



# International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685  
E-ISSN: 2394-1693  
Impact Factor (RJIF): 5.38  
IJPESH 2023; 10(3): 271-272  
© 2023 IJPESH  
[www.kheljournal.com](http://www.kheljournal.com)  
Received: 03-02-2023  
Accepted: 07-03-2023

**Dr. Pratibha Singh Ratnu**  
Assistant Director, Department  
of Physical Education,  
University of Rajasthan, Jaipur,  
Rajasthan, India

## Effects of physical fitness programs and yogic practice on VO<sub>2</sub> Max during menstrual cycle

**Dr. Pratibha Singh Ratnu**

### Abstract

The purpose of the study was to investigate the comparative effect of physical fitness programme and yogic practice on selected motor fitness and physiological parameter of school girls during menstrual cycle. The study was conducted on 180 female of age group (15 to 19). The phase selected for the study were menstrual, follicular and lutral phase of menstrual cycle and motor fitness variable were muscular strength and endurance of arm & shoulder through flex arm hang, trunk muscular strength and endurance through sit ups, speed and agility through shuttle run explosive leg strength through standing broad jump speed through 50 Mtr. dash, cardio vascular endurance and speed endurance by 600 yard run physiological parameter were resting heart rate, blood pressure VO<sub>2</sub> Max, T lim VO<sub>2</sub> Max, respiratory rate, body mass index. To find out the comparative effect of physical fitness programme & yogic practice on selected motor fitness and physiological parameter of school girls during menstrual cycle. T-Test was used for testing hypothesis and was tested on 0.05 level of significance. It was found that VO<sub>2</sub> max during pre-menstrual stage both group (yogic exercise and Fitness differ significantly during post testing at pre-menstrual stage.

**Keywords:** Menstrual, motor sports, VO<sub>2</sub> Max, Follicular phase

### Introduction

While the unique physiology of female athletes may require tailored training approaches that differ from those required for male athletes, the topic has historically been ignored and even considered somewhat taboo. However, female physiology and training has certainly been discussed among female athletes and coaches in practice and, fortunately, the world of sport is now beginning to embrace this important distinction between the sexes.

In a recent research more than half of elite female athletes reported that hormonal fluctuations during their menstrual cycle negatively affected their exercise training and performance capacity. On the other hand, it has been previously reported that many Olympic medals were won by female players during all menstrual-cycle phases. During their reproductive years the hormone levels in woman fluctuate due to menstrual cycle.

The four hormonal markers of the menstrual cycle.

(Estrogen, Progesterone, Follicle stimulating Hormone (F.S.H.) and Luteinising Harmon's (L.H.) change continuously throughout the cycle. these fluctuations in Female steroid hormones affect the autonomic nervous system and metabolic functions (Fluorine, 1987) <sup>[8]</sup> and athletic performance could change along with the menstrual cycle phase on exercise performance particularly muscular strength, is unclear.

### Two questions of interest of exercising women particularly female athlete are

How does the menstrual cycle influence exercise performance.

How does physical activity influence the menstrual cycle.

Let's try to answer these questions beginning with the relationship between menstrual cycle and physical performance. A female athlete's performance may be depending on the phase of the menstrual cycle. She is in the menstrual cycle ranges from 24 to 35 days (average 25 days) and comprises of three phases

- Pre-menstrual phase.
- Follicular phase.
- Lutral phase.

**Corresponding Author:**  
**Dr. Pratibha Singh Ratnu**  
Assistant Director, Department  
of Physical Education,  
University of Rajasthan, Jaipur,  
Rajasthan, India

### Physiological fitness

Measurement in Exercise physiology helps to study the effect of exercise, training on cardio respiratory endurance, anaerobic capacity blood lactic level on one hand to study the success of deferent training method on the above mention physiological variable on the other hand. Important test used in exercise physiology are the testing of heart rate systolic and diastolic blood pressure, recovery rate maximum oxygen in take.

### Methodology

A sample of 180 female students in the age group of 15-19 years studying in JNV, Pali was selected as a sample of the study. The Phase selected were menstrual phase, pre-

ovulatory phase and lutral phase of menstrual cycle. The females were divided into three group two experimental (fitness, yogic group) or one control group. The strength of the girls in each group were 60. VO2 MAX was used to evaluate oxygen carrying capacity of lungs of yogic exercise and fitness group for post-testing in pre-menstrual phase. T - Test was used for calculation purpose.

### Procedure of data collection

The necessary data was collected by administrating the test for the chosen variable during lutral phase of menstrual cycle. All the test was administered in play field of JNV, Pali. The Comparing study variables of fitness and control group during Post-Testing at pre-menstrual stage (Phase) are given below.

**Table 1:** Show group, number, mean, standard deviation, mean difference, T Value and P Value

	Group	Number	Mean	Standard deviation	Mean difference	T Value	P Value
Vo2 max	Fitness group	60	83.7630	6.96748	8.61300	6.134	.000
	Yogic group	60	75.1500	8.35191			

The above table 4.15 shows that mean difference score on VO2 Max during post testing of premenstrual stage of Yogic exercise Group and fitness group is 8.61300 and the 'T' Value is found to 6.134 which is significant. It infers that VO2 Max of both the groups (yogic exercise and fitness group) differ significantly during post testing at premenstrual stage.

### Discussion and Findings

It infers that VO2 MAX of both group (yogic exercise and Fitness Group) differ significantly in other word it can be said that both the group yogic exercise and fitness are different in maximum oxygen carrying capacity during Post -Testing of pre-menstrual phase.

### Conclusion

Within the limitations imposed by the subjects and the experimental conditions, the following conclusions were considered appropriate.

The present investigation evaluated the comparative effect of physical fitness programme on selected motor fitness and physiological parameter of school girls during menstrual cycle. However in the cases of VO2 MAX. Test Finding of study of female players should have the above table It infers that VO2 MAX of both group (yogic exercise and Fitness Group) differ significantly in other word it can be said that both the group.

Yogic exercise and fitness group are different as per maximum oxygen carrying capacity during Post-Testing at pre-menstrual phase.

### Reference

1. Devries Hertbert A, Hose Terry J. physiology of exercise for Physical Education and Exercise Sciences WCB Brown Benchmark Publishers; c1999. p. 600.
2. PulhlJacqualine L, Brown C Harmon. Menstrual Cycle and Physical Activity. New York, Human Kinctics Publisher, Inc; c1996. p. 478-481.
3. Singh MK. Indian Women and Sports. Rawat Publication: Jaipur; c1990. p. 10-11.
4. Imamoglu, Osman, Necip, Dursun, Tulin. Effects of menstrual cycle. On sports performance. Inernational Journal of Katakt, Atam Neuroscience; c2006 Dec 12. p. 116.
5. I amount Linda S. Effect of the Menstrual Cycle on Protein Metabolism during Excrise. DAI. 2000 Aug;46:2.

6. Kansal DK. Test and measurement in sports and Physical Education. Delhi. D.V.S. Publication; c1996. p. 16-20.
7. <https://www.miun.se/en/Research/research-centers/swsrc/news/2019-2/the-menstrual-cycle-and-female>
8. London D. Internal differentiation of rare-element pegmatites: effects of boron, phosphorus, and fluorine. Geochimica ET Cosmochimica Acta. 1987 Mar 1;51(3):403-20.