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Ramesh Bansod
Assistant Professor,
Department of Physical
Education, Subhedar Ramji
Ambedkar Sharirik Shikshan
Mahavidyalaya, Wardha,
Maharashtra, India

Evaluation of speed and agility among university players of different disciplines

Ramesh Bansod

Abstract

The aim of the present study was to compare the speed and agility of university players of different disciplines (football, handball and volleyball games). The study was conducted on 300 subjects with age ranging 18-25 for the comparison of selected physical fitness variables. The variables selected for the study were speed (50 Meter Dash) and agility (Semo Agility Test). One-way analysis of variance (ANOVA) was used to find out the significant difference among different disciplines. The Scheffe's post hoc test was used to find the significant difference in paired mean scores. It was concluded that there was significant difference between football, handball and volleyball players in speed and agility variables. The handball players have better speed and agility than football and volleyball players. The football and volleyball players must be given good physical conditioning training to enable them to improve the performance in their respective games.

Keywords: Speed, agility, disciplines

Introduction

Sports and games in modern times have taken a definite shape in comparison with the immature and unscientific plays of ancient times. Sports are essentially that aspect of human activity, which strengthens the integration of the body and the mind. Speed is highly essential in all the ball games, football and handball offensive and defensive player are to possess good speed so that though interchanges of positions are rare. It may be required of them if time demands. Agility is the physical ability that enables a person to rapidly change body position and direction in a precise manner. Agility is the ability to change direction quickly and effectively, while moving as early as possible at full speed (Bosco and Williams, 1983). Semo Agility is another physical fitness component, often presented by the terms 'Maneuverability', 'mobility', etcetera. It is the ability to change the direction of the body and its parts rapidly. Semo Agility is a combination of several athletic traits such as strength, reaction time, speed of movement, power and co-ordination. The football is a sport requiring high levels of physical fitness, It is one of those are games which demands not only speed but agility, strength, power and endurance. football players need a combination of technical, tactical and physical skills in order to succeed. Improving aerobic capacity and overall fitness boosts performance on the football field. Handball necessarily need it since often interchange of positions occur irrespective of the progress of the game and the whole team is to be able to use this component equally in volley ball speed of action is more accounted then speed of movement of a player. Volleyball players move with great speed over a limited space. It is one of the most vigorous games and requires a great variety of athletic traits. In the game of Volley Ball all the movements are involved like passing, smashing, changing the direction quickly, and sudden stop, jumping for rebound, feinting, maneuvering the opponent while going for offensive move and guarding the opponents in the defensive. In this article the researcher compare the speed and agility of university players among different disciplines.

Purpose of the Study: The purpose of this study was to compare the speed and agility of university players of different disciplines.

Hypothesis: There is no significant difference in the speed and agility among university players of different disciplines (Football, Handball and Volleyball players).

Correspondence
Ramesh Bansod
Assistant Professor,
Department of Physical
Education, Subhedar Ramji
Ambedkar Sharirik Shikshan
Mahavidyalaya, Wardha,
Maharashtra, India

Methods

Selection of Subjects: To achieve the purpose of the study, one hundred male players were selected at random from each category (football, handball and volleyball games), total of 300 players in Maharashtra State, India, who had their credit in participating interuniversity tournaments during the academic year 2014-15 & 2015-16. The subjects were selected from the 1. RTM Nagpur University, Nagpur, 2. Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, 3. Shivaji University, Kolhapur, 4. Swami Ramanand Teerth Marathwada University, Nanded 5. Savitribai Phule Pune University, Pune of Maharashtra.

Selection of the Variables and criterion measures:

Following variables are selected for the purpose of the study:

1. Speed - 50 meters dash (In Seconds)
2. Agility (Semo Agility) (In Seconds)

Statistical Technique: One-way Analysis of Variance (ANOVA) was used to find the significant difference among the three groups. The Scheffe’s Post Hoc test was used to find the significant difference in the paired means.

Results

Table 1 presents the mean scores, standard deviation and F Ratios of each continuous variable by the three game players.

Table 1: Analysis of Variance for the Data on Speed (Scores in Secs.) Component of Physical Fitness among Football, Handball and Volleyball Players

Test	Players of Different Disciplines			Source of Variance	Sum of Squares	df	Mean Squares	F Ratio
	Football	Handball	Volleyball					
Speed	Mean Scores	7.375	7.130	7.202	Between Groups	3.188	2	1.594
	Standard Deviation	0.066	0.040	0.063	Within Groups	0.983	297	0.003
Agility	Mean Scores	11.146	11.100	11.161	Between Groups	0.198	2	0.099
	Standard Deviation	0.057	0.024	0.032	Within Groups	0.478	297	0.002

* Significant at 0.05 level of confidence, Table ‘F Ratio’ = 3.03

The table also shows that the obtained ‘F’ ratio of 481.68 and 61.38 for Speed and Agility are greater than the table value of 3.03 for df ‘2 and 297’ required for significance at 0.05 level of confidence. The results of the study indicated that there is significant difference in the Speed and Agility

variables among university players of different disciplines (football, handball and volleyball games). To determine the significant difference in the Speed and Agility among the three paired means, the ‘Scheffe’s test was applied as Post hoc analysis and the results are presented in Table 2.

Table 2: Scheffe’s Post Hoc Test for Significant Difference in the Speed Mean Scores (in Secs.) among Football, Handball and Volleyball Players of Different Disciplines

	Football	Handball	Volleyball	Mean Difference	C.i
Speed	7.375	7.130	×	0.245*	0.019
	×	7.130	7.202	0.072*	
Agility	11.146	11.100	×	0.046*	0.016
	×	11.100	11.161	0.061*	
	11.146	×	11.161	0.015*	

*Significant at 0.05 level of confidence.

Table 2 shows significant paired mean differences on Speed between football & handball players; handball & volleyball players and football & volleyball players and the values are 0.245, 0.072 and 0.173 respectively which are greater than the critical difference value 0.019 at 0.05 level of confidence. It concludes that there is a significant difference exists in speed between football & handball players; handball & volleyball players and football & volleyball players. It may be concluded from the results that significant difference exists on speed between football & handball players; handball & volleyball players and football & volleyball players. The handball players have better speed than volleyball and football players.

The table also shows significant paired mean differences on Agility between football & handball players; handball & volleyball players and football & volleyball players and the

values are 0.046, 0.061 and 0.015 respectively which are greater than the critical difference value 0.016 at 0.05 level of confidence. It concludes that there is a significant difference exists in Agility between football & handball players; handball & volleyball players and football & volleyball players. It may be concluded from the results that significant difference exists on Agility between football & handball players; handball & volleyball players and football & volleyball players. The handball players have greater agility than football and volleyball players.

Discussion of Results

The 50 meter dash was used to determine the speed, the handball players completed the 50 meter dash with the mean time of 7.130 seconds while the volleyball players completed their mean time of 7.202 seconds and football

players completed their mean time of 7.375 seconds. This shows a significant difference in their speed test; the handball players are more speed than the volleyball and football players. Speed and agility is basically the result of applying force to mass and both running speed and speed of movement are dependent on muscular strength. Hence, if a person possesses good running speed he is likely to have higher speed of movement and vice versa. The game demands that the player should be able to change places quickly so as to contribute their best.

The semo agility test was used to measure the agility, the handball players completed the semo agility run with the mean time of 11.100 seconds, while the football players completed their semo agility run in the mean time of 11.146 seconds and volleyball players completed their semo agility run in the mean time of 11.161 seconds. This shows a significant difference in their agility test, handball players are more agile than the football and volleyball players, this is supported by Brouha (2003) that agility is a crucial factor of an athlete in taking a fast, precise and accurate decision. Agility is defined as the ability of an individual to rapidly change the body position and direction in a smooth, quick and precise manner. Agility is advantageous as it improves serving, passing, attacking, and blocking.

Conclusion

There was significant difference in the Speed component of Physical Fitness variable among university players of different disciplines (football, handball and volleyball) ($F=481.68$; $P<0.05$). Further significant paired mean differences exists on speed between football & handball players (MD=0.245); handball & volleyball players (MD=0.072) and football & volleyball players (0.173). The handball players have better speed than volleyball and football players. There was significant difference in the Agility component of Physical Fitness variable among university players of different disciplines (football, handball and volleyball) ($F=61.38$; $P<0.05$). Further significant paired mean differences exists on Agility between football & handball players (MD=0.245); handball & volleyball players (MD=0.072) and football & volleyball players (MD=0.173). The Handball players have more agile than football and volleyball players.

It is concluded that the three ball game sports have different physical fitness compositions, the distinguished functions that can be adopted to classify the best game players in to their sports may be those correlate with agility and speed and the identified physical fitness tests which can be best discriminate the successful players in the three game sports are 30 meter dash and semi agility. The volleyball and football players must be given good physical conditioning training to enable them to improve the performance in their respective games.

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