

Effect of Yoga on PCOS

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Abstract: *An developing lifestyle disorder is polycystic ovarian syndrome (PCOS). A hormonal condition affecting women of reproductive age is PCOS. Menstrual cycles in women with PCOS may be irregular, lengthy, or include an overabundance of male hormones (androgens). The ovaries may produce multiple little fluid-filled sacs (follicles) but not consistently release eggs. PCOS affects seven to ten percent of women and includes several systems. PCOS is a psychological condition with an unknown aetiology that is marked by obesity, anovulation linked to primary or secondary infertility, hirsutism, an irregular menstrual cycle, a higher rate of miscarriage, and problems from pregnancy. As a result, it's crucial to offer both psychic and physical treatment for total PCOS remission. Contemporary medicine is unable to treat PCOS as a disease; instead, they can only relieve its symptoms, which has unfavourable outcomes, numerous side effects, and is also expensive. If medication does not provide symptomatic relief, however, patients are then taken for ovarian drilling surgery. Ayurveda takes a comprehensive approach and considers all elements that determine health, whether they are primary or secondary. Yoga is a complete remedy for a healthy body and mind that can eradicate PCOS's primary causes, stress and obesity. leads to an improvement in life quality. Daily practise of yoga for 30 minutes, meditation, and asanas aids in stress reduction and weight loss, which stabilises the hypothalamic-pituitary-ovarian axis' regular function and treats PCOS. Yoga practise for the treatment of PCOS, a psychosomatic disorder.*

Keywords: Ayurveda, PCOS, Yoga, Ovulation

I. INTRODUCTION

A woman represents beauty. "Beauty must go beyond the surface; it must be preserved inwardly as well. Women's bodies undergo several physiological changes that are most noticeable during the reproductive years. The most priceless gift a woman can receive from God is parenthood. Puberty is the beginning of parenting preparation, and menopause is the finish.

PCOS, also known as polycystic ovarian syndrome, is an endocrine system condition that affects women during their reproductive years. Polycystic ovaries, chronic anovulation, and hyperandrogenism are the main features of PCOS, which cause irregular menstrual cycles, infertility, and hirsutism as symptoms.

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On the other hand, yoga is a free, side-effect-free treatment for PCOS discovered by our holy, ancient science. Yoga essentially promotes stepping beyond of one's comfort zone in order to positively view oneself from a totally different perspective. leads to an improvement in life quality. The need of physical activity (Vyayam) in the treatment of oversaturation disease (SantarpanoViyadhi) was strongly stressed by AcharyaCharak (Vyayamniya)

Yoga is useful for maintaining the health of your uterus and ovaries. Yoga is a priceless gift that can improve human existence. Yoga is a complete remedy for a healthy body and mind that can eradicate PCOS's primary causes, stress and obesity. Yoga can be very helpful in the management and prevention of PCOS. One of the most significant revitalising and regenerating practises is yoga. Yoga is also a fantastic way to reduce stress. Even unwelcome weight gain might result from stress in a woman's life. Developing a calm mood reduces the production of the stress hormone cortisol, which is one of the main factors in the body storing fat.

Amenorrhea, obesity, and hirsutism are symptoms of the illness known as polycystic ovarian syndrome (PCOS), which affects women of reproductive age and is linked to enlarged polycystic ovaries. Menstrual irregularities, obesity, and excessive facial and chest hair growth are among the warning signs and symptoms. , The Quality of Life can be

negatively impacted by psychological problems such as depression, anxiety, bipolar disorder, stress, and sleep apnea (QoL). Infertility, diabetes, cardiovascular disease, dyslipidemia, hypertension, glucose intolerance, and metabolic syndrome are the main consequences of PCOS. For the treatment of PCOS, there are a number of drugs that have varied degrees of efficacy and are linked to drug-related issues. Changing one's lifestyle is a proven first-line strategy for preventing PCOS, according to the evidence. A modest modification in lifestyle can significantly reduce the risk of PCOS. It is clear that there are no treatments that can fully reverse PCOS. It is commonly known that lifestyle changes including a healthy diet, yoga, and exercise can lessen the symptoms and severity of a condition.

The frequency of PCOS varies greatly in India, from 2.2% to 26%. South Indian states like Andhra Pradesh have a frequency of 9.13%, and the district of Nellore in the same state has a prevalence of 15.4%. 20% of people live in Telangana, a nearby state in South India. The prevalence of PCOS is steadily rising in Bangalore, in the state of Karnataka. In Lucknow, a city in north India, the incidence of PCOS is 3.7%, in New Delhi, the nation's capital, it is 46.8%, and in Kerala, a state in south India, it is 26.4%. In addition, even though they had a rudimentary understanding of the reproductive system and PCOS, the prevalence rate of PCOS among medical undergraduate girls in Pondicherry was 12.18% and in Thiruvananthapuram it was 9.8%. Both of these cities are in South India. These findings indicate that PCOS is becoming more common in India.

On a daily basis, one can observe a significant shift in the way of life of the Indian populace, which is more frequently attributed to India's experience with globalisation over the previous three decades. In the past, Indian women were required to perform strenuous household tasks including fetching water from a well, working in the fields, washing clothes by hand, creating beautiful arts for their homes (Rangoli), using an AmmiKal to grind grain, and so on. Many of these chores around the house are probably related to better endocrine function. These exercises from a natural lifestyle are being replaced by modern gadgets and technologies as a result of technological growth. Teenage ladies spend their free time on their smartphones, television, video games, and other technology. So, there isn't much room for physical activity. Yoga and exercise are examples of lifestyle changes that reduce risk, are inexpensive, don't involve frequenting a gym or health club, and have no adverse impact on adolescent girls' reproductive systems. So, it is important to take into account lifestyle changes as a potentially effective way to lower the risk of PCOS.

Also, schools can be used as a venue for teaching kids about healthy lifestyles. Children at school are in their formative years and are therefore more adaptable to change, making it easier for parents and instructors to mould them. The adolescent girls who attend school have shown to be receptive and willing to listen. Teachers may also be included in schools, and they may be very helpful in identifying, inspiring, and instructing students. Moreover, because of their low socioeconomic status, limited access to the internet and smartphones, and low reading levels, students and parents from Government-run schools may not be aware of the risk of PCOS. So, it can be said that schools are the perfect venue for teaching about lifestyle modifications and related awareness in an effort to lower the risk of PCOS. While there is no perfect cure for PCOS, risk assessment seems to be the most effective way for detecting the problem at its early stage and motivating teenagers to seek interventions. There have been many different kinds of research studies in this field, but none specifically focused on the risk assessment and effects of lifestyle changes on PCOS in adolescent girls who are enrolled in school. All of these circumstances led the researcher to start this study with the goals of identifying adolescent girls at risk for PCOS and assessing the effect of yoga and exercise on adolescent girls' PCOS risk.

II. ABOUT YOGA

The word "union" is YOGA. union of the intellect with super natural power after being freed from the jarring elements of the outside world. The mind is a zone of conflict between the sattva (calm), rajas (passive), and tamas (inert) characteristics of nature. Yogic practises significantly aid in the development of mental abilities and potential. In Ayurveda, Charak Sharisthan asserts that yoga is extremely important for humans. He also says that moksha, the ultimate goal of human existence, results from the separation of the mind from its object. Asthangyoga is described as follows by Maharshi Patanjali.

- 1) Yama - Abstention
- 2) Niyama- Strict observance
- 3) Asana – Easy posture
- 4) Pranayama- control Breath

- 5) Pratyahara- withdrawal of sense
- 6) Dharana- Concentration
- 7) Dhyan- Meditation
- 8) Samadhi-Contemplation

The first two of Patanjali's Ashtanga Yoga, Yama and Niyama, are primarily focused on a person's conduct towards the outside world, particularly in terms of ethics and morals. Asana, Pranayama, Pratyahara, Dhyan, and Samadhi, which are all forms of rest, are primarily focused on controlling mental processes. They are quite helpful in resolving a variety of women's life disorders, including the following.

III. SCIENCE OF YOGA THAT WORK FOR WOMEN WITH PCOS

The science of yoga targets stress and obesity as the primary causes of PCOS. Yoga goes well beyond merely the level of the physical body. Yoga assists in releasing the body's deep-seated stress, which can aid with PCOS symptoms. Yoga is a psycho-somatic spiritual discipline that focuses on obtaining the highest state of awareness via the practise of specific practises including yoga postures (Asanas), breathing techniques (Pranayam), and meditation (Dhyana). Yoga has both preventive and curative potential, according to documented scientific research. It can be used as a reliable lifestyle supplement to medical treatment to enhance the quality of life in PCOS people because it is a safe therapeutic approach.

1. Weight-bearing positions help to increase muscle. A significant component of managing PCOS is insulin resistance, which is countered by increased muscle mass.
2. A vigorous yoga practise raises heart rate, resulting in a cardio workout and weight loss.
3. By promoting hormonal balance and profound relaxation, asanas and pranayama can help stressed-out PCOS brains and bodies stabilise their adrenal and cortisol levels.
4. In order to bring the body into equilibrium, yoga philosophy and Ayurveda define specific positions as energising energy systems that may be inactive in women with PCOS. The steady and comfortable posture leads to better muscle and nervous system coordination.
5. Increase in rectifying endocrine gland secretion that is too much or too little so that their ideal integration is attained.
6. Hormones cause our emotions to be shaken, but their taming results in emotionally balanced and cognitively poised personalities, as well as the development of a strong will.
7. There are numerous yoga positions that are beneficial for PCOD. A few of their advantages include the following: 1) They increase blood circulation and blood muscle tone when practised. vasculature aid in the body's elimination of built-up toxins and metabolic waste. b) To stimulate the adrenal gland, hypothalamus, pituitary, and thyroid glands. Keep the H-P-O axis constant.

IV. YOGA FOR PCOD

The most prevalent female endocrine condition is Poly Cystic Ovarian Syndrome (PCOS), with prevalence estimates ranging from 2.2 percent to as high as 26 percent. The aetiology of PCOS is thought to be a combination of genetic predisposition and lifestyle factors. A modified lifestyle that includes a high-calorie diet and inactivity leads to obesity and insulin resistance, both of which are known to exacerbate PCOS. It has also been established that stress and PCOS are related. Adult women with PCOS have a 2-fold higher chance of developing the metabolic syndrome and a 10-fold higher risk of type 2 diabetes. According to some research, women with PCOS may experience dysregulation of the Hypothalamus-Pituitary-Ovarian axis (HPO axis) due to continuous stimulation of sympathetic activity brought on by stressful lifestyle choices.

The integrative mind-body practise of yoga is believed to lower sympathetic tone and stress. In a recent randomised controlled experiment, holistic yoga for 12 weeks was found to be considerably more effective than physical activity in normalising menstrual frequencies and lowering levels of Anti-Mullerian Hormone, Luteinizing Hormone, and Testosterone in PCOS patients. Yoga not only deals with PCOS issues, but it also has a good chance of preventing long-term concerns including diabetes, cardiovascular disease, and others. Also, yoga may be more affordable and long-lasting due to its comprehensive approach. Hence, for the management of PCOS, yoga may be suggested as a

primary intervention as well as/or as a supplement to conventional medical care. Following yogic practices are found to be useful in PCOS:

1. Physical postures (*Asanas* - 1 min each): a) Surya *Namaskara* (Sun Salutation) for 10 min; b) prone *asanas*-Cobra Pose (*Bhujangasana*), Locust Pose (*Salabhasana*), Bow Pose (*Dhanurasana*); c) standing *asanas* such as Triangle Pose (*Trikonasana*), Twisted Angle Pose (*Parsva -konasana*), Spread Leg Intense Stretch (*Prasaritapadottanasana*); d) supine *asanas*- Inverted Pose (*ViparitaKarni*), Shoulder Stand (*Sarvangasana*), Plough Pose (*Halasana*); e) sitting *asanas*- sitting forward Stretch (*Paschimottanasana*), fixed angle Pose (*Baddha- konasana*), Garland Pose (*Malasana*)
2. Breathing Techniques (*Pranayama* – 2 min each): Sectional Breathing (*Vibhagiya- Pranayama*), Forceful Exhalation (*KapalaBhati*), Right Nostril Breathing (*Suryanuloma Viloma*) 2min, Alternate nostril breathing (*Nadisuddhi*)
3. Guided relaxation (*Savasana*) for 10 min
4. OM Meditation (*OM Dhyana*) for 10 min
5. Group Lecture: Lectures, in the form of cognitive restructuring based on the spiritual philosophy underlying yogic concepts, spiritual coping strategies etc.

V. REVIEWS ON RELATED LITERATURE

If thrice-weekly mindful yoga practise in PCOS women affects endocrine, cardio metabolic, or psychological markers was examined by Patel V et al. in 2020. Thirty-one PCOS-afflicted women between the ages of 23 and 42 who lived in Erie County, Pennsylvania, were recruited for this randomised, controlled research arm, which was a component of a larger 3-part investigation. Women are randomly assigned to either the no-intervention (control) group or the mind-full yoga intervention group. Group lessons last an hour and occur three times per week. The original endocrine, cardiac biochemical, and psychological measures were correlated with the values made throughout the 3-month induction period. The measurements included free testosterone, dehydroepiandrosterone, and rostenedione as well as body mass index, waist-to-hip ratio, fasting blood glucose and insulin levels as well as assessments of anxiety and sadness. Twenty-two girls, 13 in the conscientious yoga group and 9 in the control group, completed the 3-month intervention period. When pre- and post-intervention criteria were compared side by side, it was shown that women who practised mindful yoga had somewhat lower levels of free testosterone.

The Nidhi Ramet (2013) Teens with polycystic ovarian syndrome were evaluated using a therapeutic yoga technique together with a regular exercise regimen (PCOS). Ninety (90) teenage females (15–18 years old) who fit the Rotterdam requirement were randomly divided into two classes at a residential institution in Andhra Pradesh. The yoga community practised a holistic yoga module, while the control group engaged in a corresponding series of physical exercises (1 hour per day for 12 weeks). At inclusion and 12 weeks later, measurements of the anti-mullerian hormone (AMH- primary outcome), luteinizing hormone (LH), follicle-stimulating hormone (FSH), testosterone, prolactin, body mass index (BMI), hirsutism, and menstrual duration were taken. The Mann-Whitney differential score test reveals significant differences between the two intervention groups in the ratios of AMH ($Y=-2.51$, $C=-0.49$, $p=0.006$), LH, and LH/FSH (LH: $Y=-4.09$, $C=3.00$, $p=0.005$; LH/FSH: $Y=-1.17$, $C=0.49$, $p=0.015$). In the two groups, there were significantly different changes in testosterone ($Y=6.01$, $C=2.61$, $p=0.014$) and the Adjusted Ferriman and Gallway (mFG) score ($Y=1.14$, $C=+0.06$, $p=0.002$). On the other hand, there was little difference between the two groups in the post-intervention increases in FSH and prolactin. While there were no significant variations in body weight or BMI between the two classes, there were significant differences in menstruation frequency changes ($Y=0.89$, $C=0.49$, $p=0.049$). A 12-week therapeutic yoga programme performs noticeably better in reducing AMH, LH, and testosterone, hirsutism mFG score, and improving - anti menstrual frequency compared to aerobic exercise.

VI. CONCLUSION

Yoga is a holistic form of science and art. This is due to the fact that the prescribed Yoga Kriyas (cleaning exercises), Pranayamas (breathing methods), and Asanas (poses) routines serve to tone up the entire system. Significant insulin resistance, obesity, and an elevated androgen level are all symptoms of PCOS in women. By adopting lifestyle changes, weight loss is the primary preventive and therapeutic potential to tackle this calamity. The key to maintaining one's health and regulating endocrine system activities is an ayurvedic diet that emphasises wholesome food (PathyaAhar) and yoga interventions. The use of breathing exercises (Pranayam) can significantly reduce PCOS symptoms brought on by long-term mental stress and keep sufferers motivated to combat the illness. All of these lifestyle changes help PCOS patients live healthier lives and raise conception rates. Daily practise of yoga for 30 minutes, including 4 Asanas, 4 Pranayama, meditation, and Shavasana, aids in stress reduction and weight loss, which in turn stabilises the hypothalamic-pituitary-ovarian axis' regular function and treats PCOS. Hence it's time to acknowledge yoga's value as a secure and successful PCOS treatment.

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