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Exploring leg explosive power: A contrast between volleyball and handball athletes of Narmada district

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Abstract

The purpose of the study is to find the explosive power among Volleyball and Handball players of Narmada district. The sample for the study consists of 20 Volleyball players and 20 Handball players of Narmada district between the age group of 18 and 20 years. To assess the explosive power, the standing broad jump test was conducted for the study. It is concluded that Volleyball players are having more explosive power compare to Handball players. It is recommended that conditioning training must be given to all Volleyball players and Handball players.

Keywords: Volleyball, handball, explosive power, conditioning, standing broad jump test, etc.

Introduction

Volleyball is a popular team sport played by two teams, each consisting of six players, separated by a net. The objective is to score points by sending the ball over the net into the opposing team's court in a way that it cannot be successfully returned. Players use their hands, wrists, or arms to strike the ball, and teamwork is essential to set up attacks and defend against the opponent's efforts. Volleyball is a fast-paced game that requires agility, quick reflexes, and effective communication among teammates. It's played in various formats, from casual beach volleyball to highly competitive indoor volleyball in both amateur and professional leagues worldwide.

Volleyball was invented in 1895 by William G. Morgan, a physical education instructor in Massachusetts, USA. He created the game as an alternative to basketball, emphasizing less physical contact and a lower risk of injury. The sport quickly spread and gained recognition. In 1964, volleyball was included in the Olympic Games, further solidifying its status as a global sport.

Game Basics

Volleyball is typically played by two teams, each with six players on the court at a time, although variations with different team sizes exist. The objective is to score points by sending the ball over the net into the opponent's court. Each team has three hits to get the ball over the net, and the rally continues until a point is scored or a fault is committed.

The Court

A standard volleyball court measures 9 meters by 18 meters (29.5 feet by 59 feet) and is divided into two equal halves by a net, which is set at a specific height (2.43 meters or 7 feet 11 5/8 inches for men and 2.24 meters or 7 feet 4 1/8 inches for women). Each team defends one side of the court and attempts to attack the other.

Scoring

Volleyball uses a rally scoring system, which means a point is scored on every play, regardless of which team served. A set is usually played to 25 points, but a team must win by at least two points. If the match reaches a fifth set, it is typically played to 15 points. In each set, the team that reaches the specified number of points first wins that set.

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Player Positions

Each team is made up of specialized player positions, including:

- **Outside Hitter:** Also known as the left-side hitter, they often play in the front row and are responsible for attacking and blocking.
- **Middle Blocker:** Positioned near the net, they specialize in blocking and quick attacks.
- **Opposite Hitter:** Usually the team's right-side attacker, they complement the outside hitter.
- **Setter:** The playmaker of the team who sets the ball for attackers.
- **Libero:** A defensive specialist responsible for receiving serves and digging attacks.
- **Defensive Specialist:** Similar to the libero but without certain restrictions. They focus on ball control.

Skills

Volleyball players require a diverse skill set, including

- **Serving:** Launching the ball into play from behind the baseline.
- **Passing:** Receiving the serve or an attack from the opponent and directing it accurately to the setter.
- **Setting:** Positioning the ball for an attacker to hit.
- **Attacking:** Spiking or hitting the ball over the net with power and precision.
- **Blocking:** Defending against the opponent's attacks by jumping to intercept the ball at the net.
- **Digging:** The art of preventing the ball from hitting the floor by diving or reaching to save it.
- **Blocking:** Deflecting the opponent's attacks by jumping to intercept the ball at the net.

Teamwork

Volleyball is a sport that thrives on teamwork, communication, and synchronization among players. Effective coordination is crucial to execute plays, cover the court, and thwart the opponent's efforts.

Variations

Besides the traditional indoor six-player format, there are variations of volleyball such as beach volleyball (usually played by teams of two) and sitting volleyball (for athletes with disabilities).

Each has its unique characteristics and strategies.

Handball is a fast-paced and dynamic team sport that combines elements of soccer, basketball, and hockey. Played by two teams of seven players each, handball is known for its high-scoring matches and requires a combination of skills such as running, passing, dribbling, and shooting. In this comprehensive overview, we will delve into the history, rules, positions, skills, and the overall essence of the sport.

Handball's origins can be traced back to ancient civilizations, but the modern version of the sport was developed in Northern Europe in the late 19th century. Germany, Denmark, and Sweden were among the early adopters of the game. The first men's handball world championship was held in 1938, while the women's world championship debuted in 1957. Handball has been an Olympic sport since the 1972 Munich Games.

Game Basics

Handball is played on a rectangular court with goals at either end. The objective is to score goals by throwing the ball into

the opponent's net while following a set of rules and regulations.

Each team consists of seven players, including a goalkeeper.

The Court

A standard handball court is 40 meters long and 20 meters wide (131.2 feet by 65.6 feet). It is divided into two halves, with a goal at each end. The goals are 2 meters (6.56 feet) high and 3 meters (9.84 feet) wide. The playing area is further divided into a shooting area, where only the goalkeeper is allowed, and the court area for field players.

Scoring

A goal in handball is scored when the entire ball crosses the goal line. Each goal counts as one point, and the team with the most points at the end of the game wins. Games are typically played in two halves of 30 minutes each, with a 10-minute halftime break.

Player Positions

Each player on a handball team has specific roles and responsibilities, including

- **Goalkeeper:** Defends the goal and tries to block the opponent's shots.
- **Backcourt Players:** Usually taller players responsible for scoring goals from outside the shooting area.
- **Wings:** Positioned on the sides of the court, they contribute to both attack and defense.
- **Pivot (Line Player):** Plays a central role in offense, creating space for teammates and assisting in scoring.

Skills

Handball players require a diverse skill set, including

- **Dribbling:** Controlled ball-handling while running.
- **Passing:** Accurate and quick ball distribution to teammates.
- **Shooting:** Accurate throwing techniques to score goals.
- **Defending:** Tackling, intercepting passes, and blocking shots.
- **Goalkeeping:** Quick reactions, shot-blocking, and directing the defense.

Rules and Fouls

Handball has rules and fouls that aim to maintain fair play and safety. Common fouls include pushing, tripping, and holding. Fouls result in free throws or penalties for the opposing team, depending on the severity of the violation.

Variations

Handball is played in various formats, including indoor handball (the most common version), beach handball (typically played in the sand with smaller teams), and wheelchair handball (adapted for athletes with disabilities). Each has its unique characteristics and strategies.

Handball is a thrilling and physically demanding team sport that showcases teamwork, speed, and skill. It requires players to be versatile and proficient in both offense and defense. Whether played at the amateur or professional level, handball offers an exciting and engaging experience for participants and spectators alike.

Chatterjee and colleagues conducted a study to compare the strength, agility, and dynamic balance of volleyball and basketball players. The research involved the random selection of 40 players, with 20 in each group, from the Tansen Athletic Club of Durgapur. To assess strength, agility,

and dynamic balance, the subjects underwent the vertical jump test (Sargent jump), SEMO agility test, and modified bass test. The participants' ages ranged from 15 to 17 years. The collected data underwent analysis using an independent "t" ratio to ascertain significant differences between volleyball and basketball players. The study's results indicated that there was no statistically significant difference in terms of strength, agility, and dynamic balance ($t = 0.136$, $p > 0.05$) between volleyball and basketball players.

Kalsi and co-researchers examined various motor abilities among male university-level volleyball and basketball players from Guru Nanak Dev University, Amritsar, and Lovely Professional University, Phagwara, Punjab. The primary goal of the study was to compare different motor abilities between volleyball and basketball players, specifically focusing on arm and leg strength. In this investigation, a total of 30 participants were included. Statistical analysis of the selected variables was performed using a "t-test." Descriptive statistics, including mean and standard deviation, were calculated for both groups and variables. The significance level was set at 0.05. The results of the individual "t-test" indicated that there was no significant difference in arm strength and leg strength between the volleyball and basketball players.

Methodology

"The study's sample comprises 20 Volleyball players and 20 Handball players hailing from the Narmada District, falling within the age range of 18 to 20 years. To evaluate explosive power, the study employed the standing broad jump test." Standing Broad Jump Test. Purpose
The aim of the present study was to measure the explosive power of the legs.

Equipment Required

A tape measure is used for measuring the distance of the jump, a non-slip floor is essential for take-off, and a cushioned landing area is the preferred choice. Additionally, commercial long jump landing mats are readily accessible. It is imperative to have a well-defined take-off line clearly marked for accuracy.

Procedure

The athlete positions themselves behind a marked line on the ground, maintaining a slightly spaced stance. They initiate a two-foot take-off and landing, employing a coordinated swing of the arms and flexion of the knees to generate forward propulsion. The objective is to execute the jump with maximum reach, landing on both feet without any backward imbalance. Each participant is granted three attempts.

Table 1: Comparison of Mean Values, SD, df, "t-value," and P-value among Volleyball and Handball Players on Standing Broad Jump

Subjects	n	Mean	SD	df	"t-value"	P-value
Handball players	20	2.0000	0.00000	38	-9.761	0.000
Volleyball players	20	2.7667	0.43018			

Results and Discussion

In the case of Handball players, the mean value registers at 2.0000 with a standard deviation (SD) value of 0.0000. For Volleyball players, the mean value is notably higher, standing at 2.7667, accompanied by an SD value of 0.43018. With 38 degrees of freedom, the calculated t-value is 9.761, yielding a p-value of 0.000. These findings unmistakably indicate a

significant disparity in the standing broad jump performance between Volleyball and Handball players.

Conclusion

The study concludes that Volleyball players exhibit significantly greater explosive power in comparison to Handball players. It is strongly recommended that conditioning training programs be implemented for both Volleyball and Handball players.

Recommendations

Further research endeavors could explore similar assessments among female players and participants from a variety of team sports and individual disciplines.

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