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ROLE OF YOGA IN PCOD [POLYCYSTIC OVARIAN DISEASE]-A QUASI-EXPERIMENTAL ONE-WAY STUDY

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ABSTRACT

BACKGROUND : Polycystic means many cysts. Polycystic ovarian Disease is a complex disorder of chronic oligoanovulation or oligomenorrhoea and clinical or biochemical hyperandrogegism. Genetic and environmental factors may contribute to this disorder and may affect 14-44 year age of women . This is one of the main reason for infertility. Women affected with this syndrome often have ovulatory dysfunction hormonal disbalance, hyperandrogenemia, obesity and hyper insulinemia.

METHODOLOGY: They were subjected to Yoga therapy for 30-45 mins /day for 3 months with a break after every 6 days. Treatment duration was 3 months. Pre and post outcome measures were taken.

RESULT: . Data was considered statistically significant with $P<0.05$ and highly significant at $p<0.01$. Pre and post mean difference of BMI shows 33.28 ± 26.64 in pre date collection and 28.36 ± 21.77 in post data collection. As $p<0.05$ there is significant difference between groups. Pre and post mean difference values of VMSS shows 2.33 ± 14.67 and 0.93 ± 23.87. This shows a significant difference between two groups.

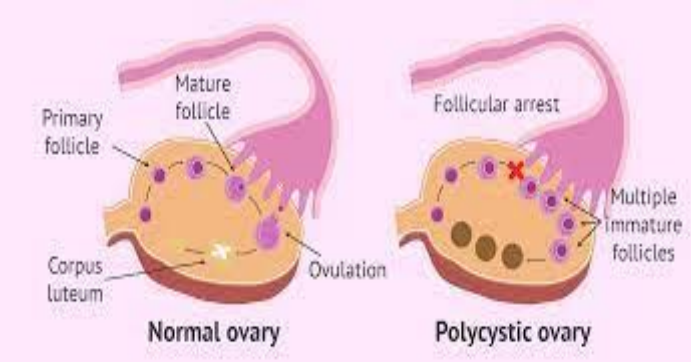
CONCLUSIONS: Daily yoga for 30 minutes with 5 Asanas along with meditation and Shavasana helps in weight reduction and stress management which ultimately stabilize the normal function of hypothalmo-pituitary–ovarian axis and cure PCOD.

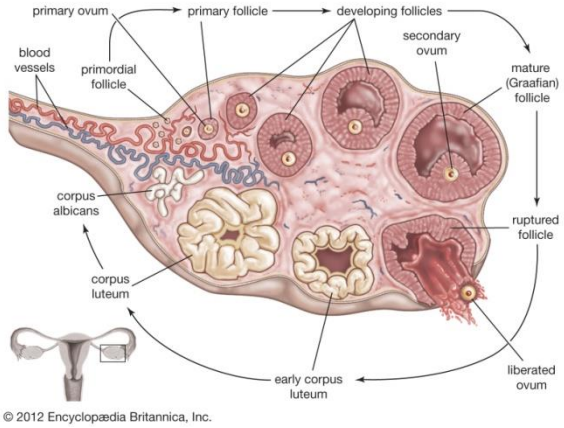
KEYWORDS: polycystic ovarian disease, yoga, obesity, Body Mass Index , infertility.

INTRODUCTION

Polycystic means many cysts. Polycystic ovarian Disease is a complex disorder of chronic oligoanovula-tion or oligomenorrhoea and clinical or biochemical hyperandrogegism. Genetic and environ-mental fac-tors may contribute to this disorder and may affect 14-34 age of women .This is one of the main reason for infertility. Women affected with this syndrome often have ovulatory dysfunction hormonal disbalan-ce, hyperandrogenemia, obesity and hyper insulinemia. PCOD has life-long implications with in-creased risk for infertility, metabolic syndrome, type 2 diabetes mellitus, cardiovascular disease and endometrial carcinoma. [1]

Polycystic ovary Disease (PCOD) is a very common endocrine disorder, of uncertain aetiology, that affects an estimated 5–10% of women of reproductive age. PCOD typically presents during adolescence and is a heterogeneous syndrome that classically is characterized by features of an ovulation (amenorrh-ea, oligomenorrhoea) combined with symptoms of androgen excess (Hirsutism, acne, alopecia). [2]





PHOTOGRAPH: 1 NORMAL OVARIES VS PCOD OVARI

PHOTOGRAPH: 2 OVULATION

Polycystic ovary disease (PCOD) is an endocrine disorder associated with metabolic change in women of reproductive age. It is the most common cause of infertility with physical, mental and hormonal imbalances. The prevalence rate of polycystic ovary disease (PCOD) in India is 9.13%.[3]

It is characterized by irregular, short menstruation, depression, obesity, acne, hair fall, cystic ovary, blood sugar imbalance, etc. Various factors responsible for polycystic ovary disease, but also stress and lack of exercise are the most important factor for exaggerating polycystic ovary disease. [3]

Clinical signs of PCOD include elevated luteinizing hormone (LH) and gonadotropin–releasing hormone (GnRH) levels, whereas follicular-stimulating hormone (FSH) levels are muted or unchanged. As a result of the increase in GnRH, stimulation of the ovarian thecal cells, in turn, produces more androgens.[4]

The word yoga is derived from the Sanskrit root yuj, which means to join or yoke. Philosophically, yoga refers to the connection of the individual self with the universal self. Yoga is one of the six branches of classical Indian philosophy and has been practiced for thousands of years.[5]

Yoga is an ancient discipline designed to bring balance and health to the physical, mental, emotional, and spiri- tual dimensions of the individual. Yoga is often depicted metaphorically as a tree and comprises eight aspects, or ‘‘limbs:’’ yama (universal ethics), niyama (individual ethics), asana (physical postures), pranayama (breath control), pratya- hara (control of the senses), dharana (concentration), dyana (meditation), and samadhi (bliss). Long a popular practice in India, yoga has become increasingly more common in Wes- tern society. In a national, population-based telephone survey (n 1⁄4 2055), 3.8% of respondents reported using yoga in the previous year and cited wellness (64%) and specific health conditions (48%) as the motivation for doing yoga.[6]

Yoga is the union of individual self, jeevatma, with the universal self, paramatma. It is the communion of the human soul with the divinity. Simple meaning of Yoga is union. Yoga is the integration and harmony between thoughts, words, and deeds or integration between head, heart and hands. [7]

NEED *OF STUDY*

Many researchers have studied the individual effect of Suryanamaskar and pelvic opening yoga among with diet and life style mordification but there is no research done without a combination of these two and any diet and lifestyle changes. Thus, it is necessary to conduct the study on Effect of Yoga on PCOD.

AIM AND OBJECTIVES OF THE STUDY

AIM OF STUDY:

To evaluate effect of yoga in PCOD.

OBJECTIVES OF STUDY:

1. To assess and compare the changes in BMI in PCOD before & after 3 months of Yoga.
2. To assess and compare the Oligomenorrhea (irregular menstruation) in PCOD. Before and after 3 months of yoga
3. To assess and compare yoga therapy in PCOD before and after 3 months of Yoga therapy.

HYPOTHESIS

1. **Null hypothesis:**
   There will be no significant impact of yoga in management of symptoms of PCOD.

2. **Research hypothesis:**
   There will be significant impact of yoga in management of symptoms of PCOD.

MATERIALS AND METHODS

STUDY DESIGN - A Quasi- experimental one- way study
SOURCE OF DATA - Hospitals (Ahmedabad)
POPULATION - 18-30 adolescent girls
SAMPLING METHOD- convenient sampling
SAMPLE SIZE - 30
DURATION OF THE STUDY - 3 months
TRETMENT DURETION - 6 session per week for 3 months

METHOD OF COLLECTION OF DATA

1.Inclusion criteria:

- Age limitation 18 to 30
- Menstrual irregular symptoms with PCOD
- Dysmenorrhea
- Obesity with symptoms with PCOD

2.Exclusion criteria :

- PCOS
- Infertility
- Patient takes any treatment or therapy

MATERIALS AND TOOLS USED

- Yoga Mats
- Pillow
- Blocks
- Mobile phones

OUTCOME MEASURES

BMI (Body Mass Index)

- It is a measure of body fat based on your weight in relation to your height. It is more of an indicator than a direct measurement of a person's total body fat. As the BMI score increases, so does the
- person's total body fat increases.
- Formula to check BMI is BMI= weight/ [height (m2)
- BMI weight ranges: Less than 18.5 = Underweight , Between 18.5 - 24.9 = Healthy Weight, Between 25 - 29.9 = Overweight, Over 30 = Obese.

VMSS (verbal multimensiona scoring system) [8]

- The Verbal Multidimensional Scoring System (VMDS) measures both pain and related systemic signs and symptoms, while the Visual Analogue Scale measures only pain. Hence, primary dysmenorrhea was measured in different degrees of severity in different studies. Dysmenorrhea or pain during menstruation is commonly seen in young women and largely impacts their quality of life. Pain medications are largely used to tackle this situation; however, they have side effects with regular use.

METHODOLOGY

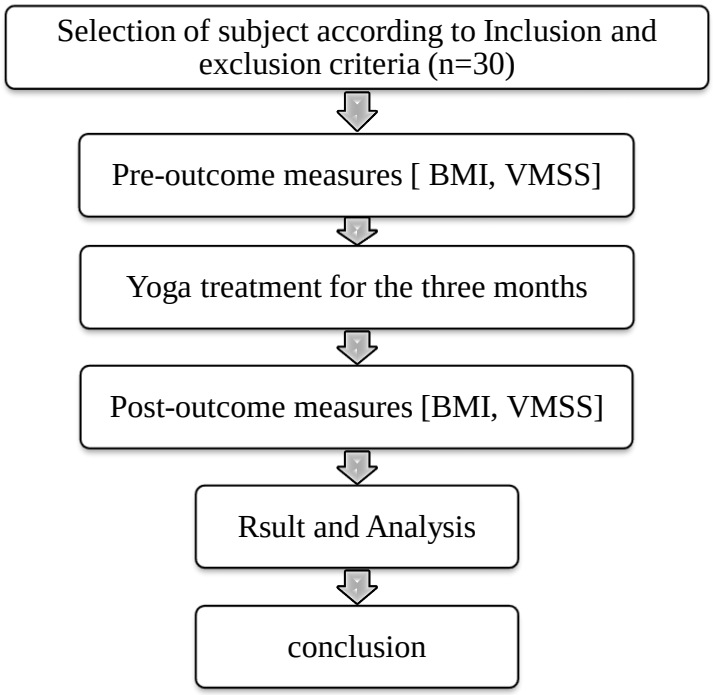


CHART 1: CHART OF STUDY PROCEDURE

The study a quasi -experimental one way study was undertaken by collecting data by convenient sampling of 18-30 age adolescent girls. First of all 30 patients will be selected according to the inclusion and exclusion criteria from the hospitals. Newly diagnosed and a case of PCOD but not under treatment. The patients have already diagnosed dysmenorrhoea severity. All of that patients presenting with complaints of weight gain, irregular periods from several years, lethargy, increased appetite and heaviness in the body.

At the second stage Informed consent was obtained from all the participants. Following which the study was initiated a thorough history was collected using questionnaire in favor of pre outcome measurement.

From all the participants including personal details such as name, age, address and phone number, medical history of any menstrual irregularities (Amenorrhoeal Oligmenorrhoea /menorrhagia) Hyperandrogenism features like (Hirsutism, Acne, Alopecia), history of other exclusion features were collected in detail. As well the Physical examination must be taken in this General examination was done

Height in inch's and weight in kilograms were measured and Body Mass Index (BMI) was calculated as weight/height in meter square; additionally VMSS (verbal multidimensional scoring sysrem) to assessment as concerns to dysmenorrhoea severity. All of that patients presenting with complaints of weight gain, irregular periods from several years , lethargy, increased appetite and heaviness in the body .

After the second stage, all participants will be asked to sign a consent with clear information about the research which will provide a clear understanding of the research project , procedure or treatment and clinical trial. It also includes information of possible risks and benefits, including what the researcher is doing in the field. If a person chooses to take part in the treatment, procedure, trial, or testing, she needs to signs the form to give official consent.

Next stage would be yoga therapy (yoga specific for PCOD along with weight loss) .Therefore for the management of obesity physical exercise, fat reducing medicine and diet is necessary. In this case only Yogasanas were advised without any medicinal treatment and diet management.

Patient prescribes Surya Namaskar, along with pelvic opening asanas. In these yoga package these asanas will include: Suryanamaskar (start with 5 rounds and then slowly increasing the number), Baddhakonasana, Supta baddhakonasana, Ustrasana, Shalabhasana (with 7 repetition) .

These Asanas practiced early in the morning with empty stomach for 45 mins to one hour per day for 3 months. Prior to therapy 6 days of training was given to participant. Participant didn't had any previous experience of yoga practice. Total duration of each asanas during six days training period for three months. While doing these asanas abdomen, thighs and spine are stretched. Stretching helps to reduce extra fat which is accumulated over abdomen, thighs. That's why these Asanas were selected for the study.


PHOTOGRAPH: 3 PATIENTS PERFORMING YOGASANAS


PHOTOGRAPH: 4 PATIENTS PERFORMING YOGASANAS

When patient start practicing yoga, patient was made to perform for 35 mins for seven days of training according to the schedule given in table number 1.

After 7 days yogasana training, duration of asanas was increased. This was followed for 1 hour 15min daily in the morning with empty stomach. Schedule of Yoga therapy practiced for three months by patient as shown in table number 2.

Sr.No.	Yogasanas	Duration	repetition	Rest	Total duration
1	Suryanamaskar	10 min	5	-	10 min
2	Baddhakonasana	30 sec	5	30 sec	3 min
3	Suptabaddhakonasana	30 sec	5	30 sec	3 min
4	Ustrasana	30 sec	5	30 sec	3 min
5	Shalabhasana	30 sec	5	30 sec	3 min

TABLE: 1 YOGA TERAPY FOR SEVEN DAYS

Sr.No.	Yogasanas	Duration	repetition	Rest	Total duration
1	Suryanamaskar	10 min	7	-	10 min
2	Baddhakonasana	30 sec	7	1min	7 min
3	Suptabaddhakonasana	30 sec	7	1min	7 min
4	Ustrasana	30 sec	7	1min	7 min
5	Shalabhasana	30 sec	7	1min	7 min

TABLE: 2 YOGA TERAPY FOR THREE MONTH

In last stage After three months of regular yoga practice history was collected using questionnaire in favor of post outcome measurement from all the participants including personal details such as medical history of any menstrual irregularities (Amenorrhoeal Oligmenorrhoea /menorrhagia). Hyperandrogenism features like (Hirsutism, Acne, Alopecia), history of other exclusion features were collected in detail. In General examination, height and weight were measured in inches and kilograms respectively. In addition physical examination should must be taken and Body Mass Index (BMI) was calculated as weight/height in meter square; additionally VMSS (verbal multidimensional scoring system) to assessment as concerns to dysmenorrheal severity .

RESULT

Study variables were done before starting physiotherapy sessions on group and at the end of the study, study variables include BMI and VMSS.

Data analysis:

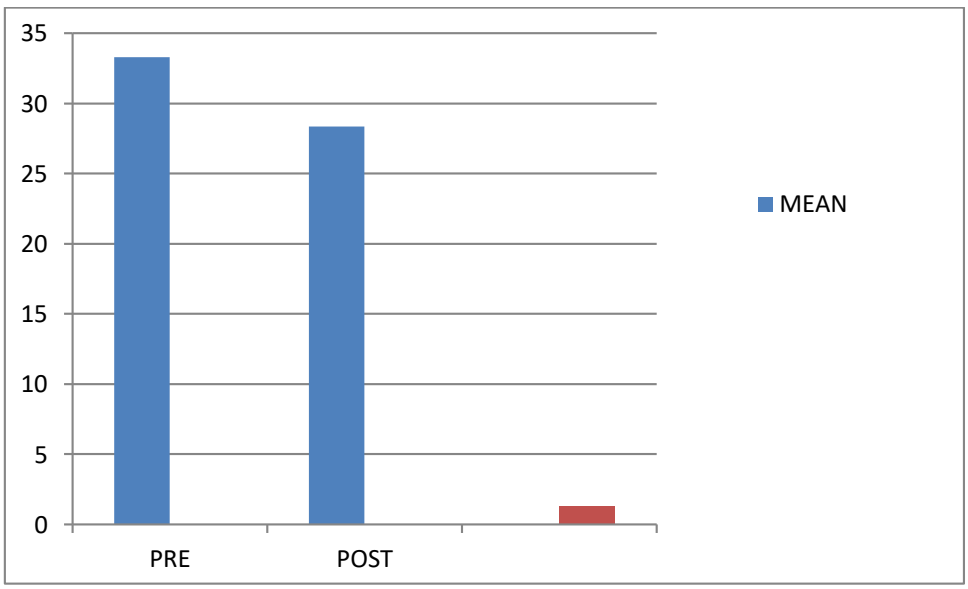
Statistical analysis was performed on the data obtained from 30 patients. Data was analyzed using Social Science statistics. It was a website which working with statistics. Descriptive statistics for all outcome measures were expressed as mean, standard deviations and test of significance such as paired‘t’ test used for comparing within group and comparing between the groups. Data was considered statistically significant with $P<0.05$ and highly significant at $p<0.01$. Pre and post mean difference of BMI shows 33.28 ± 26.64 in pre date collection and 28.36 ± 21.77 in post data collection. As $p<0.05$ there is significant difference between group. Pre and post mean difference values of VMSS shows 2.33 ± 14.67 and 0.93 ± 23.87. This shows a significant difference between two groups.

Group	Mean	Mean Difference	Standard Deviation	"t" Value	"p" Value
Pre Test	33.28	4.29	26.64	4.29812	P<0.05
Post Test	28.36	4.29	21.77		P<0.05

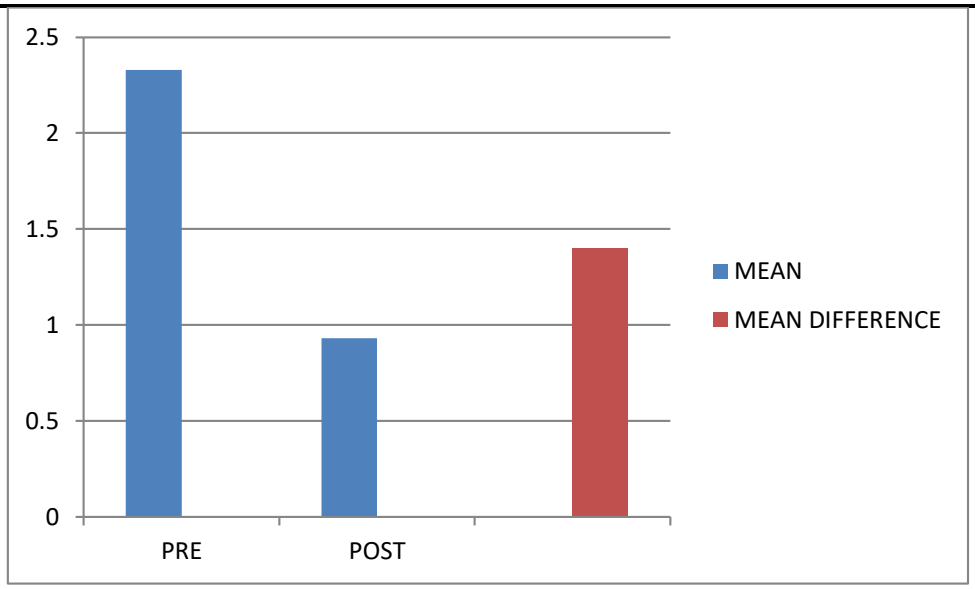
TABLE 3: PAIRED "T" TEST VALUES FOR BMI

Group	Mean	Mean Difference	Standard Deviation	"t" Value	"p" Value
Pre Test	2.33	1.4	14.67	-6.65226	P<0.05
Post Test	0.93	1.4	23.87		P<0.05

TABLE 4: PAIRED "T" TEST VALUES FOR VMSS



GRAPH 1: MEAN VALEUE FOR BMI



GRAPH 2: MEAN VALUE OF VMSS

Outcome Measures	"t" Value	"p" Value
BMI	4.29812	P<0.05
VMSS	-6.65226	P>0.05

TABLE 5: INDEPENDENT "T" TEST VALUES

DISCUSSION

Obesity, hormonal imbalance, mental health problems such as depression, anxiety, stress, etc are among the most common reasons for individuals to seek treatment with Yoga, Asanas and Pranayama. Yoga encourages one to relax, ease the breath and focus on the present,shifting the balance from the sympathetic nervous system and the flight-or-fight response to the parasympathetic system and the relaxation response. It effects are mainly calming and restorative; it lowers breathing and heart rate, decreases blood pressure, lowers cortisol levels, and increases blood flow to the intestines and vital organs.[9]

Yoga calmness of the mind and create a sense of well-being, feelings of relaxation, improved self-confidence, improved efficiency, increased attentiveness, lowered irritability, and an optimistic outlook on life, it also help us treating the symptoms of PCOD such as obesity, stress and hormonal imbalance. It optimizes the body's sympathetic responses to stressful stimuli and restores autonomic regulatory reflex mechanisms associated with stress. The regular practice of Yoga results in lower anxiety, heart rate, respiratory rate, blood pressure, and cardiac output in students practicing yoga and meditation. Consistent yoga practice improves depression and can lead to significant increases in serotonin levels coupled with decreases in the levels of monamine oxidase, an enzyme that breaks down neurotransmitters and cortisol.[9]

Yoga increases blood flow and levels of hemoglobin and red blood cells which allows for more oxygen to reach the body cells, enhancing their function and reducing stress and improving metabolism.Many yoga asanas and postures lowers the resting heart rate, increases endurance, and can improve the maximum uptake and utilization of oxygen during exercise.[9]

The significant positive effects of yoga in reducing stress, anxiety, and depression have been confirmed.

CONCLUSION

Daily yoga for 30 minutes with 5 Asanas along with meditation and Shavasana helps in weight reduction and stress management which ultimately stabilize the normal function of hypothalmo-pituitary–ovarian axis and cure PCOD.

SUMMARY

A study was conducted to evaluate the effect of Yoga therapy on autonomic function and adrenal fatigue in patients with polycystic ovarian disease. 30 PCOD patients were participated in the study & they were given Yoga therapy for 45mins to one hour per day for 3months with 6 days for week. Before and after the therapy, subjects underwent pre and post outcome measurement. The results showed not only a significant reduction in BMI but also regular period cycle per month.

LIMITATION

- Small sample size
- Age group is limited in 18-30 years

FUTURE RECOMMENDATION

Further research can replicate these findings in other variation such as large group or large age group. In addition, comparison between two groups as well as comparison between exercises and yoga. Lastly, yoga therapy with diet plan.

ABBREVIATIONS

- **PCOD:** polycystic ovarian dieses
- **PCOS:** polycystic ovarian syndrom
- **VMSS:** verbal multimensiona scoring system
- **FSH:** follicle Stimulating Hormone
- **LH:** Luteinizing Hormone
- **GnRH:** Gonadotrepin-releasing hormone
- **BIM:** Body Mass Index

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