



ISSN: 2456-0057  
IJPNPE 2017; 2(2): 326-329  
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www.journalofsports.com  
Received: 27-05-2017  
Accepted: 28-06-2017

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## Effect on skills of women's soccer players before and during menstruation

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### Abstract

The present study was intended to find the effect on skills of women's soccer players before and during menstruation. The aim of the study was to find whether menstruation has effects on various skills. The sample consisted of 20 subjects who were girls from the football match practice at Lakshmi Bai National Institute of Physical Education, Gwalior, Madhya Pradesh. Random sampling technique was employed in order to select the subjects. The age group of the subjects were 17-26 years with the mean of 21.40. The test items selected were as follows i.e. 30 meter running with ball, kicking accuracy and juggling. The present findings towards pre and post effects are quite through provoking and noteworthy. The statistical technique descriptive statistics "t test" were used in order to find out the difference. The results of the study shown that there is a significant difference between the selected variables and performance.

**Keywords:** skills, soccer, menstruation, kicking, accuracy and juggling

### Introduction

Exercise physiology is an integral aspect of physical education today and has a unique opportunity of potentially contributing towards the positive- healthier life style in every individual. As, exercise physiology is the study of the acute responses and chronic adaptations to a wide-range of physical exercise conditions. It studies the functional changes that occur in the human body when exposed to physical activity.

As according to Stølen and Tomas soccer is the most popular sport in the world and is performed by men and women, children and adults with different levels of expertise. Soccer performance depends upon a myriad of factors such as technical/biomechanical, tactical, mental and physiological areas. One of the reasons that soccer is so popular worldwide is that players may not need to have an extraordinary capacity within any of these performance areas, but possess a reasonable level within all areas. However, there are trends towards more systematic training and selection influencing the anthropometric profiles of players who compete at the highest level. As with other activities, soccer is not a science, but science may help improve performance. Efforts to improve soccer performance often focus on technique and tactics at the expense of physical fitness.

Within this endurance context, numerous explosive bursts of activity are required, including jumping, kicking, tackling, turning, sprinting, changing pace, and sustaining forceful contractions to maintain balance and control of the ball against defensive pressure.

It is important as in any sport to study the physiological characteristics of female athletes. Not only do females have a smaller body size and lower strength and power levels compared to men, they also differ in other ways.

Females in general have a lower maximum aerobic power capacity than men (65-75% of male aerobic power) due to lower hemoglobin levels and a greater amount of adipose tissue (fat). They also play at an exercise intensity of around 70% of VO<sub>2</sub> Max during matches. Heart rate patterns are similar between both male and females during match play with the latter recording values of 89-91% of maximal heart rate during two thirds of the game. However, the lower intensity levels generally associated with the female game are due to a lesser physical capacity. It has been suggested that the anaerobic system is better developed in women footballers than their aerobic system.

Sports anemia is unfortunately a regular occurrence in endurance sports. Women who are

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physically active are likely to be more at risk of iron deficiency. Those who suffer from heavy periods can lose enough iron to cause problems in transporting oxygen to the muscles resulting in tiredness both on and off the pitch. Regular monitoring as well as a quality diet will help prevent this from occurring.

**Objectives of the study**

- To check whether the menstruation affects on the various skill.
- To check the level of skills before menstruation.
- To check the level of skills during menstruation.

**Methodology**

**Selection of subjects**

For the purpose of the study, 20 girl’s students were randomly selected from football match practice group of Lakshmbai National University of Physical Education. The age of the subjects selected for the study ranged between 17 to 26 years. The subjects were requested to participate in the testing procedure whole heartedly and with utmost sincerity in the present study.

**Selection of Variables**

On the basis of review of literature, expert’s opinion, facilities & instrument availability and scholars own understanding of the problem various physiological and physical variables were selected.

- 30 meter running with ball
- Kicking accuracy
- juggling

**Experimental Design**

Pre-test and post-test was adopted for this study as all subjects were randomly selected.

**Criterion measures and administration of test**

- 30 meter running with ball will be measured in timing and later on will be converted into point as prescribed by SAI norms.
- Kicking accuracy will be measured in number of counts and later on will be converted into points as prescribed by SAI norms.
- Juggling will be measured in number of counts and later on will be converted into points as prescribed by SAI norms.

**30 Meter Running with Ball**

- **Equipment:** A stopwatch, 6 footballs, marking powder and measuring tape.
- **Purpose:** To assess the speed and football control while running, of potential football players.
- **Test Administration:** Two straight lines, 30 meter apart, were marked on the field. The players were instructed to stand behind a marked line without touching the line, with a football placed on the line. On the signal Ready? Go!, the timer starts the stopwatch and the player starts running with the ball as fast as possible to reach the 30 meter finish line, by pushing the ball with leg control and by making a minimum of four touches with the ball at each touch including the first touch. Time was measured from the interval of starting ‘GO’ until both ball and player reach to the finish line. Each subject was given two

attempts at an interval of 30 seconds and the best performance timing among the two attempts was scored with the help of SAI prescribed scores.

**Kicking Accuracy**

- **Equipment:** A football goal post, inflated footballs, marking powder, a tape and two ropes.
- **Purpose:** To assess the kicking efficiency of potential football players.
- **Test Administration:** The goal post was divided into three equal parts by fixing two ropes. A football was placed at the penalty spot marked (11 meters distance from goal line). The player was given ten attempts 4 to kick the ball in left part, 4 to right part and 2 to the middle part of the goal in the following sequence-first two kicks into the right part followed by one kick in the middle part of the goal to be followed by 2 kicks to the left part, and repeating the same pattern for the remaining five kicks. The ball was required to cross the goal line in the air to have the desired speed and strength in the kick.
- **Scoring:** The number of correct kicks into the designated parts of the goal in the 10 attempts was scored with the help of SAI prescribed norms.

**Juggling**

- **Equipment:** Three footballs.
- **Purpose:** To assess the balancing ability, agility, reaction ability and sense of touch of the ball.
- **Test Administration:** The subject was instructed to keep the ball in the air by juggling continuously and was told that she may use any part of the body except hands while juggling (foot, thigh, chest, and head). For starting the juggling, the subject was allowed to throw the ball in the air or to bounce the ball on the floor and start juggling till the subject was able to juggle the ball without dropping it on the ground.
- **Scoring:** The numbers of touches made by the subject continuously for better performance two attempts were allowed to each subject. The numbers of touches were then converted into points with the help of scoring norms prescribed by SAI.

**Statistical Technique**

In order to examine the hypothesis and compare the performance before and during the menstruation of women soccer players’ dependent t-test was employed at .05 level of significance.

**Results**

**Table 1:** Descriptive statistics of Girls Football players on 30 meter running with ball.

Variable	Pre Mean	Post Mean	Mean Difference	‘t’ Value
30 meter running with ball	2.2	1.8	0.4	1.904

\*Significance t (19)0.05 = 1.729  
Cal t. 05 = 1.904

It is evident from Tab.1 that obtained t-value (1.904) is greater than tabulated t.05 thus indicating that there was a significant difference among girls football players before and during (2<sup>nd</sup> day) menstruation in 30 meter running with ball.

**Table 2:** Descriptive statistics of Girls Football players on kicking accuracy

Variable	Pre Mean	Post Mean	Mean Difference	't' Value
Kicking accuracy	2.35	1.95	0.4	1.187

\*Significance  $t(19)_{0.05} = 1.729$   
 Cal  $t_{.05} = 1.187$

It is evident from Tab.2 that obtained t-value (1.187) is less than tabulated t.05 thus indicating that there was a significant

difference among girls football players before and during (2<sup>nd</sup> day) menstruation in Kicking accuracy.

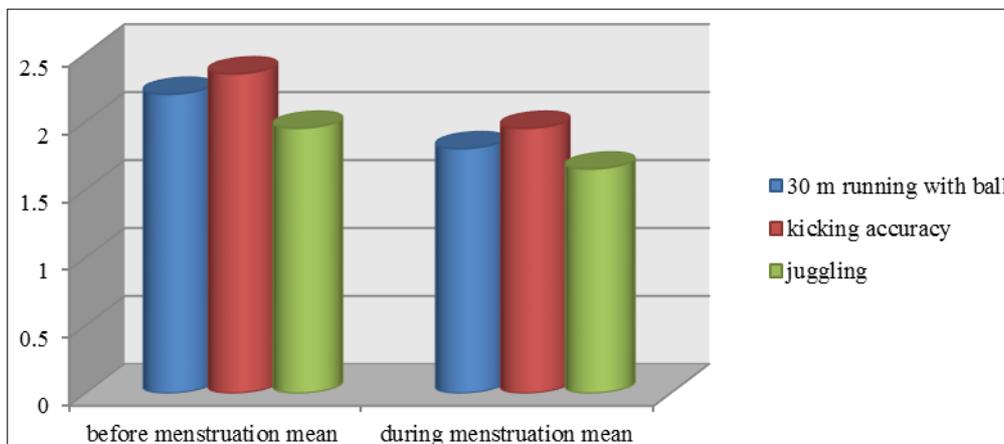
**Table 3:** Descriptive statistics of Girls Football players on Juggling.

Variable	Pre Mean	Post Mean	Mean Difference	't' Value
Juggling	1.95	1.65	0.3	1.146

\*Significance  $t(19)_{0.05} = 1.729$   
 Cal  $t_{.05} = 1.146$

It is evident from Tab.3 that obtained t-value (1.146) is less than tabulated t.05 thus indicating that there was a significant difference among girls football players before and during (2<sup>nd</sup> day) menstruation in Juggling.

Comparison of mean results in before menstruation and during menstruation of 30 meter running with ball, kicking accuracy and juggling in the graph



**Fig 1**

The obtained value of  $T = 1.90, 1.187, 1.146$  is statistically significant at 0.05 level of confidence which was set for the study.

**Discussion of Findings**

The analysis of data clearly reveals that there were significant differences in 30 meter running with the ball between before and during menstruation period of the subjects and the analysis of data also clearly reveals that there was significant difference in kicking accuracy as well as juggling between before and during menstruation period of the subjects.

It is evident from Tab.1.that there was a significant difference in the 30 meter running with the ball. It was shown through the help of pretest (before 1 week of menstruation period) and posttest (during 2nd day of menstruation) of the subjects that during their menstruation the performance of 30 meter running with the ball is better. The effects of changes have been brought in the variables after applying the SAI soccer skill test.

Therefore, the hypothesis stated earlier that they will be affecting the skills of girls' soccer player before and during menstruation. Hence, the hypothesis is accepted.

It is evident from Tab.2.and Tab.3.that there were significant difference in the kicking accuracy as well as juggling between before and during menstruation of the subjects. It was found that during their menstruation period the performance of kicking accuracy and juggling were decreased in comparison to their performance of before menstruation. The reason for

having significant effect on the variables was shown by SAI soccer skills test.

Therefore, the hypothesis stated earlier that there will be significant effect on the skills of women soccer players before and during menstruation. Hence, the hypothesis is accepted.

**Conclusion**

The result of the study seems to permit the following conclusions:

1. Significant difference was noted in 30 meter running with the ball between before and during their menstruation period.
2. Significant difference was noted in kicking accuracy at before and during menstruation.
3. Significant difference was noted in juggling performance between before and during menstruation period.

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