



# EFFECT OF CORE MUSCLE STRENGTHENING EXERCISES ON PREMENSTRUAL SYNDROME IN YOUNG FEMALES

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## Abstract

**Background:-** Premenstrual syndrome is the form of a combination of physical, psychological, and behavioral abnormalities during the luteal stage. This condition affects 75 percent to 90 percent of women before their menstrual cycle. The condition often begins 6 to 12 days before menstruation and seems to last 2 to 4 days following menstrual flow. It is one of the serious issues affecting females. This study concluded the effect of core muscle strengthening on premenstrual syndrome.

**Method:-** Data was collected on physical copies of the premenstrual syndrome questionnaire (PMS) and VAS scale from different girl's hostels in Greater Noida. A total of 90 females were chosen to participate in the study but (n=10) participants fall under exclusion criteria so the final number of participants was 80, (n=40) females performed core strengthening exercises (Curl up, pelvic bridging, plank, cat & camel). 4 days a week, 20 minutes each day, for 6 weeks. (n=40) females don't perform any exercise. Data was collected in 3 steps, first data were collected before the intervention, the second data was collected in 3<sup>rd</sup> week during the intervention and the last data was collected in the 6<sup>th</sup> week after the intervention on physical copies. The data was transferred from paper to digital format using Microsoft Excel.

**Result:-** The findings of this research indicate that there is a statistically significant impact of core stabilizing exercise on all of the subscales that make up the PMS scale after six weeks of data collection. The benefits may be evident as early as the first week when PMS scores begin to drop, and they continue to be seen in the results of subsequent weeks. As a result of the strong benefits of the Exercises, the individuals' back and abdominal pain scores decreased from the first week forward, which is reflected in the overall pain score. The P-value of Weeks 1 to 6 for PMS is less than 0.001 which shows significant effects in the subjects. The P-value of VAS for back and abdominal pain is also less than 0.001 which shows a significant effect.

**Conclusion:-** This study concludes that the core strengthening exercises have a positive effect on PMS and core muscle pain, it helps to reduce PMS symptoms. More research is needed for

dealing with the PMS conditions in girls. The result could come better if the study was conducted with different state/city populations. The findings of this study provide direct information about PMS conditions, Hence can be used to develop more interventions that can positively deal with underlying PMS conditions in girls.

### **List of Aberration used in this Desertion/project/ thesis report**

1. PMS (premenstrual syndrome questionnaire)
2. VAS (visual analog scale)

### **Keywords:-**

Premenstrual syndrome  
Females  
Core muscle strengthening  
Menopause  
Mensuration

## **INTRODUCTION**

Adolescence is the era of transition between childhood and adulthood which is characterized by the development and progress of the youngster Physical, psychological, and social factors all played a role throughout this time the child's biological development takes place. A person aged 10–19 years is categorized as an adult by the World Health Organization[1]. It's truly regarded as a unique stage in a girl's life cycle particular care is required. Menarche is a significant biological event. It is a watershed moment in a woman's life since it signifies the beginning of menopause. She is at the reproductive stage of her life. Menarche occurs at an average age of 14 years and is largely stable between communities, that is, between 12, 13, and 14 years old[1]. Unfortunately, due to a lack of resources, menstrual preparation, and management knowledge perhaps, because of the shyness of girls, the condition worsens. Menstruation is a normal function, although it is still considered filthy and taboo in Indian society[1].

Because women have their periods between the ages of menarche and menopause, menstruation health is an important element of their overall health. Menstruation is a natural occurrence for women have a big influence on the physical world, Mental, emotional, and social well-being are all important. Menstruation is now defined as periodic bleeding from the uterine corpus that occurs during menarche and menopause[2].

Premenstrual syndrome develops throughout the fertile years and ends until the woman reaches menopause [1]. Every monthly cycle, this condition reveals itself in the form of a combination of physical, psychological, and behavioral abnormalities during the luteal stage. This condition affects 75 percent to 90 percent of women before their menstrual cycle[3]. The condition usually starts 6 to 12 days before menstruation and lasts 2 to 4 days after menstruation. The prevalence rate of premenstrual syndrome intensities has been estimated to range from 48 percent to 90

percent in various studies. This condition is accompanied by pain, which is one of the most common causes of menstruation symptoms, sympathetic nerves are involved in the contraction of the uterine muscles[3].

The mood (emotional) symptoms of the premenstrual syndrome include anxiety, variability in mood, stable personal participation, and rage, depressed state of mind immersion or feeling uncontrollable, appetite changes (overeating or anorexia), sleeping difficulties, concentration problems, fatigue and slowness, interest in social ties has diminished and also work and the (somatic) physical symptoms include muscle and joint discomfort, urination regularly, increased body mass back discomfort in the lower back, acne, flatulence, nausea, tenderness or pain in the breasts, pain in the abdomen and headache[4]. The most prevalent mood sign (emotional) was weariness and lethargy, while the least frequent mood symptom was prolonged anger or personal disputes, according to a study that looked at the frequency of all premenstrual syndrome symptoms[4]. Furthermore, among somatic abdomen discomfort was the most common physical complaint, whereas weight gain was the least common somatic symptom[4].

According to epidemiological research, the prevalence of PMS symptoms is estimated to be over 80- 90% and 5% of women suffer from unpleasant symptoms that interfere with their everyday lives. According to another study, Premenstrual Syndrome affects at least 25% of all teenage girls between 14–15 years (PMS)[5].

The major objective of therapy for women experiencing PMS/PMDD is to relieve and improve symptoms while allowing them to go about their everyday lives normally. PMS and PMDD are treated using a variety of therapies, including lifestyle changes (exercise and relaxation techniques), cognitive behavioral therapy (CBT), drugs (SSRIs), and/or combined estrogen-progestin contraceptives (COC). In women with moderate premenstrual symptoms, exercising regularly and stress reduction approaches are helpful and affordable therapeutic choices. Exercise is very beneficial for physical ailments[6].

Exercise has been shown to raise endorphin levels, improve the synthesis of progesterone and estrogen, and promote the creation of endogenous anti-inflammatory substances. Additionally, exercising has been shown to enhance general health, social interaction, and sadness, all of which have the potential to reduce the severity of PMS symptoms[7].

Physical exercise, which increases endorphin synthesis while improving the flow of blood at the pelvic level, may assist to reduce pelvic pain due to excessive prostaglandin release; in fact, it acts as a non-specific analgesic. By boosting the flow of blood, relaxing abdominal muscles, lowering pelvic discomfort, and releasing pressure on nerve centers, pelvic organs, as well as the alimentary canal, aerobic exercises such as pelvic bending, walking, bicycling, including swimming can help alleviate pelvic pain [7,8].

Both abdominal and pelvic floor muscles benefit from physical therapy to help stretch and strengthen them. Regularly practicing postures like cat position, tiger position, cobra pose, as well as bow pose, and also fish pose will assist to stretch and strengthen the back as well as pelvic floor muscles[9].

With the help of core strengthening, the tiny intrinsic muscles that surround the lumbar spine may be trained to function more effectively. This sort of exercise enables the isolation and development of core muscles. While these muscles are healthy, even if the body is under the strain of the menstrual cycle, they are considerably more equipped to bear the everyday demands of regular biomechanics. Muscular stability around the lumbar region is referred to as "core strengthening" and is necessary to maintain functioning stability[10].

### **Objective of the study**

The objective of the study is to evaluate how core muscle strengthening exercises affect the PMS symptoms.

### **Aim**

This study aimed to examine the effectiveness of core strengthening exercises as a treatment for PMS.

## **METHODOLOGY**

**Hypothesis:** There is a significant effect of core muscle strengthening on premenstrual syndrome.

**Null Hypothesis:** There is no significant effect of core muscle strengthening on premenstrual syndrome.

### **Methodology**

- Study design: Experimental study
- Sample selection: Young females Aged between 18 -25 years.
- No. of sample: 90 females (n=10 participants fall under exclusion criteria, the final sample was n=80 participants.
- Tools: Premenstrual syndrome (PMS) questionnaire and Visual analog scale (VAS).

### **Inclusion criteria**

- The number of women who report having normal menstrual cycles and experiencing PMS symptoms.
- Ready to perform the exercise for 6 weeks.
  - Females aged between 18-25 years.

### **Exclusion criteria**

- Irregular menstrual cycle or menstrual abnormalities.
- patient preparing for pregnancy.
- pregnant women or lactating women, menopausal syndrome.
- History of taking medicine for PMS, and contraceptive pills.
- n=10 participants not matching the inclusion criteria.

### **PROCEDURE:-**

Data was collected on physical copies of the premenstrual syndrome questionnaire (PMS) and VAS scale from different girl's hostels in Greater Noida. A total of 90 females were chosen to participate in the study but (n=10) participants fall under exclusion criteria so the final number of participants was 80, (n=40) females performed core strengthening exercises (Curl up, pelvic bridging, plank, cat & camel). 4 days a week, 20 minutes each day, for 6 weeks. (n=40) females don't perform any exercise. Data was collected in 3 steps, first data were collected before the

intervention, the second data was collected in 3<sup>rd</sup> week during the intervention and the last data was collected in the 6<sup>th</sup> week after the intervention on physical copies. The data was transferred from paper to digital format using Microsoft Excel.



Fig 1 - PELVIC BRIDGING



Fig-2



Fig-3

Fig - 2, 3 CAT & CAMEL



Fig

4-

PLANK



Fig 5- CURL-UP

### Result Analysis:-

The findings of this research indicate that there is a statistically significant impact of core stabilizing exercise on all of the subscales that make up the PMS scale after six weeks of data collection. The benefits may be evident as early as the first week when PMS scores begin to drop, and they continue to be seen in the results of subsequent weeks. As a result of the strong benefits of the Exercises, the individuals' back and abdominal pain scores decreased from the first week forward, which is reflected in the overall pain score. The P-value of Weeks 1 to 6 for PMS is less than 0.001 which shows significant effects in the subjects. The P-value of VAS for back and abdominal pain is also less than 0.001 which shows a significant effect.



**Demographic Average**

<b>DEMOGRAPHIC AVERAGE</b>			
	AGE	WEIGHT	HEIGHT
Mean	20.7250	52.4325	5.28
N	90	90	90
Std. Deviation	1.73925	9.41331	.297

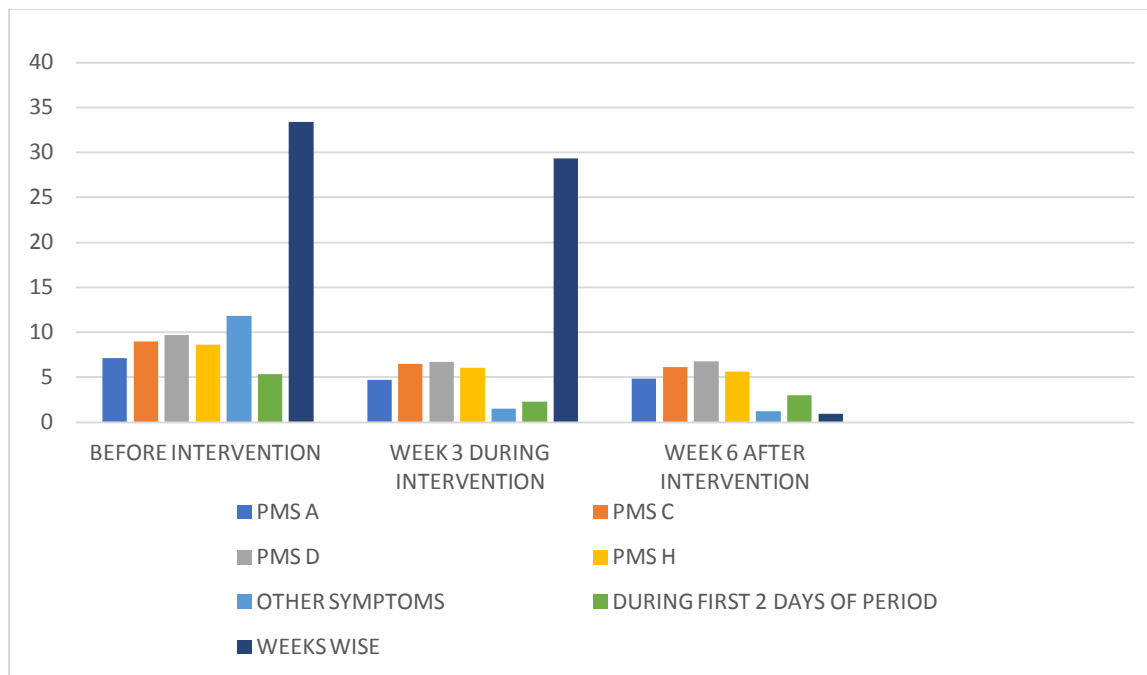
**Table no 1**

The Average Age, Weight and Height of the participants are respectively 20.72, 52.43 and 5.2 .

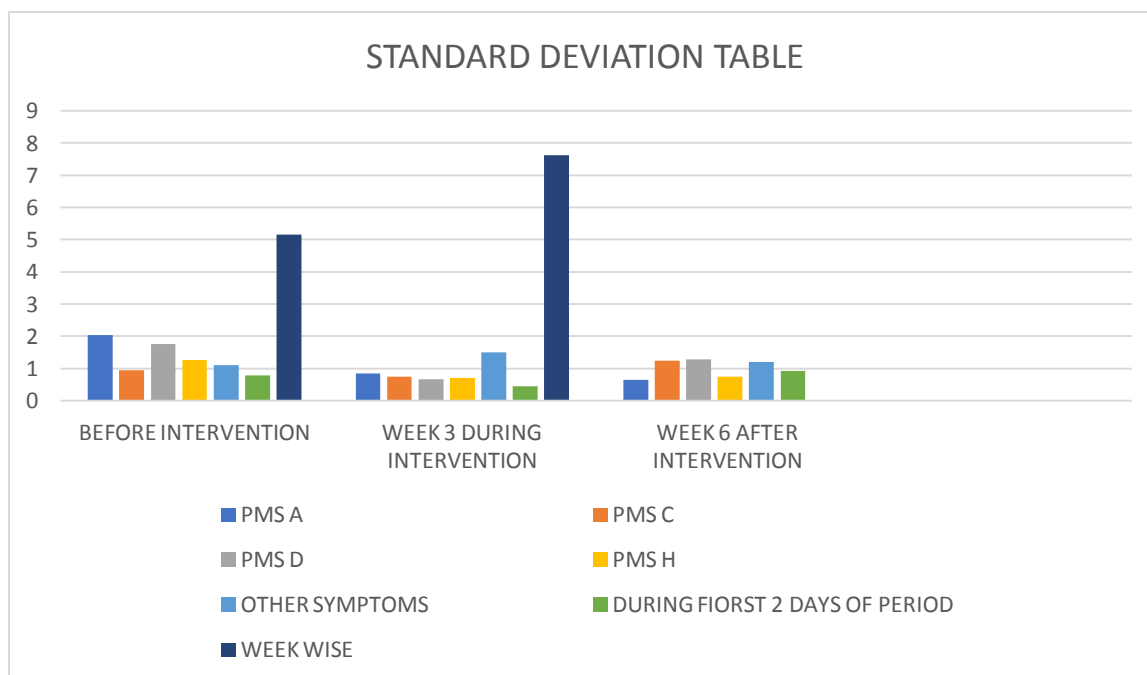
**Descriptive data**

**Table no 2**

	PMS A	PMS C	PMS D	PMS H	OTHER SYMPTOMS	DURING FIRST 2 DAYS OF PERIOD	WEEKS
<b>F value</b>	27.010	89.439	54.262	55.840	34.207	70.045	2.586
<b>P value</b>	<.001	<.001	<.001	<.001	<.001	<.001	0.83



[A] MEAN OF DATA



[B] STANDARD DEVIATION OF DATA

**ANOVA table for Abdominal and Back pain**

	<b>Abdominal Pain</b>	<b>Back Pain</b>
<b>F value</b>	18.467	17.512
<b>P value</b>	<0.001	<0.001

**Table no – 3**

F value and P-value for Abdominal pain is 18.467 and <0.001, respectively for Back pain is 17.512 and <0.001.

**Discussion**

The findings of this study provide Deep information about the premenstrual syndrome and its symptoms in young females, hence we can use it to develop more interventions that can help to reduce the prevalence of premenstrual syndrome that can positively deal with the maintain a normal life and relieve symptoms of PMS in young females.

Premenstrual syndrome develops throughout the fertile years and ends until the woman reaches menopause [1]. Every monthly cycle, this condition reveals itself in the form of a combination of physical, psychological, and behavioral abnormalities during the luteal stage. This condition affects 75 percent to 90 percent of women before their menstrual cycle. The condition often begins 6 to 12 days prior to menstruation and seems to last 2 to 4 days following menstrual flow. The prevalence rate of the premenstrual syndrome has been estimated to range from 48 percent to 90 percent in various studies intensities. This condition is accompanied by pain, which is one of the most common causes of menstruation symptoms, sympathetic nerves are involved in the contraction of the uterine muscles[3].

Robert Frank, an American physician who was a member of the New York Academy of Medicine at the time, addressed the matter in 1931, claiming that it may be caused to ovarian cancer.

The severe form of PMS was dubbed Premenstrual Dysphoric Disorder (PMDD) in the mid-1980s. As a result, premenstrual syndrome is a medical illness with an unknown cause,

characterized by a wide range of physical, cognitive, behavioral, and mental changes that occur regularly throughout the luteal phase of the menstrual cycle[4].

A previous study found that in the pathophysiology of PMS, stress plays a big role. Long-term stress can cause neuroendocrine system abnormalities, which can worsen PMS symptoms. PMS is thought to be caused by several variables, including genetic, environmental, psychological, biological, and social. Young women, black women, and women with lengthier periods, according to some studies, are more likely to have PMS. The role of genetics is crucial. In comparison to women with a negative family history, women with a history of having PMS in their mother are 70% high likelihood to report PMS (37 %)[11]. There is a need to teach more information about interventions and good lifestyle habits so that young females can maintain their normal life and reduce the symptoms of PMS.

## **Conclusion**

This study concludes that core muscle strengthening has a positive effect on Reducing PMS symptoms. More research is needed for detailing the cause of PMS in young females. The result could come out better if the study was conducted with different city/state females.

The findings of this study provide direct information about the premenstrual syndrome of young females. Hence can be used to develop more interventions that can positively deal with PMS symptoms.

### **Future scope of the study:-**

More studies can be done with a higher sample size in different city/ state females.

### **Conflict of interest:-**

None

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