International Journal of Multidisciplinary Research and Modern Education (IJMRME)
Impact Factor: 6.725, ISSN (Online): 2454 - 6119
(www.rdmodernresearch.org) Volume 3, Issue 1, 2017

EFFECTS OF DIURNAL VARIATION ON SELECTED MOTOR FITNESS VARIABLES AMONG NATIONAL LEVEL MALE FOOTBALL PLAYERS OF CHANDIGARH

Dr. Thingnam Nandalal Singh*, Vijay Bhatt & Bhupinder Singh*****

* Associate Professor, Department of Physical Education, Panjab University, Chandigarh

** Research Scholar, Department of Physical Education, Panjab University, Chandigarh

*** PET, Jawahar Navodaya Vidyalaya, Longowal, Punjab

Cite This Article: Dr. Thingnam Nandalal Singh, Vijay Bhatt & Bhupinder Singh, "Effects of Diurnal Variation on Selected Motor Fitness Variables Among National Level Male Football Players of Chandigarh", International Journal of Multidisciplinary Research and Modern Education, Volume 3, Issue 1, Page Number 437-440, 2017.

Abstract:

The main purpose of the study was to compare the effects of diurnal variation on selected motor fitness variables (power, speed, agility, muscular endurance and cardiovascular endurance) among national level male football players of Chandigarh. The data was collected purposively from thirty (N=30) national male soccer players. The age of the subjects ranged between 21 to 28 years. In order to find out the effect of diurnal variations on selected motor fitness variables 't' test was employed with respect to each of the selected motor fitness variables. The level of significance was set at 0.05 level of confidence. Statistical calculation on gathered data showed that there was significant difference found on all selected motor fitness variables. Evening time exhibited significantly better than morning time on the variable of power, speed agility, muscular endurance and cardiovascular endurance.

Key Words: Diurnal, Motor Fitness, National Level & Football Players

Introduction:

In the modern highly scientific, sophisticated and technologically developed society, sport has assumed multi-dimensional significance and it is better understood today than ever before sport has acquired an immense popularity and in view of its scientific organization, it has become a worldwide phenomenon. Out of the aforesaid factors, the biological phenomenon is the foremost which fluctuates periodically and is quite prone to the diurnal variation which may be interpreted as the circadian rhythms or biological clock or daily rhythms.

Variation in the daily rhythm of the functional capacity of different systems which are synchronized to a 24 hour day, observe two peculiar aspects. One of them is the rime dependent alteration in the levels of physiological process, expressed as circadian range or circadian amplitude. Athletic performance that occurs several hours before or after the circadian peak 'window' will be potentially subjected to less than optimal performance. The athlete may have no control over athletic events, which are scheduled relatively early or late in the day to accommodate scheduling limits or prime time television demands. This type of scheduling many impairs performance by forcing the athlete to perform at a time several hours before or after peak circadian performance time *(Walker et al., 1983).* The natural environment is a fundamental factor in the development of living being and it influences the normal function of the body. Similarly, the environmental temperature is an important factor in which training and competition takes place. The human efficiency and working capacity mainly depends upon the thermal environment of his surroundings. When a person is suddenly exposed from cold to hot climate, or vice-versa, he is not only affected physically but also physiologically. Similarly, when an athlete is exposed to different climatic conditions during his participation, it will have considerable effect on his performance depending on the severity of the climate. Hence it is very important to consider environmental aspect of competition in training and also its effects on various physiological responses *(Fox and Mathews, 1976).* Football is an excellent all round team sport, which is highly competitive and has its basis in high degree of physical fitness neuro-muscular co-ordination and skill. The variation in temperature due to seasonal changes may disturb. The daily rhythm, which is a major source of variability in performance, thus training of the athletic performance seems to be an important factor which needs careful investigation. Some research finding indicates that the daily rhythmically oscillations occurs in several physiological and behavioral functions that contribute to athletic performance. These functions include resting level of sensory motor, psychomotor and perceptional variables. Research also point out the daily rhythm city in components of athletics performance can be modulated by work load, physiological stresses, motivation arousal level. "Morning Types/Evening Types", differences lighting, sleep disturbances, par lunch dip phenomena etc. Football has become a spectacular, popular and morale boosting game in the world. Now-a- days, it has got the prodigious competitive value with influence the performance and gives a great deal of enjoyment and satisfaction. The game of football needs a

high level of technical and tactical fitness. We all know that football is game of masses. It's a game in which all the motor components (muscular strength, muscular endurance, agility, speed, power, balance, reaction time, cardio-vascular endurance, flexibility) are required.

Objective of the Study:

The main objective of the study was to compare the effects of diurnal variation on selected motor fitness variables (power, speed, agility, muscular endurance and cardiovascular endurance) among national level male football players of Chandigarh.

Method and Procedure:

The study was conducted on national level male football players of Chandigarh. Thirty (N=30) soccer players were selected purposively as subjects. All players were the member of the Soccer practice group. The age of the subjects ranged between 21 to 28 years. The following motor fitness variables i.e., power (standing broad jump), speed (30 yard dash), agility (Illinois agility test), cardiovascular endurance (Cooper's 12 min run-walk test) and muscular endurance (sit ups) were selected. The subjects were tested two times (one time in morning between 7:00am to 9:00am and one time in evening between 5:00 pm to 7:00 pm) in the following way. In order to find out the effect of diurnal variations on selected motor fitness variables, 't' test was employed with respect to each of the selected motor fitness variables. For testing hypothesis, the level of significance chosen was .05.

Result and Discussion:

The comparison of power, speed, agility, muscular endurance and cardiovascular endurance between morning session and evening session of national level football players of Chandigarh is presented in table 1-5.

Table 1: Comparison of Mean Scores on Power between Morning and Evening Session

Variable	Group	N	Mean	SD	MD	SEDM	't'
Power	Morning	30	2.06	.18	.10	.043	2.215*
	Evening	30	2.16	.14			

** Significant at .05 level & 't'$_{.05}$(58) =2.00*

It is depicted from the Table 1 that the calculated 't' value in case of morning and evening was found to be statistically significance as the value obtained was 2.215 whereas, the tabulated value was 2.00 with 58 degrees of freedom at .05 level of significance. The mean value of morning was 2.06 with standard deviation of 0.18 where as mean value of evening was recorded 2.16 with standard deviation of 0.14.

Table 2: Comparison of Mean Scores on Speed between Morning and Evening Session

Variable	Group	N	Mean	SD	MD	SEDM	't'
Speed	Morning	30	4.48	.23	.17	.056	3.009*
	Evening	30	4.31	.19			

** Significant at .05 level & 't'$_{.05}$(58) =2.00*

Table 2 explains that the mean value of morning was 4.48 with standard deviation of 0.23 whereas mean value of evening was recorded 4.31 with standard deviation of 0.19. The obtained 't' value was 3.009. Results showed significant mean differences between morning and evening with regard to speed as the obtained 't' value of 3.009 was found to be statistically significant at .05 level.

Table 3: Comparison of Mean Scores on Agility between Morning and Evening Session

Variable	Group	N	Mean	SD	MD	SEDM	't'
Agility	Morning	30	17.98	1.24	.68	.322	2.109*
	Evening	30	17.30	1.26			

** Significant at .05 level & 't'$_{.05}$(58) =2.00*

It is depicted from the Table 3 that the calculated 't' value in case of morning and evening was found to be statistically significance as the value obtained was 2.109 whereas, the tabulated value was 2.00 with 58 degrees of freedom at .05 level of significance. The mean value of morning was 17.98 with standard deviation of 1.24 where as mean value of evening was recorded 17.30 with standard deviation of 1.26.

Table 4: Comparison of Mean Scores on Muscular Endurance between Morning and Evening Session

Variable	Group	N	Mean	SD	MD	SEDM	't'
Muscular Endurance	Morning	30	37.80	9.80	6.06	2.41	2.51*
	Evening	30	43.86	8.87			

** Significant at .05 level & 't'$_{.05}$(58) =2.00*

Table 4 explains that the mean value of morning was 37.80 with standard deviation of 9.80 whereas mean value of evening was recorded 43.86 with standard deviation of 8.87. The obtained 't' value was 2.51. Results showed significant mean difference between morning and evening with regard to muscular endurance as the obtained 't' value of 2.51 was found to be statistically significant at .05 level.

Table 5: Comparison of Mean Scores on Cardiovascular Endurance between Morning and Evening Session

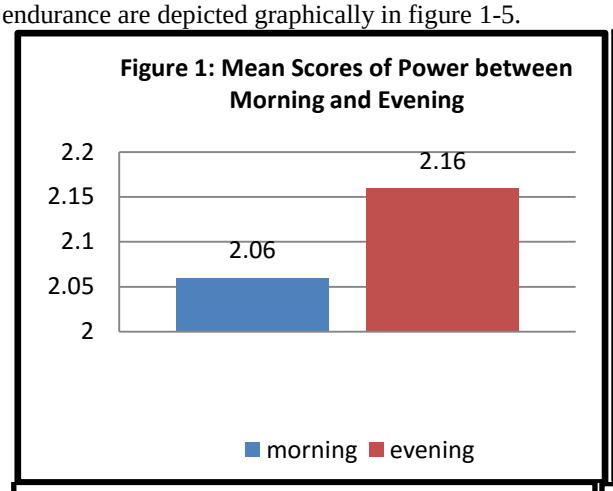
Variable	Group	N	Mean	SD	MD	SEDM	't'
Cardiovascular	Morning	30	2313.33	285.25	181.67	77.10	2.356*

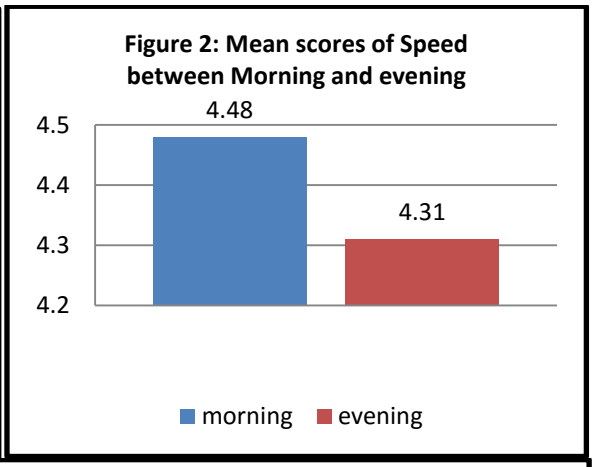
Endurance	Evening	30	2495.00	311.38			

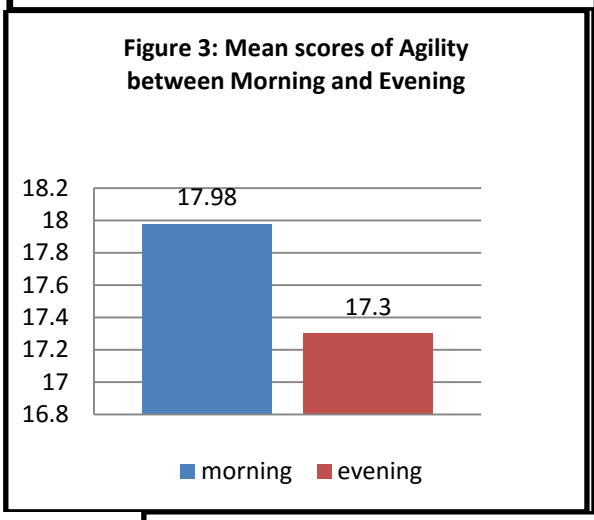
** Significant at .05 level & 't'$_{.05}$(58) = 2.00*

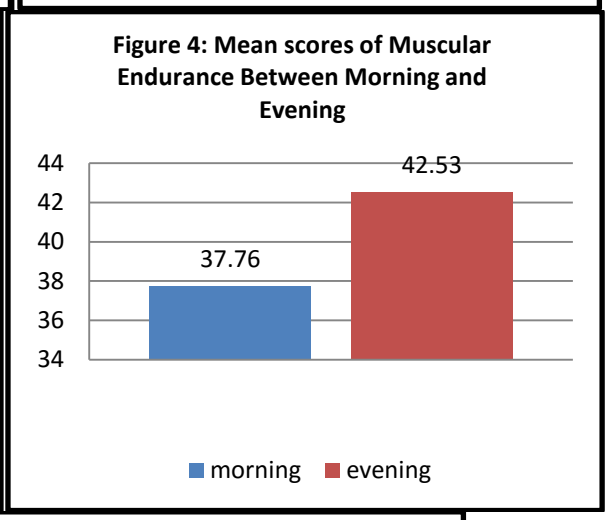
Table 5 explains that the mean value of morning was 2313.33 with standard deviation of 285.25 whereas mean value of evening was recorded 2495.00 with standard deviation of 311.38.The obtained't' value was 2.356. Results showed significant mean difference between morning and evening with regard to cardiovascular endurance as the obtained 't' value of 2.356 was found to be statistically significant at .05 level.

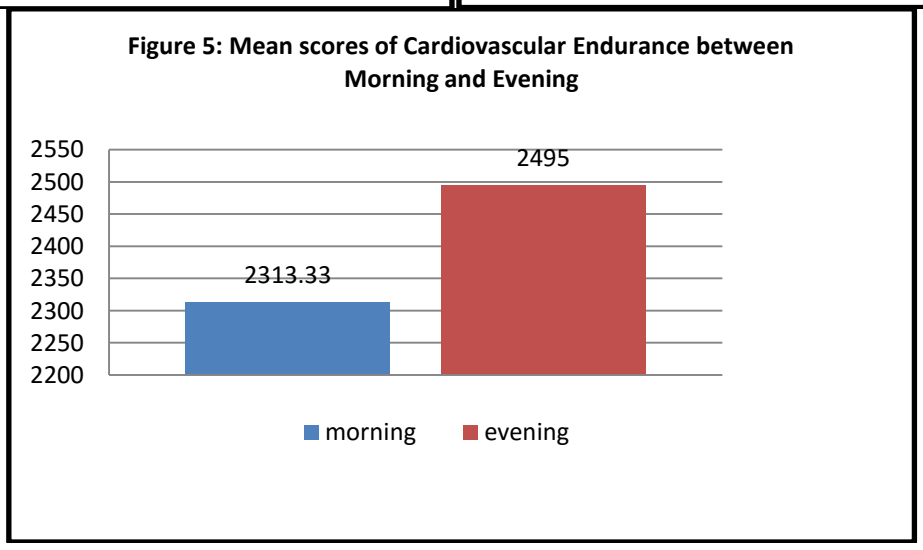
Mean scores of morning and evening on power, speed, agility, muscular endurance and cardiovascular endurance are depicted graphically in figure 1-5.











Conclusion:

Statistical calculation on gathered data showed that there was significant difference found on all selected motor fitness variables. Evening time exhibited significantly better than morning time on selected motor fitness variables i.e., power, speed, agility, muscular endurance and cardiovascular endurance. *Conroy &*

Brien (1974) observed the variations in the subject's physical performance at different time during the day. Observations were made in the morning between 7.00 am and 8.00 am and in the evening 5.00 pm and 7.00 pm of time on same day. The study revealed a general improvement in the physical performance in the evening time.

References:

1. Conroy, R.T. & Brien, O' Morio (1974). Diurnal Variation in Athletic performance, Journal of Physiology.5, 235 – 251.
2. Fox, E. L. and Mathews, D. K. (1976). The Physiological Basis of Physical Education and Athletics Philadelphia, W.B. Saunders Company: 1-2.
3. Jarraya, S., Jarraya, M., & Chtourou, H. (2014). Diurnal Variations on Cognitive Performances in Handball Goalkeepers, Biological Rhythm.31, 39–144.
4. Walker, C.A., Charles, M. & Winger et al. (1983). Circadian Rhythms and Athletic Performance, Medicinal Sciences in Sports and Exercise. 17, 499.
5. Wirz-Justice, A. (2008). Diurnal Variation of Depressive Symptoms, Dialogues in Clinical Neuroscience. 30, 456-459.