

Some anthropometric measurements and their relationship to the skill of spike volleyball

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Abstract

Sports events vary in the nature of their performance and the effort expended in them, so we find that each game determines its own requirements that distinguish it from other games, and among these requirements are anthropometric measurements, which in turn are determined with physical elements in determining the level of performance and reaching victory, and among these measurements is length. Body-Shoulder width chosen by researchers to determine its effect on the skill of striking in volleyball. The aim of the research developed by the researchers was to identify a relationship between anthropometric measurements and the skill of spike. The hypothesis of the research that the researchers developed was the existence of a statistically significant correlation between anthropometric measurements of spike. The researchers used the descriptive approach in a survey style on their sample of volleyball team players at the University of Karbala. The researchers concluded that there is a statistically significant correlation between anthropometric measurements and spike. The researchers reached the most important recommendations: paying attention to anthropometric measurements when training the skill of spike.

Keywords: Anthropometric spike and volleyball.

Introduction

The development taking place in all areas of life is the distinctive feature of our current era, which has made sports a prominent and important place in the lives of nations and peoples. The exerted effort made by the individual athlete during competitions requires high physical preparation in order to raise the functional capacity of the body's internal and external systems and to benefit fully during training. Directing the players to the right path. The motor system of volleyball players needs guidance and continuous training accompanied by tests and measurements to determine the extent of the players' progress.

This requires the skill of crushing in performance, high physical preparation, and the development of all elements of physical fitness, as well as some anthropometric

measurements such as body length and shoulder width.¹ Hence the importance of research in knowing the effect of anthropometric measurements on the level of performance of the skill of crushing in the game of volleyball among the players of the University of Karbala team. It also plays an important and significant role in obtaining points and deciding the outcome of the match.

Research problem

Sports events vary in the nature of their performance and the effort expended in them, so we find that each game determines its own requirements that distinguish it from other games, and among these requirements are anthropometric measurements, which in turn are determined with physical elements in determining the level of performance and reaching victory, and among these measurements is length. Body - shoulder width, which the researchers chose to determine its effect on the skill of spike in the game of volleyball. The research problem presented lies in the extent to which these measurements affect the skill of spike.

Research objectives

- Defining the relationship between anthropometric measurements and spike volleyball

Research hypotheses

- There is a statistically significant correlation between anthropometric measurements and the spike skill.

Research field

- The human field: Volleyball team at Karbala University.
- The temporal domain: The period from 12/25/2023 - until 3/15/2024 AD.
- Spatial field: Volleyball court at the College of Physical Education and Sports Sciences - University of Karbala.

Research methodology and field procedures

Research methodology

The method used in the research differs due to the nature and type of the study, so researchers used the descriptive method to suit the research problem at hand, as the descriptive method is known to aim at all the data to try to choose hypotheses to answer questions related to the current situation of the individuals in the research sample.²

Research sample

The research sample was chosen intentionally on the University of Karbala volleyball team, which consisted of (13) players. (3) players were excluded to conduct the exploratory experiment on them.

Devices and tools used in research

- Arab and foreign references and sources.
- Tests and measurement.
- Measuring tape.
- Volleyball court.
- Legal balls.
- Electronic stopwatch.
- Electronic calculator.

Field research procedures

The researchers distributed a questionnaire form for research and anthropometric measurements to experts in the field of volleyball - tests and measurement. In addition to the modest experience of the researchers and their reliance on some Arab and foreign sources, the test and measurements for the research at hand were determined:

1. Anthropometric measurements:

After collecting the forms agreed upon by specialists and experts that affect the skill of striking, they are (body length - shoulder width).

- **Body length:** Height was measured using a tape located on the wall, and the student was measured from the highest point of his skull to the floor .³
- **Shoulder width:** Shoulder width was measured by the researchers with a measuring tape placed from the beginning of the lateral crests of the protrusions of the two shoulder blades of the tested player from a standing position with the arms extended beside the player's body.

2. Measuring the spike skill:

- Purpose of the test; Assessing the ability, in volleyball hitting techniques.
- Items required; a regulation size volleyball court, six official volleyballs and colored tape to mark the court boundaries.
- The player being assessed executes a shot from position 4 prompting the coach to set up the ball at position 3 before the player demonstrates their skill.
- Under the performance conditions every player gets five chances, in section A and five chances, in zone B.
- Register:
 - 4 marks for each attempt in which the ball lands in the area (A)(B).
 - 3 marks for each attempt in which the ball lands on the colored area.
 - For each try where the ball lands in zones (A) or (B) you get 2 points.
 - No points are given if the ball goes out of bounds.
- Greatest degree:
 - Each region has 20 scores, so the total maximum score is 40.
 - Note: The settings must be good, otherwise try again.

Exploratory experience

The exploratory experiment was conducted on 12/25/2023 among the players for the purpose of identifying the difficulty of performing the tests, as well as identifying the obstacles that may accompany the choices.

Main experiment

The main experiment was conducted on 12/26/2023 over a period of three days, during which tests related to anthropometric and skill measurements were conducted to multiply the overwhelming majority of the research sample, and the results that the researchers obtained from the sample members were relied upon.

Results

- **Presenting, analyzing and discussing the results of the correlation between anthropometric measurements and the skill of spike volleyball**

Table 1. Shows the means, standard deviations and correlation coefficient

Variables	Units	Calculated correlation coefficient	Tabular correlation coefficient	Correlation type
Body length	Cm	0.873	0,387	Sig.
Shoulder width	Cm	0,891	0,369	Sig.
Spike	Points	0.85	6.33	Sig.

Table (1) shows that the correlation coefficient calculated for the body length test was (0.873), and the tabular correlation coefficient for body length was (0.387), where the type of correlation was significant. As for shoulder width, the calculated correlation coefficient was (0.891), and the tabular correlation coefficient was (0.369), where the type of correlation was significant, while the overwhelming multiplication test, where the correlation coefficient was (0.85), and the calculated one (6.33), where the type of correlation was significant.

Discussions

Through statistical tables, it has been shown that there is a direct relationship for both body length and shoulder width with spike, as the more the player's movement path is characterized by these requirements, the faster and more accurately he will be in performing a high level of the spike skill, and thus this skill is considered one of the offensive skills in the game that is... During which points are scored, it must be characterized by accuracy and speed through the player's possession of these physical capabilities and anthropometric measurements of his ability to perform the correct smash hit, which is close to ideal. Therefore, coaches are required to pay attention to the physical and skill aspect and follow a training curriculum that includes many diverse and different methods and programs that take into account individual differences. And the possibilities to raise the team to better levels and achieve the goals set by training.⁴

The appropriate response is influenced by previous information (which made them able to choose the appropriate position to respond to the opponent's attacks ((The more the player who performs the smash knows the movement of the prepared player, the more good or effective the smash will be)).⁵ There is an attacker who can penetrate the blocking wall in various ways. ((The shorter the time of motor response speed, the more able the player is to take the correct action at the appropriate time, especially the deception games carried out by the opponent)).⁶

It is considered a crushing blow to an opponent, so it requires a quick blocking wall in a short time to respond to successfully defending against an opponent's attack demands focus and readiness to confront them. It is essential to monitor the opponent during the game to position oneself defensively thereby decreasing the likelihood of their attack being successful.

Conclusions

1. There is a significant difference between body length and the striking skill of the individuals in the research sample.
2. There is a significant difference between shoulder width and the crushing skill performance of the individuals in the research sample.
3. There is a statistically significant correlation between anthropometric measurements and overwhelming multiplication

Recommendations

1. Emphasis on linking body measurements training with skill exercises for playing volleyball, in order to achieve greater benefit from training.
2. The necessity of conducting scientific research that studies other variables in the sample members to increase the benefit that is reflected at the level of the players.
3. Paying attention to anthropometric measurements when training the skill of crushing multiplication.

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