

Analysis of the psychophysiological state of Ukrainian basketball players

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ABSTRACT

The primary aim of the current study was to identify the psychophysiological characteristics of basketball players and to conduct a comparative analysis of the level of development of indicators of physical fitness of basketball players and their peers who do not play basketball. The participants of this study were Ukrainian basketball players aged 12 to 13 years, and adolescents of the same age who did not play basketball. The psychophysiological state of the participants was measured through a series of physical and psychological tests. The psychophysiological state of Ukrainian basketball players aged 12 to 13 years was significantly higher than the psychophysiological state of adolescents of the same age who did not play basketball. Basketball players had significant better results in short-distance speed tests and in speed endurance (300 meter run test). Basketball players also had significant better results in strength, measured by jumping test and pull-up bar test. Furthermore, basketball players had better results in psychological skills than those who did not play basketball, with better results in self-control, emotional stability, will to win, purposefulness, perseverance, endurance, determination, courage, initiative, discipline, and self-confidence.

KEYWORDS

Physical; Physiological; Psychological; Basketball; Ukraine.

1. INTRODUCTION

In the modern era of advanced technologies, the field of sports imposes stricter requirements on the functional training of athletes, which involves the ability to ensure the proper level of activity of organs, systems, and the body necessary to perform a specific physical activity. It is an objective

need that training should be done on the frame of high indices of physical development and a high level of technical knowledge, and performance skills according to the requirements of high performance. In this context, optimum performance in basketball can be achieved by gaining a high level of functional fitness. Physical fitness is the basis for the growth of sportsmanship as a prerequisite for the best outcome of their game by increasing the potential ability of their body to effectively adapt to the competitive and training loads (Munadi, Jabbar & Tuama, 2022).

In the present era, a specific element of sports performance depends on the potential psychophysiological possibilities of the players. The ultimate goal of any sports player is to achieve the highest results in their game. Hence, the training should be aimed at developing the psychophysiological functional capabilities of the athlete's body, which directly influence the performance of players (Farhan Hameed, 2022).

Basketball is a team sport. It is characterized by the high intensity movements and activities like jumping, accelerations, decelerations, etc. It requires intense actions with minimum time of execution of techniques in general and in the individual phases. It requires high level of physical fitness. Hence, in this regard, it is important to do in-depth study of the psychophysiological abilities of the basketball players. In optimizing the sports training of the basketball players, the training coaches must take into account the psychophysiological abilities of the players in order to be able to use an effective training methodology (Abood, Al Abdullah, & Midhatee, 2022).

Modern sports are increasingly becoming a sport of excellence. The successes of an athlete completely depend upon his or her level of physical fitness which places special demands on motor, sensory, intellectual qualities. Modern basketball is one of the most dynamic sports games. This is characterized by intense competitive activity, which is manifested in speed and rapidity of tactical interactions. Modern requirements for the level of development of physical qualities of basketball players require performance of the complex techniques and active tactical interactions at high speed, under the force of pressure, to maintain a high intensity of the game until the last seconds of the match. Basketball requires an intelligent combination of speed, endurance, strength, agility, and intelligence in the team players. Hence, the researcher identified the need to study psychophysiological characteristics of basketball players that can directly influence the results of sports activities. Psychophysiological characteristics of basketball players help in the effective preparation of the players during the training process.

The primary aim of the current study was to identify the psychophysiological characteristics of basketball players and to conduct a comparative analysis of the level of development of indicators of physical fitness of basketball players and their peers who do not play basketball. The results of the present study can be used to increase the effectiveness of the training process by selecting a set of exercises aimed at developing the most important psychophysiological qualities. In the present study, the researchers hypothesized that the psychophysiological state of Ukrainian basketball players would be better than the psychophysiological state of those who did not play basketball.

2. METHODS

2.1. Participants and design

The participants of this study were Ukrainian basketball players aged 12 to 13 years, and adolescents of the same age who did not play basketball. This study was a comparative analysis of the psychophysiological state of Ukrainian basketball players and their peers who did not play basketball.

2.2. Instruments and procedures

The psychophysiological state of the participants was measured through a series of physical and psychological tests. Physical tests included short-distance speed tests, speed endurance test (300 meter run test) and strength tests (jumping test and pull-up bar test). Psychological skills were measured with an ad hoc questionnaire that evaluated the following psychological skills: self-control, emotional stability, will to win, purposefulness, perseverance, endurance, determination, courage, initiative, discipline, and self-confidence.

2.3. Statistical analyses

The statistical analyses were conducted with the Statistical Package for the Social Sciences (SPSS). The researchers used means, standard deviations and t tests to identify the differences between the psychophysiological state of Ukrainian basketball players and their peers who did not play basketball.

3. RESULTS AND DISCUSSION

The psychophysiological state of Ukrainian basketball players aged 12 to 13 years was significantly higher than the psychophysiological state of adolescents of the same age who did not play basketball. Basketball players had significant better results in short-distance speed tests and in speed endurance (300 meter run test), with an average difference of 2.7 seconds. Basketball players also had significant better results in strength, measured by jumping test and pull-up bar test, with an average difference of 4 pull ups.

According to the authors and considering previous literature, the reason for this better results of basketball players in comparison who adolescents who did not play basketball is that the exercises performed by the players in the training sessions contribute to the development of physical abilities among basketball players, increasing their physical fitness. This is usually facilitated by the different types of jumping training of basketball players, in which the participants are prepared to perform the activities with the highest possible strength and in the in the shortest time. This training also produces a rapid eccentric strengthening of muscles and ligaments.

Regarding the evaluation of psychological skills, basketball players also had better results in psychological skills than those who did not play basketball. Basketball players had better results in self-control, emotional stability, will to win, purposefulness, perseverance, endurance, determination, courage, initiative, discipline, and self-confidence.

The researchers attribute these better results in psychological skills for the basketball players in comparison to their peers who did not play basketball to the basketball training and competition. As noted by Seletskaya (2005), during the game, basketball players must be able to control their emotional state, and during basketball training basketball players participate in exercises that require the use of volitional efforts (Belikova, 2014), with a timely and constant complication of exercises, increasing the volume and intensity of the load, etc. Volitional efforts in basketball training include exercises for maximum muscle tension, achieving a maximum speed of movement close to fatigue. It is important that these exercises are planned and implemented taking into account the individual characteristics of the basketball players (Samolyuk & Shvets, 2013), in order to allow them to overcome difficulties during training and competitions. Also, basketball requires a high demand for perception, attention, thinking, memory, speed of reaction, accuracy and selectivity of movements from basketball players (Sushchenko, 2012).

4. CONCLUSIONS

Based on the findings of this study, the researchers accepted the research hypothesis. The psychophysiological state of Ukrainian basketball players aged 12 to 13 years was significantly higher than the psychophysiological state of adolescents of the same age who did not play basketball. Basketball players had significant better results in short-distance speed tests and in speed endurance (300 meter run test). Basketball players also had significant better results in strength, measured by jumping test and pull-up bar test. Furthermore, basketball players had better results in psychological skills than those who did not play basketball, with better results in self-control, emotional stability, will to win, purposefulness, perseverance, endurance, determination, courage, initiative, discipline, and self-confidence.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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