

Original article

Effect of Sudarshan Kriya Yoga on Autonomic functions in young women suffering from premenstrual syndrome

¹Dr. Kale Jyoti Sahebrao , ²Dr. Deshpande Ramesh R., ³Dr. Patel Laxmi, ⁴Dr. Katole Nilesh T.

¹Department of Physiology, L.T.M.M.C., Sion, Mumbai -400 001, Maharashtra, India.

²Professor and Head, Department of Physiology, L.T.M.M.C., Sion, Mumbai 400 001 Maharashtra, India

³Associate Professor, Department of Physiology, L.T.M.M.C., Sion, Mumbai 400 001 Maharashtra, India

⁴Flat no. 16, Gruhlaxmi Apart., powerhouse chour, Rasta peth, Pune-411011

Corresponding author: Dr. Kale Jyoti Sahebrao

Abstract:

Background: Premenstrual syndrome (PMS) is a behavioral and neuro-psychological symptoms that occur cyclically during the luteal phase of the menstrual cycle.

Aim: To observe effects of Sudarshan Kriya Yoga (SKY) on PMS.

Methodology: The study was done on 40 young women in age group of 17-22 years with regular menstrual cycle. They were assessed randomly for PMS using criteria given by American College of Obstetrics and Gynecology (ACOG). Before start of SKY practice, all autonomic parameters Pulse rate, Systolic and diastolic BP, Cold Pressure Test, Isometric Hand grip exercise Test were recorded in premenstrual phase . They were undergone SKY session of 40 min daily for next three months . After three months again all autonomic parameters were recorded in premenstrual phase. Data was analyzed by using paired t-test.

Results: Statically significant (<0.05) lower values of autonomic parameters were seen in same individual after short term (3 months) practice of SKY.

Conclusion: Sudarshan Kriya Yoga has beneficial effects on women health by reducing symptoms of PMS.

Key words: PMS, SKY, Autonomic parameters

Introduction:

Many behavioral and neuro-psychological symptoms occurs in young women especially during premenstrual phase. Premenstrual syndrome (PMS) is used to describe physical, cognitive, affective, and behavioral symptoms that occur cyclically during the luteal phase of the menstrual cycle and resolve quickly at or within a few days of the onset of menstruation [1]. PMS is a common problem in

young women. It is associated impairment of daily activities and psychological distress symptoms.

Studies have shown that yoga has an important role in alleviating stress by balancing the autonomic nervous system. [2] According to previous studies, SKY is a well-described, yoga-based stress reduction program which helps in relieving stress, negative emotions such as anger, frustrations, depression [3] anxiety, dysthymia [4,5] and also insomnia [4]. So

the aim of present study was to evaluate the effect of SKY on autonomic parameters of women suffering from pre menstrual syndrome.

Method:

The study was done on 40 young women in age group of 17-22 years with regular menstrual cycle. Married women, women having endocrine, major surgical or medical illness, smokers and alcoholics were excluded from the study. They were assessed randomly for PMS using criteria given by American College of Obstetrics and Gynecology (ACOG). According to it, PMS was considered if at least one of the 6 affective and one of the 4 somatic symptoms was reported five days prior to the onset of menses in the three prior menstrual cycles and ceased within 4 days of onset of menses [6].

Those who were not fitted in ACOG criteria, were not included in the study. Before start of SKY training, all autonomic parameters Pulse rate, Systolic and diastolic BP, Cold Pressure Test, Isometric Hand grip exercise Test were recorded in premenstrual phase (1-7 days before the expected date of next menstruation). All women were trained for SKY by experienced 'Art of Living' teachers for one weeks. Then, they are undergone SKY session of 40 min daily for next three months except during their menstruating days. After three months again all autonomic parameters were recorded in premenstrual phase Base line assessments were done on 50 subjects, but 40 subjects contributed data to the current analysis. The reason for dropouts were

attributed to in compliance for SKY sessions, time constrains. Data was analyzed by using paired t-test and SD difference of <0.05 was taken as significant.

The following parameters were recorded:

Resting Pulse Rate was recorded in supine position after giving 10 min rest to the subject.

Systolic and diastolic blood pressure were also recorded in supine position from left brachial artery by mercury sphygmomanometer three times with a gap of 5 minutes each and lowest value was considered as final reading.

Cold pressure test: After recording baseline BP in sitting position, subject was asked to immerse her hand in a thermocol box of water (maintained at 4-5° C). BP was recorded from the other arm at 30 sec intervals for a period of two minutes after which subject removed her hand. The maximum rise in SBP & DBP was determined from other arm.

Isometric hand grip (IHG) exercise: After recording resting BP, IHG exercise was done with Hand Grip Dynamometer (INCO, Ambala, India). The subjects were asked to hold the dynamometer in dominant hand and pull the grip with maximal tension. Three successive trials were performed; the highest value of three contractions was taken as maximum voluntary contraction (MVC). Following this, handgrip was maintained steadily by the subject at 30% of MVC for as long as possible. During this maneuver, both SBP & DBP were recorded every 30 seconds on the non-exercising arm. The maximum rise in SBP and DBP was taken as an index of response to hand grip

ACOG Criteria for Diagnosis of PMS:

(Subject reports at least one of the 6 affective and one of the 4 somatic symptoms during five days prior to the onset of menses. Symptoms must appear in the three prior menstrual cycles)

Somatic (Physical) Symptoms:

- Breast tenderness
- Abdominal bloating
- Headache
- swelling of extremities

Symptoms of Affective (mood):

- Depression
- Angry outbursts
- Irritability
- Anxiety
- Confusion
- Social withdrawal

Results:

Anthropometric measurements of the subjects:

- Variables: Mean± SD:
- Age (years) : 17 to 22 years
 - Height (cms): 150.4±4.5
 - Weight (kg) : 45.5±2.4

Parameter	Before practice of SKY	After three months practice of SKY	P value
Pulse Rate (beats/min)	84.54±5.72	78.37±3.6	<0.05
Systolic BP (mmHg)	114.2±4.48	108.34±2.5	<0.05
Diastolic BP (mmHg)	80.24±5.68	74.68±4.26	<0.05
Cold Pressure Test			
Increase in SBP (mmHg)	19.24±5.4	14.15±5.2	<0.05
Increase in DBP (mmHg)	20.18±4.2	17.05±4.5	
Isometric Hand Grip exercise Test			
Increase in SBP (mmHg)	22.77±5.8	19.68±7.81	<0.05
Increase in DBP (mmHg)	20.33±6.2	18.2±6.5	

Discussion:

In our study we found that after three month practice of SKY have significant beneficial effects on autonomic parameters. Pulse rate, systolic and diastolic BP, were statically decreased (p value <0.05) after practice of SKY as compare to Initial baseline recordings.

As well as in cold pressure test and Isometric Hand Grip Test there was decreased trend of rise in BP. It shows that autonomic functions have more stabilized by practice of SKY. All the parameters were recorded in premenstrual phase of subjects suffering from PMS. It shows that SKY helps in reducing the premenstrual stress which is the major cause for PMS.

The previous studies shows that regular practice of SKY is directly related to an increase in parasympathetic dominance via vagal stimulation from vagal somatosensory afferents[7] and also leads to a corresponding decrease in sympathetic activity [2,8]. Decrease in sympathetic activity will decrease the secretion of catecholamines, which allows vasodilatation and hence improves peripheral circulation in the body. The practice of Yogic breathing has been shown to decrease resting oxygen

consumption [9], which may be the reason for the decrease in heart rate in the SKY group. Decrease in heart rate will decrease work of heart and ultimately decreases Systolic Blood Pressure (SBP). The practice of yoga alters hypothalamic discharges [8][14], resulting in a decrease in sympathetic tone and peripheral resistance; both physiological responses lead to a decrease in Diastolic Blood Pressure (DBP). Also it reported that SKY decreases chemoreflex sensitivity, increases arterial baroreceptor sensitivity, oxygenation & exercises tolerance. [7]

A study by Jasmin J parmar showed similer findings of decreased heart rate and systolic blood pressure after three months practice of SKY. [10] Also Agte VV *et al.* found significant decreased in diastolic BP of mild hypertensive subjects.[12]

Conclusion:

Regular practice of Sudarshan Kriya Yoga (SKY) Found to be beneficial in women suffering from premenstrual Syndrome by stabilizing autonomic functions. It can be used as one of regimen for treating PMS. while, further studies with large sample size and for longer duration are needed for more confirmatory results.

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