



## THE EFFECT OF MENSTRUAL CYCLE PHASES ON REACTION TIME: A COMPARATIVE STUDY

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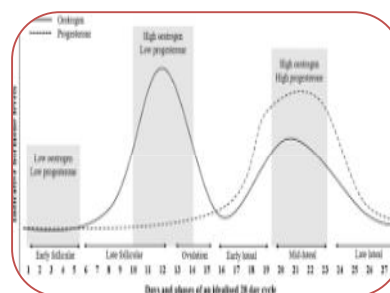
### ABSTRACT

**Objective:** To compare the effect of menstrual cycle phases on Reaction Time among women volleyball athlete and non sports athletes. **Methodology:** A total of 20 female subjects were selected. Out of which 10 were taken from the game of basketball and other ten from the women who were living a sedentary lifestyle from Lucknow, U.P, city by using the purposive sampling technique. The age of the subjects ranged from 24 to 29 years. Mesuration phases were opted as I.V (Independent variable) for the study whereas Reaction Time as D.V (Dependent Variable). Subjects were acknowledged well before the test took place. **Conclusion-** From the evaluation of the test results on SPSS 25 by descriptive statistics and independent t test, It was found that women Basketball athletes showed a significant difference in all the four phases of mensuration. Hence the result significantly differed at a 0.05 level of significance.

**KEYWORDS:** Basketball athletes, sedentary lifestyle, Reaction Time, menstruation phase, purposive sampling.

### INTRODUCTION

One's capacity to continue exercising for a considerable amount of time may be affected by their menstrual cycle. Despite the fact that the vast majority of research suggests that oxygen consumption, heart rate, and rating of perceived exertion responses to sub-maximal steady-state exercise are not affected by the menstrual cycle, several studies report a higher cardiovascular strain when the woman is in the mid-luteal phase of her menstrual cycle and engaging in moderate exercise. In spite of this, there is no difference in the length of time it takes to attain tiredness while exercising at intensities that are lower than maximum levels. In light of the fact that the time to exhaustion test can only be performed a limited number of times, the applicability of this finding has to be questioned. When a person is in the midst of the luteal phase, when their core temperature is at its maximum, there is a decrease in the length of time it takes for them to get weary after engaging in prolonged activity in environments that are very hot. As a result, the mid-luteal phase may have an unfavorable affect on the capability to engage in prolonged physical activity as a result of a rise in core body temperature and maybe an increase in the amount of strain exerted on the cardiovascular system. Changing the schedule of competitions for female endurance athletes in order to suit their menstrual cycles may have significant implications in terms of practicality, especially when the competitions take place in conditions that are hot and humid. There is a need for more research on the impact that a woman's menstrual cycle has on her capacity to engage in prolonged activity due to both the restricted scope of the current investigation as well as its methodological flaws. There is a growing need to



determine the effects of the fluctuations in oestrogen and progesterone across the menstrual cycle on exercise performance as a result of the recent increase in the number of women who are participating in exercise and the lack of consensus regarding the effects of the MC on exercise performance. This is due to the fact that there is no consensus regarding the effects of the MC on exercise performance. This is the first meta-analysis that we are aware of that takes a critical look at previous research studying changes in exercise performance during the menstrual cycle in women who are eumenorrhic. In addition, the quality of past research is evaluated in this study for the very first time using rigorous quality assurance procedures, making it the pioneering work in its field. This meta-analysis offers information that may be utilised to help develop practical suggestions for athletes, practitioners, and researchers interested in exercise performance management throughout the MC.

An attempt has been made in the course of this particular research to investigate the results of the influence that the four stages of the menstrual cycle have on reaction time among basketball sports players as well as non-sports athletes.

## METHODOLOGY

The purpose of the research was to conduct a comparative evaluation to analyze the effect menstruation cycle phases on the Reaction Time of women basketball athletes and Non sports athletes. A total of 20 female subjects were selected from above-mentioned sport from Lucknow, U.P. by using the purposive sampling technique. All the players of the Basketball sports were participants of All India University and West Zone Inter-university and other group were following the sedentary lifestyle. The age of the subjects ranged from 24 to 29 years and all were regular players with a good and sound level of skill. Mesuration phases were opted as I.V (Independent variable) for the study whereas flexibility as D.V (Dependent Variable).

## ANALYSIS OF THE DATA

For the analysis of data descriptive statistics were applied which were mean, standard deviation, skewness, and kurtosis. Furthermore, Independent T test was applied to analyze the result. For this study, the level of significance was set at  $\alpha$  0.05.

## RESULTS AND DISCUSSION

If a skewness value is greater than twice its standard error, this may indicate that there is a departure from symmetry. Since the skewness of the variables is less than twice the size of the standard error, this indicates that all of the variables have a symmetrical distribution. Similarly, the value of kurtosis for the data was normal for the variable and is less than twice its standard error of kurtosis. This indicates that the value of kurtosis is not significantly different from zero. To put it another way, the distribution of each and every variable is of the Meso-Kurtic type.

**TABLE- 1**

The below-mentioned table-1 shows the Mean and Standard deviation scores on the effect of Menstruation phases on flexibility of women volleyball athletes and non sports athletes.

Group Statistics					
PHASES	REACTIONTIME	N	Mean	Std. Deviation	Std. Error Mean
MESTURAL	WSP	9	.2430	.02837	.00946
	NWSP	10	.2515	.02335	.00738
FOLLICULAR	WSP	9	.2495	.02444	.00815
	NWSP	10	.2512	.02406	.00761
OVULATION	WSP	9	.2362	.02641	.00880
	NWSP	10	.2402	.03216	.01017
LUTEAL	WSP	9	.2532	.04139	.01380
	NWSP	10	.2525	.03898	.01233

**TABLE -2**  
The below mentioned table 2 shows the result of independent t test

**Independent Samples Test**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
MESTURAL	.979	.336	-.721	17	.481	-.00855	.01187	-.03359	.01649
			-.713	15.581	.486	-.00855	.01200	-.03404	.01693
FOLLICULAR	.008	.932	-.154	17	.880	-.00171	.01114	-.02521	.02179
			-.153	16.727	.880	-.00171	.01115	-.02526	.02184
OVULATION	.614	.444	-.292	17	.774	-.00398	.01360	-.03267	.02471
			-.296	16.879	.771	-.00398	.01345	-.03237	.02442
LUTEAL	.222	.644	.037	17	.971	.00069	.01844	-.03822	.03960
			.037	16.515	.971	.00069	.01850	-.03844	.03981

### CONCLUSION

The purpose of the study was to compare the two groups which were of women volleyball athletes and non sports athletes. Which were examined on the basis of the effect of menstruation phase on the Reaction Time of the above two mentioned groups. For analyzing the results descriptive statistics and as there was only two groups independent t test was used to analyze was used to analyze the mean difference between the groups. From the evaluation of the test results, it was found the women volleyball athletes showed a significant difference at a 0.05 Level of significance. As a consequence of the findings, it is clear that one of the primary advantages of volleyball female Athletes was the sheer will and adaptation to load in different mensuration phases throughout the training period.

### RECOMMENDATIONS

1. A similar kind of study can be done using the elite level of athletes in different age categories.
2. Further study can be done with a different research approach i.e. cross-sectional as well as longitudinal.

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