

Comparison of Preferred Foot and Non-preferred Foot Soccer Technique Level of Junior Players

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Abstract – Soccer is the most popular sport in the world. Techniques play an important role in the development of young soccer players. Performing the techniques in a perfect manner with both feet is essential for a good player. The purpose of the present study was to compare the preferred and non-preferred foot technical level of junior soccer players. Fifty male soccer players of the 13–18 age groups from Sree Ayyankali Memorial Govt. Model Residential Sports School in Vellayani, Thiruvananthapuram, and Kerala, India were randomly selected as subjects for the study. The variables selected for the study were Goal Kicking for Accuracy, Ground Passing for Accuracy and Air Passing for Accuracy. The tests selected for this study were the three H. A. Van Rossum and D. Wijbenga tests. The subjects were tested as per the procedure of the test in order to collect the data on the selected variables. Descriptive statistics such as mean and standard deviation (SD) were calculated in order to get a basic idea of the data distribution. A t-test revealed that the mean difference between preferred and non-preferred foot was significant ($P < 0.01$) for all the selected variables. It was concluded that the preferred foot scores of the subjects were significantly higher than the non-preferred foot scores on all the selected soccer techniques. It is recommended that a systematic training program may be chalked out for the improvement of both the preferred and non-preferred foot techniques for soccer players of different age and achievement level.

Keywords: Soccer, Techniques, Preferred Foot, Non-Preferred Foot

1. INTRODUCTION

Soccer is the most popular sports in the world with more than 240 million players worldwide. Men, women, children and adults with different levels of performance play the game regularly. Performance level of the players depends upon a variety of factors including their level of skill, their physical and physiological characteristics, their degree of motivation, and tactics applied by them against their opponents. A high level of all these factors leads them to better players.

Techniques, or sport-specific technical skills, are a central component in the development of young soccer players. Technique refers to the relationship and harmony a player demonstrates with the ball and describes the performance of a solitary action in isolation from the game, e.g. pass or dribbling (Bate, 1996). Soccer involves more number of techniques as the players can use most part of their body to control and play the ball. The techniques have to be

performed under pressure in different ways according to the situation and at times under the condition of fatigue. It needs greater balance, co-ordination, quickness, agility, speed, power etc to execute the techniques in a perfect way. High level of technique to perform the skill is essential to become a good player. The players have to attack and defend as per the situation demands. Therefore, it is important that all players achieve a high level of performance in the basic skills of kicking, passing, trapping, dribbling, tackling and heading.

For a successful soccer performance the mastery over performing the technique with both the limb is important. As the game involves speedy execution of the technique in the game situation, players need to have proficiency in executing the technique with both the limbs. A timely pass or a kick at the goal often decide the result of the game and therefore the techniques are to be practiced and mastered with

both limbs in different conditions and game situations.

While playing, most soccer players tend to have a preferred leg with which they would receive, control and kick the ball (Kramer and Balsor, 1990; Rahnama, Lees and Bambaecichi, 2005). A preferred foot is the leg used to manipulate an object and/or initiate or lead an action (Sadeghi et al., 2001) such as the lead foot in kicking. Using one foot more than the other leads to functional asymmetry and differences in motor ability especially strength and coordination between the feet. It is one of the factors responsible for mechanical over load and compensatory mechanisms affecting movement technique and posture. The unilateral demand tends to result in different characteristics of flexibility and strength of the preferred foot in relation to the non-preferred foot. Furthermore, it has also been reported that the preferential use of one leg over the other in soccer players leads to muscle imbalance (Soderman et al, 2001) and muscle imbalance then increases the potential for injury (Niemuth et al., 2005; Wang and Cochrane, 2001). It has been shown that the most successful players are those, who are able to play with both feet. The purpose of this study was to compare selected soccer techniques with the preferred and the non-preferred foot in junior players.

2. METHOD AND MATERIALS

2.1 Subjects

Subjects for the study were 50 male soccer players selected randomly who were studying in classes VIII to XII in Sri Ayyankali Memorial Govt. Model Residential Sports School Vellayani, Thiruvananthapuram, Kerala in India. Their age ranged from 13 to 18 years.

2.2 Tools

The necessary markings are made on the Football field with marking powder, shades and ropes. Sufficient number of Footballs are used to assess the technique level of the subjects. Scoring is done on the individual scoring sheet for each player.

2.3 Experimental Setup

2.3.1 Goal kicking for Accuracy

The test constructed by J. H. A Van Rossum and published by SAI, was adapted to measure kicking accuracy with instep of the foot. The goal was divided in to three equal parts with the help of a rope tied vertically: right, middle and left part. The stationary ball was kicked five times with the preferred foot in to the predetermined part of the goal from out side the penalty area (distance to goal: 16.5m). Out of five attempts, two were kicked in to the right part of the goal, two in to the left part of the goal and one in to the middle part of the goal. The ball must cross the goal line in the air with desired speed and force in kick. Each kick was valued out of 3 points and a

maximum of 15 points were awarded for the five kicks with the preferred foot depending up on the accuracy and speed of ball entering the goal. The same procedure and scoring system was followed for five kicks with the non-preferred foot for awarding a maximum of 15 points

2.3.2 Ground passing for Accuracy

As per the test conducted by Van Rossum, a 5 meter long starting line was drawn and two cones (1.5 meter apart) were placed 30 meters for 15-18 years of age and 20 meters for 13-14 years of age away from the starting line. The subject was asked to pass the stationary ball with his preferred foot from on or behind the starting line. The ball had to be passed between the two cones. The ball must not rise up from the ground. A maximum of 15 points were awarded to the subjects for five passes on the basis of the accuracy and speed of ball crossing the two cones. The same procedure and scoring system was followed for five kicks with the non-preferred foot for awarding a maximum of 15 points.

2.3.3 Air passing for Accuracy

The test which was designed by Crew (1968) was used for measuring Air passing for Accuracy. One circle was marked with a radius of 4 feet on the ground with the center of the target 30 meters for 15-18 years of age and 20 meters for 13-14 years of age from the restraining line. The subjects were asked to kick the stationary ball through the air with the preferred foot so that it landed on the target. One point was awarded for each kick if the ball initially contacts the target area. Zero point was awarded if the ball did not land on the target area. Each subject was given five chances. A maximum of 5 points were awarded to the subjects out of five kicks. The same procedure and scoring system was followed for five kicks with the non-preferred foot for awarding a maximum of 5 points.

2.4 Data Acquisition

All the subjects assembled in the field. They were briefed on the objectives and requirements of the test. They were asked to warm up prior to taking the test and were given a chance to practice the test to become familiar with it. All subjects were tested on the same days. To avoid fatigue, the test items were administered to them one after another. Individuals were given sufficient time gap in between the test, to facilitate appropriate data collection.

2.5 Statistical Analysis

Descriptive statistics such as mean and standard deviation (SD) were found out in order to get basic idea of the data distribution. Paired t-test was done for finding whether there is any statistically significant mean difference between the preferred foot to non-preferred foot scores in the selected soccer techniques. The level of significance was chosen at

1% or 5%. All statistical analysis was carried out with the help of statistical package SPSS for WINDOWS.

Figure 1 showing Goal kicking for Accuracy



Figure 2 showing Ground passing for Accuracy



Figure 3 Air passing for Accuracy



3. RESULTS

Table 1: Paired t-test of mean difference between the Preferred foot and Non-preferred foot scores for Goal kicking for Accuracy

	Mean	SD	Mean Difference	t -value	P-value (2-tailed)
Preferred foot	4.8000	2.00000			
			1.16000	3.974	0.000**
Non-preferred foot	3.6400	1.30556			

** : Significant at 0.01 level (df 49)

Table 1 shows that the mean difference between preferred and non-preferred foot scores for Goal kicking for Accuracy is 1.16000 with t-value of 3.974 which is significant at 0.01 level ($P < 0.01$). Hence, the preferred foot score of the subjects are significantly higher than the non-preferred foot.

Table 2: Paired t-test of mean difference between the preferred foot and Non-preferred foot Scores for Ground Passing for Accuracy

	Mean	SD	Mean Difference	t -value	P-value (2-tailed)
Preferred foot	5.6400	1.49503			
			1.2000	4.503	0.000**
Non-preferred foot	4.4400	1.54074			

** : Significant at 0.01 level (df 49)

Table 2 shows that the mean difference between preferred and non-preferred foot scores for Ground passing for Accuracy is 1.2000 with t-value of 4.503 which is significant at 0.01 level ($P < 0.01$). Hence, the preferred foot scores of the subjects are significantly higher than the non-preferred foot for Ground passing for Accuracy.

Table 3: Paired t-test of mean difference between the Preferred foot and Non-Preferred foot scores for Air passing for Accuracy

	Mean	SD	Mean Difference	t -value	P-value (2-tailed)
Preferred foot	1.3800	0.75295			
			0.3800	3.336	0.002**
Non-preferred foot	1.0000	0.72843			

** : Significant at 0.01 level (df 49)

Table 3 shows that the mean difference between preferred and non-preferred foot scores for Air passing for Accuracy is 0.3800 with t-value of 3.336 which is significant at 0.01 level ($P < 0.01$). Hence, the preferred foot score of the subjects are significantly higher than the non-preferred foot for Air passing for Accuracy.

Figure 4: The mean difference between preferred and non-preferred foot scores for Goal kicking for Accuracy

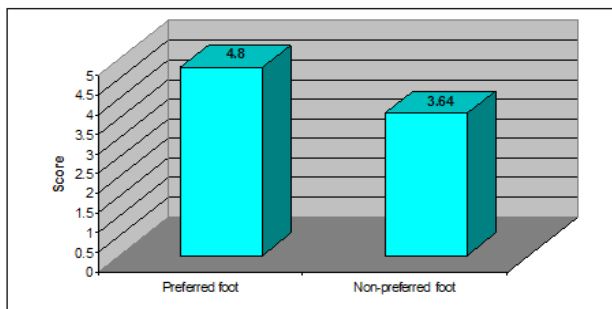


Figure 5: The mean difference between preferred and non-preferred foot scores for Ground passing for Accuracy

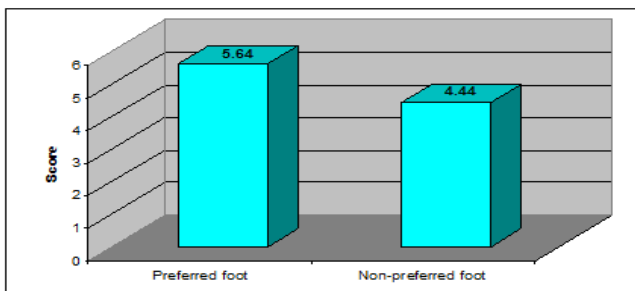
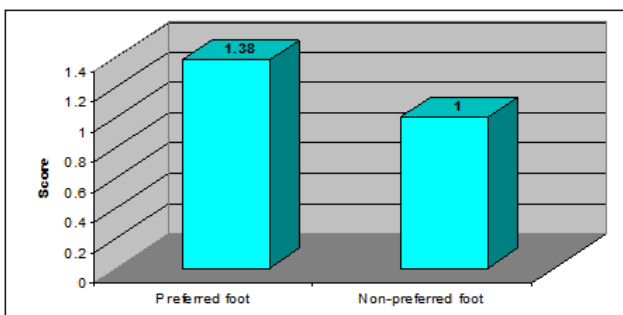


Figure 6: The mean difference between preferred and non-preferred foot scores for Air passing for Accuracy



4. DISCUSSION

Performing soccer techniques with perfection require a high level of coordination among the various body parts. The muscles of the foot, calf, thigh, hip, trunk, neck, head and hands have to move with coordination for performing each soccer technique. A high level of strength, speed, and agility is also required for performing the techniques with perfection under various circumstances depending upon the demand of the situation.

When Goal kicking for Accuracy was analyzed, it was found that the preferred foot scores were significantly higher than the non-preferred foot scores with a mean difference of 1.16. In Ground passing for Accuracy analysis, it was found that the preferred foot scores were significantly higher than the non-preferred foot scores with a mean difference of 1.20. In case of Air

passing for Accuracy, it was found that the preferred foot scores were significantly higher than the non-preferred foot scores with a mean difference of 0.38.

Previous studies have reported that the preferred leg of soccer players, when compared with the non-preferred leg produces significantly higher ball speed in maximal instep kicking (Dorge, et al, 2002) and three-steps drive kicking (McLean and Tumilty, 1993). Dorge et al, (2002) and Nunome, (2006) found out that preferred foot produced considerably greater angular velocities of the shank and thigh on impact with the ball than non-preferred foot. It was shown that preferred foot when compared with non-preferred foot produce considerably greater knee muscle moment and strength of knee flexor muscles (Rahnama et al, 2005); and has a notably larger muscle size (Kearns et al, 2001).

For Goal kicking with accuracy, speed is very much important, since this gives the goalkeeper less time to react, thus improving one's chances of scoring. Players often get only fraction of seconds in front of the goal within which they have to kick the ball in to the goal, for which perfection of technique with both feet is very much essential. It has been shown that the most successful goal scorers are those players who are able to score with both feet (Starosta, 1988). Starosta (1988) concluded that the development of left - right symmetry in shooting should form part of the preparation of soccer players.

Short-passing ability is considered as one of the most relevant skills for soccer players (Ali 1988; Olsen 1988; Miles et al. 1993; Sajadi and Rahnama 2007). Sajadi and Rahnama (2007) showed that, among the 2006 FIFA World Cup goals scored by direct shots, 47% were the result of short passes. For a team to maintain possession of the ball and to give a timely pass to a teammate who is in a goal scoring position, the players should be able to pass the ball with accuracy and speed with both feet.

Air passing with accuracy is another important soccer technique that contributes for successful soccer performance. The players should be able to give air passes to teammates with both the feet in order to create fast attacking play and maintaining possession of ball with high balls.

When the preferred and non-preferred limbs are trained equally, it might lead to functional symmetry in motor ability especially flexibility, strength and coordination between the limbs, which in turn might maintain good movement technique and posture. Furthermore, it has also been reported that the equal use of both the preferred and non-preferred foot in soccer players leads to improvement in muscle balance and decrease the potential for injury.

5. CONCLUSIONS

Within the limitations of the study and based on the results, the following conclusions may be drawn.

- Goal kicking for Accuracy with preferred foot is significantly higher than non-preferred foot with a mean difference of 1.16.
- Ground passing for Accuracy with preferred foot is significantly higher than non-preferred foot with a mean difference of 1.20.
- Air passing for Accuracy with preferred foot is significantly higher than the non-preferred foot scores with a mean difference of 0.38.

6. RECOMMENDATIONS

- Systematic training programme can be chalked out for the improvement of preferred foot and non-preferred foot soccer techniques for players of different age and achievement level.
- Importance can be given to train both preferred and non-preferred limbs while preparing training programme for technical and physical development of athletes of various sports and games.

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