate body movements, maintain balance, control movement rhythm, and perform technical actions with greater accuracy and efficiency. Since shot put consists of several interconnected phases, including preparation, glide or rotational movement, power position, release, and follow-through, successful performance requires a high level of neuromuscular coordination and precise synchronization of body segments.

Among the various coordination components, balance control, spatial orientation, movement differentiation, and rhythm regulation are considered the most influential factors affecting technical proficiency in shot put. Balance control allows athletes to maintain postural stability during dynamic movements, while spatial orientation ensures accurate body positioning and movement trajectories throughout the throw. Movement differentiation contributes to precise regulation of muscular effort and timing, whereas rhythm control facilitates the effective sequencing of movement phases and efficient transfer of force to the shot.

The development of these coordination abilities is particularly important for university students who are learning and mastering shot put technique. Insufficient coordination often leads to technical errors, reduced movement efficiency, and lower throwing performance. Therefore, the systematic inclusion of coordination-oriented exercises in athletics training programs can significantly enhance technical consistency, improve biomechanical efficiency, and accelerate the process of skill acquisition among students.

The role of coordination abilities in shot put technique can be summarized through the following components.

Major coordination abilities and their influence on shot put technique

Table 1

Coordination Ability	Functional Role in Shot Put	Expected Training Outcome
Balance Control	Maintaining body stability during	Improved technical

	movement phases	accuracy
Spatial Orientation	Controlling body position and movement direction	Enhanced movement precision
Movement Differentiation	Regulating muscular effort and timing	Greater technical consistency
Rhythm Control	Maintaining proper sequence of movements	Improved force transfer efficiency
Motor Adaptability	Adjusting movements under changing conditions	Reduced technical errors
Reaction Ability	Responding quickly to movement demands	Faster technical adjustment

Recent studies in sports pedagogy indicate that coordination-oriented exercises play a significant role in improving motor learning and technical performance in athletics. Activities involving dynamic balance, multidirectional movements, reaction tasks, and rhythm regulation contribute to the development of stable and efficient movement patterns by enhancing the interaction between sensory and motor systems. From an educational perspective, the integration of specialized coordination exercises into university athletics curricula can improve the quality of shot put instruction, facilitate technical skill acquisition, and support the development of essential motor competencies among future physical education specialists. Therefore, the systematic development of coordination abilities should be regarded as a key methodological component of shot put training, as it contributes to improved biomechanical efficiency, reduced movement errors, and enhanced athletic performance.

Relative Contribution of Coordination Abilities to Shot Put Technique Acquisition Among University Students

Figure 1.

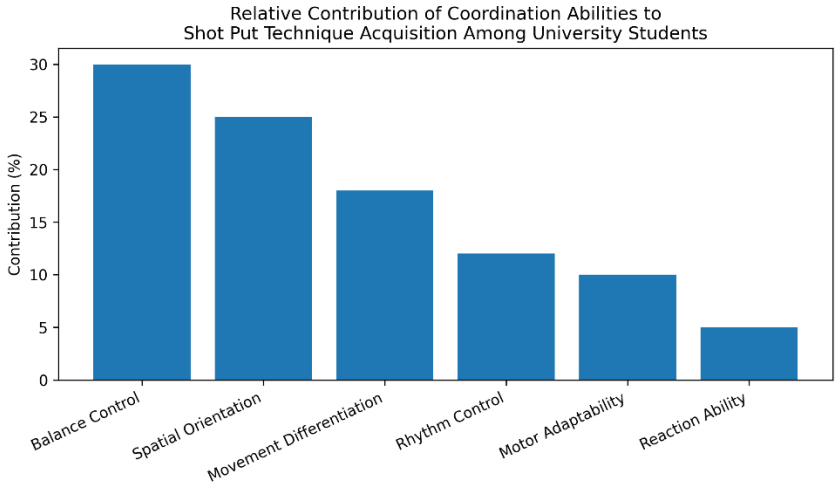

Figure 1 illustrates the relative contribution of coordination abilities to shot put technique acquisition among university students. Balance control and spatial orientation represent the most influential factors affecting technical performance, while movement

differentiation, rhythm control, motor adaptability, and reaction ability provide additional support for effective skill acquisition and performance improvement.

Conclusion

The findings of this study indicate that coordination abilities represent a fundamental factor in the successful acquisition and improvement of shot put technique among university students. The effectiveness of technical performance depends not only on physical strength and power but also on the athlete's ability to coordinate complex motor actions, maintain balance, control movement rhythm, and accurately regulate muscular effort throughout the throwing process.

The analysis revealed that balance control, spatial orientation, and movement differentiation are among the most influential coordination components affecting technical proficiency in shot put. Students with better-developed coordination abilities demonstrate greater movement accuracy, fewer technical errors, improved biomechanical efficiency, and higher levels of performance during training and competition.

Furthermore, the integration of coordination-oriented exercises into athletics training programs contributes to more effective motor learning, accelerates the acquisition of technical skills, and enhances overall sports performance. Such an approach creates favorable conditions for developing stable movement patterns and improving the quality of technical execution.

From a pedagogical perspective, the results emphasize the necessity of incorporating specialized coordination training into university-level athletics curricula. The systematic development of coordination abilities can significantly improve the effectiveness of shot put instruction and support the professional preparation of future specialists in physical education and sports sciences.

Therefore, coordination training should be regarded as an essential methodological component in the teaching and improvement of shot put technique, contributing to both technical mastery and long-term athletic development.

REFERENCES:

1. Bompa, T. O., & Buzzichelli, C. (2019). *Periodization: Theory and Methodology of Training* (6th ed.). Champaign, IL: Human Kinetics.
2. Brown, L. E. (2017). *Strength Training*. Champaign, IL: Human Kinetics.
3. Enoka, R. M., & Duchateau, J. (2016). *Principles of Exercise Testing and Interpretation*. Philadelphia: Wolters Kluwer.
4. Gambetta, V. (2018). *Athletic Development: The Art and Science of Functional Sports Conditioning*. Champaign, IL: Human Kinetics.
5. Magill, R. A., & Anderson, D. (2021). *Motor Learning and Control: Concepts and Applications* (12th ed.). New York: McGraw-Hill Education.
6. Platonov, V. N. (2020). *The General Theory of Athlete Preparation in Olympic Sport*. Kyiv: Olympic Literature.
7. Schmidt, R. A., Lee, T. D., Winstein, C., Wulf, G., & Zelaznik, H. (2019). *Motor Control and Learning: A Behavioral Emphasis* (6th ed.). Champaign, IL: Human Kinetics.

8. Weinberg, R. S., & Gould, D. (2019). *Foundations of Sport and Exercise Psychology* (7th ed.). Champaign, IL: Human Kinetics.
9. Williams, J. M. (2021). *Applied Sport Psychology: Personal Growth to Peak Performance* (8th ed.). New York: McGraw-Hill Education.
10. Zatsiorsky, V. M., & Kraemer, W. J. (2020). *Science and Practice of Strength Training* (3rd ed.). Champaign, IL: Human Kinetics.
11. World Athletics. (2024). *Coaching Education and Certification System: Throws Events Manual*. Monaco: World Athletics.
12. International Association of Athletics Federations (IAAF). (2023). *Teaching and Coaching Athletics: Throws*. Monaco: IAAF Publications.