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PSYCHOLOGICAL AND NEUROPHYSIOLOGICAL ASPECTS OF BASKETBALL PLAYERS' QUICK AND ACCURATE DECISION-MAKING

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Abstract
This scientific article explores the psychological and neurophysiological aspects of the decision-making process of basketball players, focusing on the ability to make quick and accurate decisions. In high-level athletic performance, rapid decision-making is a key factor determining success. The article analyzes research and scientific theories that examine how basketball players apply their physical and cognitive abilities to make quick and accurate decisions. Neurophysiological processes and psychological factors, especially attention, memory, decision-making, stress management, and psychological preparation, are discussed in terms of how they influence game outcomes. Additionally, the article emphasizes the importance of considering neurophysiological and psychological aspects in the effective training of athletes.

Keywords: Basketball, speed, decision-making, neurophysiology, stress, psychology, sports psychology, stress management, cognitive connection.

Introduction

In sports that require rapid decision-making, such as basketball, an athlete's success hinges not only on physical preparation but also on psychological and neurophysiological readiness. This text examines the processes behind quick and accurate decision-making in basketball, focusing on the psychological and neurophysiological factors that shape a player's performance.

MAIN PART

Basketball players constantly face situations where they must make swift choices from a variety of possible actions, and they rely heavily on their experience and intuition in these high-pressure scenarios. Decision-making in this context is multifaceted, involving cognitive control and the ability to rapidly process information. A player must consider their own physical capabilities, the positioning of teammates, and the location of opponents. Quick and correct decisions can significantly alter the outcome of a game, especially in crucial moments like final-second shots.

The cognitive abilities that underpin this process include attentional focus, spatial memory, and controlled motor responses. The fundamental component in rapid decision-making is the

"search" mechanism, which guides the player to assess the opposing team's tactics and the state of the game before choosing how to act. When multiple options arise in a short period, the complexity of decision-making grows, demanding even greater cognitive flexibility.

From a neurophysiological standpoint, the prefrontal cortex (PFC) is particularly critical. Responsible for regulating decision-making, planning, voluntary actions, and behavioral control, the PFC shows heightened activity whenever basketball players make rapid decisions. Other brain regions, such as the basal ganglia and the limbic system, are also engaged, influencing the athlete's memory, emotional states, and motor outputs. The interplay among these systems allows a player to swiftly and precisely respond, evaluating both personal physical capabilities and the opponent's strategies.

Stress levels also affect decision-making capacity. In high-pressure sports like basketball, players frequently have to decide under stressful conditions. Positive or negative stress can influence brain function, and excessive stress may impair quick and accurate choices. When stress increases, the sympathetic nervous system becomes more active, which can initially heighten reaction speed but, if pushed too far, leads to errors in judgment and a decline in performance.

Psychological preparation aimed at boosting concentration, memory, and cognitive control is vitally important for effective decision-making in basketball. Players need to analyze situations in real time and plan their actions accordingly. Strong attentional focus fosters correct decisions by letting them monitor opponents' movements, keep track of teammates, and manage the game clock. Memory processes help them recall earlier phases of the contest and anticipate opponents' tendencies, simplifying future decision-making and allowing them to leverage their past experiences.

Cognitive control guides how an athlete processes information, chooses actions, and directs attention effectively. In basketball, rapid information processing is indispensable. The player continuously evaluates the opponent's strategy while coordinating with the team's own plans. Strengthening cognitive control helps make decisions more accurate and faster.

Improving these neurophysiological and psychological faculties involves specialized training exercises. Presenting players with simulations and realistic scenarios teaches them to make decisions in real time, guiding their focus while they analyze the opposing team's moves and select the most appropriate actions. Techniques for managing stress—such as breathing exercises, visualization, and meditation—can further enhance accuracy and help reduce mistakes linked to anxiety. By maintaining better control over both physical and mental states, players can optimize their performance during critical moments.

CONCLUSION

In basketball, decision-making speed and accuracy play a pivotal role in determining an athlete's success, influenced by both neurophysiological mechanisms and psychological factors. Understanding how the brain processes information and how cognitive control and stress levels affect on-court performance allows coaches and players to refine training routines. By integrating neurophysiological and psychological strategies, basketball players can enhance concentration, manage stress effectively, and adapt to the rapidly changing dynamics of the

game. Ultimately, this comprehensive approach benefits not only individual athletes but also the overall quality of team play.

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