Seasonal Performance Of Speed, Agility And Power Of Two Districts Women Soccer Players

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Abstract
This study evaluates the seasonal performance of motor fitness between two districts' women soccer players as in that particular time soccer players generally stay in the top position of their performance. A group of 25 women soccer players were selected from each district as subject, those who have minimum five years of training in soccer by renowned coaches. Those 50 subjects were chosen respectively from Dakshin Dinajpur district (age 17.32±0.94 years; height 154.08±7.46 cm and weight 40.44±3.34 kg.) and Uttar Dinajpur district (age 17.44±1.00 years; height 151.12±9.51 cm and weight 40.24±4.33 kg.) West Bengal, India. A comparative study was conducted on women soccer players to assess their motor fitness (speed, agility and power). Motor fitness was assessed by the test of speed – 50m. linear sprint, test of power – standing broad jump and test of agility – 4X10 yds. Shuttle runs. Results reveal that Uttar Dinajpur district maintained better fitness in agility, power and speed than Dakshin Dinajpur district women soccer players. The findings also indicate a significance difference (0.05 level) between two district women soccer players in motor fitness components.

Keyword: Speed, Agility, Power, Women soccer players.

1. INTRODUCTION
One of the most relevant and recent research topics in the field of sports training is seasonal performance of the athletes specially for soccer players. Soccer players can enhance their game performance using technical, tactical, and physical fitness. Football is not only a very skilful sport but also a competitive sport. During game all players need to move their body vertically, laterally and forward-backward. Power as per requirement, speed and agility are very essential motor components for women soccer players, which helps them to play well during their competition. During the seasonal time, female soccer players shown a respectable degree of physical performance (Stepinski, et al., 2020). Within a set period of time (90 minutes), average ball possession is two minutes approximately per-player (Kubo, 2010). Rest of the time, the players walk, stride, jog or run at minimum speed, rapid sprint and turn (Mohr, et al., 2008; Gabbett & Mulvey, 2008). For this reason, speed, power and agility are very important motor components for women soccer players. The purpose of this study was to examine the performance of two districts' female soccer players' motor fitness levels (speed, power, and agility).

2. METHODOLOGY
A purposive study of district level women soccer players from Dakshin Dinajpur and Uttar Dinajpur district of West Bengal was conducted. It was performed during seasonal time when subjects belonged to competition phase, to study the selected motor fitness components (Speed, Agility and Power) and personal data (Age, Height and Weight).

2.1. Subjects
In the present study total 50 women soccer players were selected. 25 subjects were collected from each district respectively (age 17.32±0.94 years; height 154.08±7.46 cm and weight 40.44±3.34 kg.) and (age 17.44±1.00 years; height 151.12±9.51 cm and weight 40.24±4.33 kg.) of West Bengal state between the age group of 15 to 20 years. All participants who came from two districts of West Bengal, at least five years of playing experience with football training and also played to their district football team. All the selected players received a clear purpose and a description of the study, including the benefits of the participants and the coaches. All investigative responders gave their assent and approval simultaneously. All the subjects had good health and mentally prepared as well.

2.2. Procedure
The testing was conducted in the competition phase when all subjects were participating in the various football tournaments. At first the researchers had collected the age in a proper way by using genuine proofs (Birth certificate).
Height was measured by the stadiometer with an accuracy of ±0.1cm while standing. The weight was assessed by the weighing machine with an accuracy ±0.1kg. Speed, Agility and power also were measured.

50m dash (Speed)

**Purpose:** Estimating acceleration and speed is the purpose of this test.

**Equipment required:** A measuring tape, a clearly delineated track, a timer, cone markers, and a flat, open surface that is approximately least 70 meters in length.

**Procedure:** A single, 50-meter maximum sprint is conducted as part of the test, and the timing is recorded. A proper warm-up should be performed, with a few trial accelerations and starts. Started with one foot in front of the other while standing still (hands cannot contact the ground). Front foot must be placed back from the starting line. The starter had delivered the commands “set” and “go” once the subject was ready and still. The participant should be urged not to slow down before reaching the finish line and given tips from the tester on how to maximise speed (such as staying low and pushing hard with the arms and legs).

**Scoring:** The score is the amount of time between the beginning signal and the moment the student crosses the finish line, measured to the finest tenth of a second.

Standing Broad Jump (Leg power)

**Purpose:** To determine how powerfully the legs can explode.

**Equipment:** It is best to have measuring tape, a take-off floor that is non-slip, and a soft-landing zone. (There were also commercial long jump landing mats available.)

**Procedure:** The athletes stand slightly behind a line that has been drawn on the ground. To move forward, a two-foot take-off and landing technique was performed, along with arm swings and knee bending. The subject executed a long jump and landed on both feet without going backward, each have three attempts.

**Scoring:** The distance in between takes off line and the closest point of touch during the landing was recorded (back of the heels). The best of the three efforts also recorded the longest distance leaped.

Shuttle run (4 X 10 yds.) test (Agility)

**Purpose:** This is a test of agility, which have been significant in many sports.

**Equipment:** Tape measure, a stopwatch, two wooden blocks (2” X 2” X 4”) and marking powder.

**Procedure:** On the floor, two parallel lines are drawn and spaced 10 yards apart for the test. One of the lines is positioned behind the two wooden blocks. The subjects are instructed to begin from the other line's back. Ready for the signal? When the timer says “Go,” the subject races towards the blocks and picks up one, then runs back to the starting line, picks up another, and carries it as quickly as possible back across the starting line before the timer stops the watch.

**Scoring:** Two trials are allowed to each subject with some rest in between. The best time is recorded of the two trials as score.

2.3 Statistical analysis

To assess the motor fitness in their seasonal phase of two district women soccer players, Mean and SD (Standard Deviation) were used. To evaluate the significance difference between the mean of both group, t-test was computed.

3. RESULTS

It appeared from table 1 that the mean and SD values of age (yrs.) of Dakshin Dinajpur and Uttar Dinajpur district level women soccer players were 17.32±0.94 and 17.44±1.00 respectively. Similarly, the mean and SD values of height (cm) of Dakshin Dinajpur and Uttar Dinajpur district level women soccer players were 154.08±7.46 and 151.12±9.51 respectively.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>DDWSP Mean ± SD</th>
<th>UDWSP Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>25</td>
<td>17.32±0.94</td>
<td>17.44±1.00</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>25</td>
<td>154.08±7.46</td>
<td>151.12±9.51</td>
</tr>
<tr>
<td>Weight (kg.)</td>
<td>25</td>
<td>40.44±3.34</td>
<td>40.24±4.33</td>
</tr>
</tbody>
</table>

*DDWSP= Dakshin Dinajpur Women Soccer Players,  **UDWSP= Uttar Dinajpur Women Soccer Players
Likewise, the mean and SD values of weight (kg) of Dakshin Dinajpur and Uttar Dinajpur district level women soccer players were 40.44±3.44 and 40.24±4.33 respectively.

Figure 1: Age, height, and weight statistics for female soccer players from both districts are presented graphically

Table 2: Descriptive statistics of speed variables of two districts women soccer players.

<table>
<thead>
<tr>
<th></th>
<th>DDWSP*</th>
<th>UDWSP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>9.79</td>
<td>9.70</td>
</tr>
<tr>
<td>SD</td>
<td>0.45</td>
<td>0.61</td>
</tr>
<tr>
<td>df</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>0.63</td>
<td>NS</td>
</tr>
</tbody>
</table>

*DDWSP= Dakshin Dinajpur Women Soccer Players, **UDWSP= Uttar Dinajpur Women Soccer Players, NS- Non-significance at 0.05 level of confidence, \( t_{0.05}^{48}=2.02 \)

Table 2 shows the statistical data of speed of both district women soccer players. The mean ± SD value of Dakshin Dinajpur women soccer players were 9.79 ± 0.45 and Uttar Dinajpur women soccer players were 9.70 ± 0.61. No significant differences of mean value between two districts women soccer players were found by the calculating t-test. The t-value was 0.63 which was less than the table value (\( t_{0.05}^{48}=2.02 \)) when degree of freedom 48.

Figure 2: Graphical presentation of speed variables of both district women soccer players.

Table 3: Descriptive statistics of leg power of two districts women soccer players.

<table>
<thead>
<tr>
<th></th>
<th>DDWSP*</th>
<th>UDWSP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>1.91</td>
<td>1.94</td>
</tr>
<tr>
<td>SD</td>
<td>0.21</td>
<td>0.28</td>
</tr>
<tr>
<td>df</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>0.33</td>
<td>NS</td>
</tr>
</tbody>
</table>

*DDWSP= Dakshin Dinajpur Women Soccer Players, **UDWSP= Uttar Dinajpur Women Soccer Players, NS- Non-significance at 0.05 level of confidence, \( t_{0.05}^{48}=2.02 \)

Above table (Table 3) depicts the calculating data of leg power of both districts women soccer players which measured by standing broad jump. The mean ± SD value of Dakshin Dinajpur women soccer players were 1.91 ± 0.21 and Uttar Dinajpur women soccer players were 1.94 ± 0.28. No significant differences of mean value between two districts women soccer players were found by the calculating t-test. The t-value was 0.33 which was less than the table value (\( t_{0.05}^{48}=2.02 \)) when df 48.

Figure 3: Graphical presentation of leg power of both district women soccer players.
Table 4: Descriptive statistics of Agility of two districts women soccer players.

<table>
<thead>
<tr>
<th></th>
<th>DDWSP</th>
<th>UDWSP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN</td>
<td>10.33</td>
<td>10.27</td>
</tr>
<tr>
<td>SD</td>
<td>0.56</td>
<td>0.81</td>
</tr>
<tr>
<td>df</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>0.31</td>
<td></td>
</tr>
</tbody>
</table>

*DDWSP= Dakshin Dinajpur Women Soccer Players, **UDWSP= Uttar Dinajpur Women Soccer Players, NS- Non-significance at 0.05 level of confidence. $t_{0.05}^{48}=2.02$

Table 4 shows statistical data of agility components of women’s soccer players from both districts. The mean ± SD value of Dakshin Dinajpur women soccer players were 10.33 ± 0.56 and Uttar Dinajpur women soccer players were 10.27 ± 0.81. No significant differences of mean value between two districts women soccer players were found by calculating t-test. The t-value was 0.31 which was less than the table value ($t_{0.05}^{48}=2.02^\text{NS}$) when df 48.

4. DISCUSSION

During the seasonal phase, every athlete achieves their highest fitness for the betterment of their performance. In early pre-season and pre-season, every soccer player prepared to develop their essential fitness level to perform well in competition. For this, components of motor fitness (speed, power and agility) played very important role in competition. In this present study we have collected the data during seasonal time to know the fitness status of both group and we were also analysed the mean difference of both district women soccer players.

The original results of this study indicate the main three components of motor fitness (speed, power and agility) between Dakshin Dinajpur and Uttar Dinajpur districts women soccer players are not significantly different. Sharma R. (2015) reported that no significant differences were found in agility and power of women football players at different stages of their participation. This outcome is consistent with the current study. These outcomes are consistent with the research done by Das & Bidua (2019) to compare the agility variable between female football and female cricket player.

The capacity to change direction quickly is refers to agility and it influences by the strength, flexibility, muscular coordination and balance (Mujika, et al.,2009). Illinios Agility Test, 10m X 5 Shuttle running 15m Agility test, Zig-zag test and 505 agility test are needed to implemented in women football players to measure their agility (Hoare & Warr,2000; Mujika, et al.,2009; Kubo, 2010 Vescovi & McGuigan, 2008). Mujika, et al., 2009 reported that no significant differences were found in speed (sprint-15m) and agility (15m) between junior and senior female football players. Speed ability of women soccer players could be measured for a wide range of distances (50m, 10m, 25m, 20m and 20-30yd) ((Tsuda, 2010; McCurdy, et al., 2010; Stolen, et al., 2005; Polman, et al., 2004; Vescovi & McGuigan, 2008).

The results of speed and agility variables in this study has not supported by the result of Singh S. (2017). He actually measured the selected two motor fitness components (i.e., agility and speed) between inter-university and inter-college male football players and he was found significant difference amongst inter-university and inter-college male football players in speed and agility variables. Simultaneously, Titora and Bhisht (2019) observed in speed and agility variables were significant difference between female hockey players and football players.

Furthermore, in the study by Yadav (2016) reported in agility and leg explosive strength variables between rural and urban football players. The outcomes of this research were not conformity with the study conducted by Vinu (2019) to compare the speed ability between handball players of girl’s government school and private school. He was found significant difference between two group girls handball players.

5. CONCLUSION

We examined the selected motor fitness (speed, power and agility) in seasonal time of women soccer players of two districts. Finding results revealed no significance difference in speed, leg power and agility variables between two districts.
women soccer players. But after analysing the data it was clarified that Uttar Dinajpur districts women soccer player are slightly better in speed, leg power and agility than Dakshin Dinajpur women soccer players.

6. REFERENCES