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## Impact of Yoga training intervention on menstrual disorders

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### Abstract

**Background:** Premenstrual symptoms refer to physical and emotional symptoms that occur in the one to two weeks before a woman's period. The symptoms are various such as fluid retention, mood changes, depression, weight gain, breathlessness, headaches, etc. The exact cause of PMS is unknown, but it is thought to be related to hormonal imbalances.

**Objective:** The objective of present study was to assess the effect of yoga training intervention on premenstrual symptoms.

**Methods:** Forty females, aged 28 – 40 years, with menstrual irregularities and examined by gynecologist for their physical health and medication status were randomly assigned into two equal groups, viz., one experimental group (Group A N<sub>1</sub>= 20) and one control group (Group B, N<sub>2</sub> = 20). Information on menstrual irregularity was collected through the rating scale. Participants were asked to provide information on 12 different items by responding to yes or no answer. The experimental group received yoga training 1 hour/day for total period of three months whereas, the control group did not participate in the yoga training schedule.

**Results:** The menstruation problems of the experimental group remained in a steady state ( $p>0.05$ ), whereas such problems were increasingly evident among the subjects of the control group ( $p<0.01$ ). The results of comparative difference in menstrual disorders among participants in experimental and control group revealed that the subjects of experimental group could maintain a steady state in menstrual cycle, whereas the control group showed an increased state of menstrual irregularity ( $p<0.01$ ).

**Conclusion:** Yoga training was found effective for controlling further progression of the problems caused by menstruation irregularities. The schedule of Yoga training intervention is found effective for the women who have problems associated with irregular menstruation.

**Keywords:** Yoga, menstrual disorders, PMS, pranayama

### Introduction

Premenstrual symptoms refer to physical and emotional symptoms that occur in the one to two weeks before a woman's period. The epidemiological surveys demonstrated that that around 75% in reproductive age experience some symptoms attributed to the premenstrual phase of the menstrual cycle (Johnson, *et al.*, 1988) [13]. In fact, PMS is the term for a group of emotional, mental, and physical symptoms that affect women during the days leading up to menstrual period. The symptoms are various such as fluid retention (White *et al.*, 2011) [22], mood changes (Golub & Harrington, 1981) [7], depression, weight gain, urinary tract infection, breathlessness, nasal congestion, headaches, susceptibility to conjunctivitis, etc. The exact cause of PMS is unknown, but it is thought to be related to hormonal imbalances.

Earlier research studies indicate that number of women feel premenstrual pain, discomfort at the time of menstrual discharge that may affect the general and reproductive health of woman (Dutta & Ray 2006; Fox 2004; Beek 1996; Kaunitz 2000) [5, 6, 1, 14]. Even though, women experience these problems, mostly remain unattended by medical experts (Chompootawee *et al.*, 1997; Houston *et al.*, 2006) [2, 10]. Additionally, it has been reported that menstrual disorders substantially reduce quality of life (Johnson *et al.*, 1988; Wilson & Keye, 1989; Deuster *et al.*, 1999; Johnson 1987) [13, 23, 3 12]. Nevertheless, to ameliorate or eliminate these symptoms various treatment modalities are put into practice. The treatment methods include medical (hormonal, anti-depressant and pain killers), surgical (hysterectomy and salpingo-oophorectomy) and alternative medical treatments.

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However, it has been seen that medical and surgical therapies come with side effects. Hence, alternative therapies especially exercise or physical activities are suggested to relieve menstrual symptoms (Rapkin 2003; Stevinson & Ernst 2001) [18, 19]. Although the management of premenstrual symptoms by various alternative methods have been explored but effect of yoga practices in PMS is understudied. Therefore, the objective of present study was to assess the effect of yoga training intervention on pre-menstrual symptoms.

## Materials and methods

### Subjects

The women subjects aged 28-40 years were selected from Jalgaon All the women who volunteered to participate, were selected randomly. The subjects also corresponded with the criteria for the desired age categories were incorporated in the study. Prior permission was obtained from the selected subjects, and the nature and the purpose of the study were explained to the participating subjects before conducting the study. Finally, forty subjects with menstrual irregularities and examined by gynecologist for their physical health and medication status were randomly assigned into two equal groups, viz., one experimental group (Group AN<sub>1</sub>= 20) and one control group (Group B, N<sub>2</sub> = 20).

### Assessment

Information on menstrual irregularity was collected through the rating scale. Participants were asked to provide information on 12 different items by responding to yes or no answer.

### Intervention

The experimental group received yoga training for 1 hour/day for total period of three months whereas, the control group did not participate in the yoga training schedule. However, the control group participants were engaged in recreational activities for the same time and period. The waist list control group participants were promised that they will be given yoga training after completion of three months of experimental period. The yoga training intervention involved was of physical postures (Asanas) and breathing techniques (Pranayama) conducted under the guidance of yoga expert. Each session was started with prayer and omkar recitation. The supine pose asanas were Shavasana, Viparitarani, Naukasana, Pawan muktasana and Crocodile practices. The

prone position asana were Makarasana, Bhujangasana, Shalabhasana and Sarpasana while sitting asanas included were Bhadasana, Parvatasana, Vakrasana. The standing asana were Tadasana, Chakrasana and Utkatasana. The breathing exercises i.e. pranayama practices included in the present investigation were Anulom Vilom, Bhastrika and Kapalbhathi.

### Statistical Analysis

Standard methods were followed for the data extraction for each of the variables. Data analysis was done using statistical software (SPSS, Statistical Package for the Social Sciences, Version 20.0). Data was analyzed using paired *t* tests, independent *t* test and descriptive statistical method.

### Results

The results on menstrual irregularities/disorder among the participants on their pre-posttest (within group comparison) has been presented in Table 1, which indicates that mean menstrual disorders did not differs before yoga training (M=31.25, SD=3.19) and after yoga training intervention (M=31.50, SD=2.89) even at 0.05 level of significance ( $t=1.42$ ,  $df=19$ ,  $n=20$ ,  $p>0.05$ ). Further, results of paired sample *t* test in control group show that mean menstrual disorders differs (M=32.50, SD=3.36) after completion of controlled period of three months (M=46.40, SD=2.30) at the 0.001 level of significance ( $t=21.99$ ,  $df=19$ ,  $p<0.01$ ). This infers that the menstruation problems of the experimental group remained in a steady state, whereas such problems were increasingly evident among the subjects of the control group. The results of comparative difference in menstrual disorders among participants in experimental and control group have been presented in Table 2. Using an alpha level of .05, an independent-samples *t* test was conducted to evaluate whether yoga group and control group participants differed significantly on a menstrual disorder. The test was significant at 0.01 level of significance,  $t(18.60) = 14.90$ ,  $p<0.01$ . An examination of the group means indicate that yoga group participants (M= 31.50, SD = 2.89) performed better on menstrual disorders test than did control participants (M = 46.40, SD = 2.30). This infers that the subjects of experimental group had shown a steady state in menstrual cycle, whereas the control group showed an increased state of menstrual irregularity. Thus, yoga practices had helped to control further progression in menstruation irregularity.

**Table 1:** Results of within group comparison in menstrual disorders

Group	Pre M ± SD	Post M ± SD	df	Difference	t value
Yoga (n=20)	31.25 ± 3.19	31.50 ± 2.89	19	0.25	1.42
Control (n=20)	32.50 ± 3.36	46.40 ± 2.30	19	13.90	21.99**

**Table 2:** Results of between group comparison in menstrual disorders

Groups	n	df	Mean (SD)	MD	t value
Yoga	20	38	31.50 (2.89)	14.90	18.60**
Control	20		46.40 (2.30)		

## Discussion

Menstruation is an important part of every woman's life cycle. A woman begins to go through a series of hormonal changes during the menstrual cycle that occurs once every month. Unfortunately, almost every woman is likely to experience a menstruation problem by way of anxiety, stress and several mood swings at some point of time.

Yoga is often referred to as one of the healthiest and natural ways for controlling anxiety (Hofmann et al., 2010; Hofmann,

2016), stress (Huan, Chien & Chung, 2013; Michalsen et al., 2005) [11, 17] and several mood swings (Duan-Porter et al., 2016) [4] so that it might be considered as one of the means of treating menstrual problems. By practicing different forms of yoga on a regular basis, one may ensure some relief in pain caused due to menstruation problems that might disturbs the homeostasis of body and mind towards a healthy being. In fact, previous studies showed that practice of yoga can relieve women from premenstrual symptoms (Tsai, 2016; Wu et al.,

2015) [20, 25]. In fact, the result of this study revealed that the women undergone yoga training alone showed significant control in menstruation mediated problems as well as irregularity in menstruation as compared to control group. Yoga practices although worked at body level, its progressive muscular stretching might have induced relaxation at mental level. This might have evoked a state of homeostasis, which perhaps helps to control anxiety, stress and several mood swings and improved the power of pain tolerance and other associated problems caused due to irregular menstruation. To summarize, Yoga seems to be one of the illustrious ways to tackle menstrual delays. Practicing yoga might have improved the tolerance ability caused due to menstrual irregularities. Although there are several ways of treating menstrual delays available so far, yoga may be regarded as one of the natural ways of treating menstrual problems. Women should practice yoga not only to keep themselves fit and fine keeping in mind their physique, age and physical activities, but also to get rid of problems caused due to menstrual irregularity. Daily practice of yoga may help them to improve on their figure, impart energy and prevent various uterine and ovarian disorders during pregnancy and childbirth. Thus, it is very important to practice yoga regularly to obtain maximum benefit out of it and live a healthy life.

### Conclusion

Yoga training was found effective for controlling further progression of the problems caused by menstruation irregularities. The schedule of Yoga training intervention is found effective for the women who have problems associated with irregular menstruation.

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