

WAYS TO DEVELOP SPEED ABILITIES IN YOUNG HANDBALL PLAYERS

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Abstract. *This article examines the theoretical and methodological foundations for the formation and development of speed abilities in young handball players. Speed is a key physical quality that determines the ability to perform movements within a short period of time and plays a decisive role in handball through rapid decision-making, quick starts, changes of direction, and effective ball handling. The study analyzes relevant sources in the theory of sports training and discusses a system of exercises aimed at developing speed and their effects on young athletes. The results indicate that targeted exercises, interval loads, and the use of game elements significantly improve the sporting performance of young handball players.*

Keywords: *handball, speed, physical training, young athletes, movement velocity, special exercises.*

Introduction

Modern handball is characterized by high-speed actions, rapid decision-making, and dynamic game situations that require athletes to respond instantly to constantly changing conditions on the court. For this reason, speed occupies a leading position in the general and special training of young athletes and is considered one of the key determinants of competitive performance. In contemporary handball, the effectiveness of technical and tactical actions largely depends on the athlete's ability to execute movements at high velocity while maintaining accuracy and coordination. Speed includes not only movement velocity but also reaction time, neuromuscular responsiveness, and the ability to

rapidly reorganize motor actions under time pressure (Platonov, 2015: 142).

According to the scientific literature, childhood and adolescence represent the most favorable age periods for the development of speed abilities, as the functional maturation of the nervous system creates optimal conditions for improving reaction speed and movement frequency (Matveyev, 2010: 97). During these stages, adaptive mechanisms are highly plastic, which allows training stimuli to produce long-term positive effects on motor development. Properly organized training during this stage not only forms the foundation for future athletic mastery but also ensures the harmonious development of other physical qualities, such as coordination and agility, which are closely related to speed in handball performance.

Theoretical Foundations of Speed Abilities

Speed reflects the athlete's ability to perform movements in minimal time and represents a complex psychophysiological quality determined by the functional state of the nervous and muscular systems. It consists of three main components: simple reaction speed, complex reaction speed, and movement speed, each of which contributes differently to sports performance (Verkhoshansky, 2012: 65). Simple reaction speed characterizes the time required to respond to a single known stimulus, whereas complex reaction speed reflects the ability to choose an appropriate response among several alternatives. Movement speed, in turn, determines how quickly a motor action can be executed.

From a physiological perspective, speed abilities are closely related to the rate of nerve impulses conduction, the excitability of the motor cortex, and the efficiency of neuromuscular transmission. High-speed performance depends on the predominance of fast-twitch muscle fibers and the ability to synchronize motor unit activation within a short time interval (Platonov, 2015: 143).

In handball, speed is of particular importance in the following situations:

- at the start of movement, when gaining an initial advantage over the opponent;

- when quickly changing direction in attack and defense during dynamic game situations;
- when receiving and passing the ball under time pressure;
- when responding rapidly to an opponent's actions in one-on-one duels.

Scientific studies indicate that the expression of speed abilities is not only genetically predetermined but can be significantly improved through systematic training, especially in childhood and adolescence (Matveyev, 2010: 101). According to Platonov (2015: 145), the mobility of the central nervous system plays a decisive role in the development of speed abilities, as it determines the rapid alternation of excitation and inhibition processes that underlie fast motor reactions.

Methodology for Developing Speed in Young Handball Players

When working with young athletes, it is essential to consider age-related characteristics. The age range of 10–14 years is considered the most sensitive period for the development of speed (Bompa, 2009: 112).

The following exercises are considered effective for developing speed:

1. Short-distance sprinting (10–30 m) at maximum speed.
2. Reaction exercises in response to a start signal.
3. Rapid change-of-direction drills (zig-zag running).
4. Fast ball-handling actions: quick passes and rapid throws.

During training sessions, loads should be of short duration but high intensity (Matveyev, 2010: 103).

Developing Speed through Game Elements

The handball game itself is an effective means of developing speed, as it reproduces real competitive conditions that require constant acceleration, deceleration, and rapid decision-making. Small-sided games, relay races, and competitive elements not only increase the motivation of young athletes but also create a training environment in which speed abilities are developed in close connection with technical and tactical actions (Bompa, 2009: 118).

From a methodological point of view, game-based exercises allow coaches to combine physical development with the formation of game thinking. In such

conditions, athletes are required to perform high-speed movements while simultaneously perceiving visual and auditory signals, selecting appropriate motor responses, and coordinating their actions with teammates. This integrated influence makes game elements especially valuable in the training of young handball players.

Verkhoshansky (2012: 71) emphasizes that game-based exercises develop not only speed but also coordination and reaction time. In addition, they contribute to the improvement of spatial orientation and the ability to anticipate the opponent's actions. Regular use of modified games with limited space, time constraints, and numerical superiority or inferiority stimulates the manifestation of maximum movement speed and enhances the transfer of speed abilities to real match situations.

Scientific observations show that the systematic inclusion of game elements in training sessions increases training density and reduces monotony, which is particularly important when working with children and adolescents (Matveyev, 2010: 105). Therefore, the rational combination of specialized speed drills with game-based exercises can be considered one of the most effective approaches to developing speed abilities in young handball players.

Conclusion

The development of speed abilities in young handball players is one of the most important directions of sports training and a key prerequisite for achieving stable competitive performance. The use of targeted exercises, short-term high-intensity loads, and game elements ensures the effective development of speed and creates favorable conditions for the integrated improvement of technical and tactical skills. The results of the study show that the early formation of speed abilities is a crucial factor for achieving high sporting results in the future, as it determines the athlete's capacity to adapt to increasing training and competitive demands.

In this context, special attention should be paid to the continuity and consistency of training programs, the consideration of age-related characteristics, and the rational alternation of loads and recovery. The systematic development of

speed abilities not only enhances immediate performance indicators but also forms a reliable functional basis for long-term athletic development. Therefore, the purposeful and scientifically grounded development of speed should be regarded as a strategic task in the preparation of young handball players.

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