



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2018; 3(1): 1007-1009

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www.theyogicjournal.com

Received: 21-11-2017

Accepted: 25-12-2017

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## Diurnal variation on the performance on coordinative abilities (orientation ability, balance ability) of inter-university level male soccer players

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### Abstract

The purpose of this study was to assess the “Diurnal variation on the performance on coordinative abilities (Orientation ability & Balance ability) of soccer players”. For achieving the purpose of the study, data was collected on total 30 male soccer players from Punjabi University Patiala. The age of all players range between 18 to 25 years. To check Orientation ability of recruited subjects, Numbered Medicine ball run test and for balance ability Long Nose balance test was used. The subjects were tested two times (one time in morning between 7.00 AM to 9.00 AM and one time in evening between 5.00 PM to 7.00 PM). To compare Orientation ability & Balance ability between morning and evening time soccer Inter-University level male players mean, standard deviation and paired t-test were employed with the help of statistical package of SPSS. To test the hypothesis the significance level was set at 0.05 percent. The result showed that there was no significant difference exists between mean of Soccer playing ability of soccer players at different time of day (Morning and Evening) Inter-University male players.

**Keywords:** Diurnal variation, orientation ability, balance ability

### Introduction

Football games may take place at various times throughout the day whilst training may be held in the morning or afternoon. Despite its popularity as a sport, few scientific studies have focused on the circadian variation in soccer players’ performance. For instance, some investigators, who are interested in soccer performance, reported that aerobic (Chtourou *et al.* 2012)<sup>[4]</sup> anaerobic performances (Chtourou *et al.* 2012, Hamouda *et al.* 2012)<sup>[4, 5]</sup> and repeated sprint ability (Chtourou *et al.* 2012)<sup>[4]</sup> fluctuate with time of day. Indeed peak and mean power during maximal cycling test (Chtourou *et al.* 2012, Hamouda *et al.* 2012, Aloui *et al.* 2012)<sup>[4, 5, 2]</sup> maximal voluntary contraction (Aloui *et al.* 2012)<sup>[2]</sup> Flexibility (Reilly *et al.* 2007) hand-grip strength (Reilly *et al.* 2007) total work during the repeated sprint ability test (Chtourou *et al.* 2012)<sup>[4]</sup> total distance and maximal aerobic velocity during the Yo-Yo test (Chtourou *et al.* 2012)<sup>[4]</sup> were significantly higher in the evening than in the morning. Most of studies showed that peak soccer performances have been found to occur in the early evening corresponding to the peak of the body temperature rhythm. Furthermore worst performance has been found in the morning (Aloui *et al.* 2012, Reilly *et al.* 2007, Bernard *et al.* 1998, Melhim *et al.* 1993)<sup>[2, 8, 3, 7]</sup>. Circadian rhythm in exercise performance for soccer players with morning lows and evening peaks are common findings in many laboratory tests performed on cycle ergo-meter (Chtourou *et al.* 2010, 2012, Hamouda *et al.* 2012, Aloui *et al.* 2012)<sup>[4, 5, 2]</sup>. However each test is measured in athletes, it is important that the test include the activity pattern of the specific sport. Therefore, testing soccer should be performed on field and including some soccer skills, as opposed to a cycle ergo-meter to improve the specificity in the activity patterns in the football. Sport science support workers can, therefore, use field tests to evaluate specific aspects of soccer performance, which may provide a better indication of the ability to perform in a soccer match than laboratory-based evaluations. There are a wide range of skills which form the foundation of soccer performance. Other skills are important in the game but have received much less attention. The actual motor tasks of passing, controlling, dribbling, starting, stopping, changing direction and shooting the ball are all important skills in soccer but have

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received little detailed analysis. To date, a little attention has been paid to circadian and diurnal rhythms in skill measures, particularly those specifically related to a particular soccer game.

Diurnal variation was also described in some football-specific tests, including dribbling time and chip test performance, being more accurate in the evening (Reilly *et al.*, 2004) [8]. Reilly *et al.* (2007) [8] indicated that adult football players perform at an optimum between 16:00 and 20:00 h not only for football-specific skills but also for some physical performances. Reilly *et al.* (2004, 2007) [8] investigated the diurnal variation of skill measures only in adult subjects. In this context, various chrono biological studies suggest that the temporal order of children differs from that of adults (Huguet *et al.*, 1995) [6].

To our knowledge, there is no study available in soccer has been paid to diurnal variation in skill measures, particularly those specifically related to a particular game in boys. Consequently, the aim of the present study was to assess the effects of time-of-day in some specific skills performance during field testing in boy's footballer.

**Procedure and Methodology**

The present research was entitled as “Diurnal variation on the performance on coordinative abilities (Orientation ability & Balance ability) of soccer players”. For achieving the purpose of the study, data was collected on total 30 male soccer players from Punjabi University Patiala. The age of all players range between 18 to 25 years. To check Orientation ability of recruited subjects, Numbered Medicine ball run test and for balance ability Long Nose balance test was used. The subjects were tested two times (one time in morning between 7.00 AM to 9.00 AM and one time in evening between 5.00 PM to 7.00 PM). After the collection of relevant data, it was processed and analyzed with descriptive statistics. To compare Orientation ability & Balance ability between morning and evening time soccer Inter-University level male players mean, standard deviation and paired t-test were employed with the help of statistical package of SPSS. To test the hypothesis the significance level was set at 0.05 percent.

**Result and Finding**

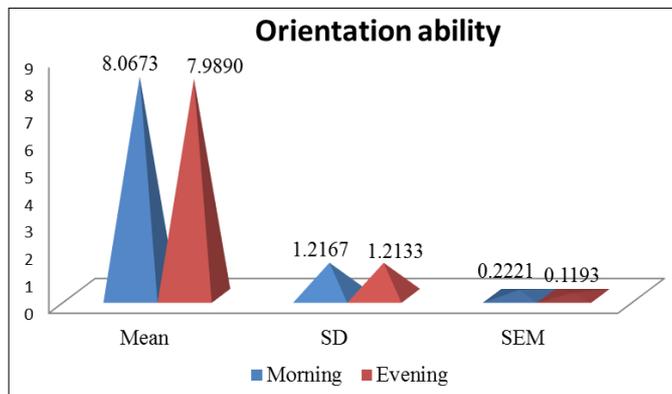
**Table I:** Significant difference in Orientation ability at different time of day

Group	Mean	SD	SEM	N	T ratio
Morning	8.0673	1.2167	0.2221	30	0.4004
Evening	7.9890	1.2133	0.1193	30	

\*t'0.05 (29) =2.05

It is evident from the table of- I that there was no significant difference exists between mean of Orientation ability of soccer players at different time of day (Morning and Evening), since the calculated 't' value 0.40 which was found to be less than tabulated 't' value 2.05.

Orientation ability mean in the Evening was less (7.98 seconds) in comparison to mean of Orientation ability in the Morning (8.06).



**Fig 1:** Mean of Orientation Ability of Soccer Players at Different Time of Day

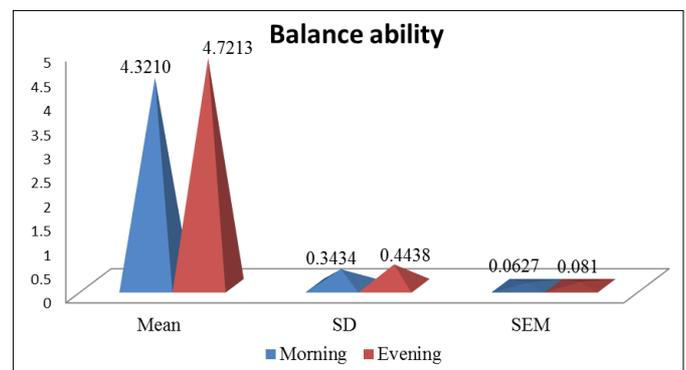
**Table II:** Significant difference in Balance ability at different time of day

Group	Mean	SD	SEM	N	T ratio
Morning	4.3210	0.3434	0.0627	30	6.2137
Evening	4.7213	0.4438	0.0810	30	

\*t'0.05 (29) =2.05

It is evident from the table of- II that there was a significant difference exists between mean of Balance ability of soccer players at different time of day (Morning and Evening), since the calculated 't' value 6.21 which was found to be higher than tabulated 't' value 2.05.

Balance ability mean in the Evening was higher (4.72 seconds) in comparison to mean of Balance ability in the Morning (4.32).



**Fig 2:** Mean of Balance Ability of Soccer Players at Different Time of Day

**Discussion**

The overall findings with regard to the performance of selected coordinative ability (Orientation Ability) showed the same trends and exhibited insignificant difference between different times of day (Garbi *et al.* (2013), but the findings with regard to the performance of Balance Ability exhibited significant difference between different times of day. It may be due to the same type of training at the both time of the day (Morning and evening). They were fully adapt and acclimatized because of long exposure to the different time of day (Morning and evening). so the result was not significant. (Garbi *et al.* (2013) “Time of day effect on soccer-specific field test in Tunisian boy player” supported the present study.

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