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# Therapeutic Yoga for the management of Polycystic Ovarian Syndrome - A Review

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## ABSTRACT

**Background:** Polycystic ovarian disease is a lifestyle disorder with no specific etiology and it manifests as group of symptoms making its diagnosis difficult. PCOS is characterized by small cysts in the ovary where the women experience reproductive, psychological and hormonal imbalances which results in obesity, anovulatory cycle associated with Primary or Secondary infertility, hirsutism, irregular menstrual periods, excessive androgen levels, pregnancy related complications. The sedentary lifestyle, dietary variations, lack of exercise and stress are contributory factors. Decoding the exact cause of PCOS remains a challenge for scientists around the world. However, it's understood that PCOS is influenced by a combination of genetics and lifestyle factors. It is a multifaceted disorder that requires effective management to prevent possible long-term health issues. Stress is playing important factor in exaggerating PCOS. Therapeutic *Yoga* blends restorative gentle *Yoga* (supported postures), breath work (*Paranayam*) and meditation techniques combined in such a way that it is an excellent choice of treatment for PCOS. Treatment includes lifestyle modification, weight loss, stress management. *Yoga* can prove to be effective. *Yoga* poses stretch the pelvic area and Pranayama, meditation soothe the mind. Thus, *Yoga* regulates the endocrine glands in the body thereby beneficial in balancing of hormones. *Yoga* is one of the important refreshing and effective for bringing the body into balance and reducing stress.

**Key words:** PCOS, Therapeutic Yoga, Pranayam

## INTRODUCTION

The term polycystic ovarian syndrome (PCOS) was originally described in 1935 by Stein and Leventhal as a syndrome manifested by 'Amenorrhea', 'Obesity' and 'Hirsutism' associated with enlarged polycystic ovaries. Hence it is also known as the 'Stein-Leventhal Syndrome'.<sup>[1]</sup>

PCOS is characterized by small cysts in the ovary. About 5-10% women are diagnosed with PCOS. Imbalances in hormonal production by ovaries lead to increase in the

level of androgens. Therefore, PCOS is a state of androgen excess and chronic anovulation. Nowadays, it is also referred to as the 'Syndrome O' i.e. over nourishment, overproduction of insulin, ovarian confusion and Ovulatory disruption.

As per the Rotterdam Criteria, PCOS is defined as the presence of any two of the three features: (i) Oligo/amenorrhoea: Absence of menstruation for 45 days or more and/or  $\leq 8$  menses/year. (ii) Clinical hyperandrogenism: Modified Ferriman and Gallwey Score of 6 or higher. (iii) Polycystic ovaries in the pelvic ultrasound scan. PCOS has a genetic predisposition but its exact etiopathogenesis is not clear.

PCOS is the endocrine and metabolic disorder related to reproductive system. The exact cause of PCOS is unknown; however, it has certainly been linked to a variety of etiological factors. It is considered as multifactorial metabolic disease caused due to hormonal imbalance. Hormonal imbalance is occurring mainly due to several factors such as diet, genetics, environmental factors and lifestyle.<sup>[2]</sup>

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PCOS is an emerging lifestyle disorder involving multiple systems occurring among 5-10% of the Indian adult female population in their reproductive period. It is believed that both genetic predisposition and lifestyle factors like obesity and stress contribute to the etiology of PCOS. Physical activity has been reported to ameliorate anovulation, insulin resistance, hypertension and high lipid profile in women with PCOS.<sup>[3]</sup>

Researches has also reported the effect of Yoga program (consisting of Asanas, Pranayama, Dhayna-Relaxation guide) and conventional physical exercise on glucose metabolism and lipid profile in PCOS subjects after practicing it daily for 1hour for consecutive 12 weeks and found that Yoga was more effective than conventional physical exercise in improving glucose, lipid, insulin sensitivity.<sup>[4]</sup>

### Symptoms of PCOS<sup>[5]</sup>

Menstrual abnormalities (70%), Weight gain (obesity central – 50%), Presence of hirsutism and acne (70%). PCOS is characterized by chronic anovulation and hyperandrogenism in the absence of underlying adrenal or pituitary disease. Women with PCOS may complain about variable clinical manifestations loss including oligomenorrhoea, hirsutism, acne and infertility, Hair loss (Thinning of hairs on scalp), blood sugar imbalance, Acanthosis Nigricans etc.

### Table 1: Pathophysiology<sup>[6]</sup>

Exact pathophysiology not clearly understood it may be discussed under following heads

Mechanism	Manifestations
Pituitary dysfunction	High serum LH, FSH decreased, FSH:LH ratio increased
Anovulatory menstrual cycles	Oligomenorrhoea Secondary amenorrhoea Cystic ovaries Infertility
Androgen excess	Hirsutism acne
Obesity	Hyperglycemia Elevated oestrogens
Insulin resistance	Dyslipidaemia Hypertension

Lifestyle modification is widely used treatment for PCOS. Yoga is a complete therapy for the healthy body and mind which can relieves the symptoms such as obesity and stress, ultimately leads to better quality of life. *Yogasana* promotes hormonal balance and deep relaxation helping to bring the adrenal and cortisol levels normal. It helps to stimulate the functions of the reproductive organs, relieves menstrual discomfort, normalizes the menstrual cycle, increases blood flow to the reproductive organs and enhances the functions of the ovaries.<sup>[7]</sup>

### Diagnosis

The diagnosis of PCOS is usually based on the clinical manifestation, ultrasonography and biochemical criteria.

#### 1. Clinical diagnosis

Confirm by history taking specifically for menstrual pattern, obesity, hirsutism, and breast discharge.

#### 2. Ultrasonography (Abdominal/ Transvaginal)

There may be 12 or more follicles each of 2- 9 mm in size placed peripherally giving a “Necklace appearance” on ultrasound. The theca cell hyperplasia and stromal hyperplasia account for the increase in the size of ovaries 10 cm<sup>3</sup> in volume.

#### 3. Biochemical parameters

- Oestrone level elevated
- LH level raised, FSH level decreases
- FSH:LH decreases, LH:FSH raised
- Testosterone and DHEA-S level raised (Testosterone >2ng/ml, Free T >2.2 pg/ml)
- Prolactin mildly raised in 15% cases
- Fasting insulin is more than 10mIU/l
- Thyroid function test may be abnormal

### Long term consequences of PCOS

Women with PCOS having risk of following-

- Endometrial Cancer
- Complications in pregnancy

- Sleep Apnea
- Anxiety
- Depression
- Hypertension and cardiovascular disease
- High cholesterol
- Diabetes Mellitus
- Breast cancer

### Management of PCOS

Management of PCOS needs individualization of patients. It depends upon her presenting symptoms. There are many modern and traditional treatments available for PCOS. Lifestyle modification is widely used treatment for PCOS. Yoga is a complete therapy for the healthy body and mind which can relieve the symptoms such as obesity and stress, ultimately leads to better quality of life. *Yogasana* promotes hormonal balance and deep relaxation helping to bring the adrenal and cortisol levels normal. It helps to stimulate the functions of the reproductive organs, relieves menstrual discomfort and normalizes the menstrual cycle, increases blood flow to the reproductive organs and enhances the functions of the ovaries. Routine life stress and faulty modern lifestyle are main causative factors of PCOS hence Yoga can play an important role in the prevention and management of PCOS.

### Benefits of Therapeutic Yoga in PCOS

The usefulness of Yoga for overall health and wellbeing need no new introduction and it can also be practiced as a supplemental exercise for women suffering from PCOS in order to manage the symptoms in an effective manner.

- **Yoga relieves stress** - It is necessary to relax the mind in order to keep cortisol levels under control. High cortisol levels show itself in the form of testosterone which in turn promotes weight gain. The soothing and calming effect of Yoga helps to alleviate stress and reduce the levels of stress hormones in the body.
- **Yoga promotes weight loss** - Weight loss is the most essential part of treatment as it rectifies

hormonal imbalance, elevates the insulin and sex hormone binding globulin levels and reduces the testosterone levels. Several Yoga postures aid in weight loss, relieve stress and improve the ovarian blood supply thereby assisting treatment of PCOS. Yoga postures which open and stretch the lumbar and pelvic region and arousing the thyroid, pituitary and hypothalamic glands.<sup>[8]</sup>

- **Yoga increases fertility** - PCOS causes hormonal imbalance leads to infertility. But Yoga poses help to enhance blood supply to the brain which in turn aids to restore hormonal balance. Certain poses also stimulate the functions of the thyroid gland and increase the chances of conception.
- **Yoga helps to regulate the endocrine glands** in the body thereby beneficial in balancing of hormones. Yoga (*Asanas* and *Pranayama*) promotes hormonal balance and deep relaxation, helping to bring the adrenal and cortisol levels of stressed-out. Yoga is effective in keeping ovary and uterus healthy along with solve the issues of PCOS..

### Yoga Poses for the Management of PCOS:<sup>[9]</sup>

#### 1) Physical postures (Asanas - 1 min each):

- a) *Surya Namaskara* (Sun Salutation) for 10 min.
- b) Prone Pose - *Bhujangasana* (Cobra Pose), *Shalabhasana* (Locust Pose), *Dhanurasana* (Bow Pose), Standing Pose - *Trikonasana* (Triangle Pose), *Parsva - Konasana* (Twisted Angle Pose), *Prasarita Padottanasana* (Spread Leg Intense Stretch).
- c) Supine Pose - *Viparita Karni* (Inverted Pose), *Sarvangasana* (Shoulder Stand), *Halasana* (Plough Pose).
- d) Sitting Pose - *Paschimottanasana* (sitting forward Stretch), *Baddha-Konasana* (fixed angle Pose), *Malasana* (Garland Pose).

#### 2) Breathing Techniques (*Pranayama* - 2 min each):

*Vibhagiya Pranayama* (Sectional Breathing), *Kapala Bhati* (Forceful Exhalation), *Nadi Shodhan* (Alternate nostril breathing), *Bhramari Pranayam*

#### 3) Meditation (Guided relaxation) for 10 min

*Nishpandabhav, Shavasan*

**Surya Namaskar (Sun Salutation)** - The twelve Yoga poses in the Sun Salutation is good to enhance flexibility in the body as well as effective in controlling hormonal imbalance. Surya Namaskar is also helpful in controlling of weight. Sun Salutation helps to de-toxify and de-stress the entire system. It balances the whole endocrinal system by direct massaging of glands and increasing blood flow to organ thus regularizes the menstrual cycle.<sup>[10]</sup> This pose accelerates weight loss if performed at a fast pace while a few slow rounds daily assists relaxation It promotes sleep, calms anxiety and improves memory. It also strengthens the abdominal muscles.<sup>[11]</sup>

**Bhujangasana (Cobra pose)** - Cobra pose exerts pressure on the stomach and helps to stimulate ovarian function. It improves menstrual irregularities, elevate mood, reduces fat helps to improve blood circulation and maintain hormonal balance. It has many advantages like improves digestion, bust stress, good for chest, lungs, and shoulder.<sup>[12]</sup>

**Shalabhasana (Superman Pose)** - This is an essential Yoga pose for PCOS infertility treatment that looks almost like the signature move of Superman. This specific Yoga poses works as good as belly breathing exercise for developing a toned abdomen. It also helps to promote blood circulation to the reproductive organs, tones the abdomen and lower back muscles, strengthens the chest, shoulder, arms, and legs and opens the chest.

**Dhanurasana (Bow pose)** - The bow pose is another functional posture that is used for polycystic ovary syndrome treatment using Yoga. It helps to stimulate the functions of the reproductive organs, relieves menstrual discomfort and normalizes the menstrual cycles. It also helps people with kidney disorders, opens up the chest, neck, and shoulders and strengthens the core muscles.

**Trikonasan (Triangle Pose)** - The triangle pose strengthens the legs and stretches the hips, groins, and hamstrings. It can improve overall flexibility and circulation, potentially helping in managing PCOS symptoms. The pose improves blood circulation to the

pelvic area, supports digestion, and engages the core muscles, which can be beneficial for hormonal balance.<sup>[13]</sup>

**Parshvakonasana (Twisted Angle Pose)** - It eases menstrual pain and strengthens legs. It provides an energy boost to the entire body and enhances breathing. This posture promotes joint flexibility, stimulate abdominal organ so it improves digestion.<sup>[14]</sup>

**Prasarit Padottanasan** - The lower back and hamstrings are deeply stretched in this pose. It can assist increase circulation and ease pelvic strain. This pose's inversion promotes blood flow to the pelvis, which can help maintain hormonal balance and the health of the reproductive organs.<sup>[15]</sup>

**Viprit Karani** - It help to reduce stress and anxiety. This pose allows blood flow more easily to the pelvic area, supporting reproductive health and hormonal balance. It also promotes relaxation and improved sleep.

**Sarvangasana (Shoulder stand)** - It has direct effect on Thyroid and parathyroid gland. It is useful to maintain the normal thyroid values. It is beneficial for the reproductive system as it promotes blood circulation to the pelvic region thus increasing the efficiency of the reproductive organs. It is useful urinary disorder, menstrual problems, hernia etc.<sup>[16]</sup>

**Halasana** - Calms the nervous system reduces stress and fatigue. *Halasana* also tones the legs and improves leg flexibility. Stimulates the thyroid gland and strengthens the immune system.<sup>[17]</sup>

**Paschimottanasana** - It stimulates blood flow of back, abdominal region and pelvic region so work properly. It has calming and soothing effect on nervous system so get relief from stress and anxiety.<sup>[18]</sup>

**Badhakonasana - Baddhakonasana** stretches legs and stimulates the blood flow of legs. It removes fatigue from long standing and walking. It gives relief from menstrual discomfort and menopausal symptoms.<sup>[19]</sup>

**Malasana** - *Malasana* improves digestion. It is an excellent exercise for pelvic floor health. It stretches ankles, groin region and tone up the belly fat.



**Other Yoga poses beneficial for PCOS:**

**Bhadrasana (Butterfly pose)** - This is an effective *Asana* for those who are experiencing PCOD. This posture causes deep stretching of groin and pelvic region improves circulation and flexibility of reproductive organ. It also stimulates the digestive organs. Regular practice of this posture is beneficial to the kidneys, bladder, prostate gland, ovaries. *Bhadrasana* offers relief from varicose veins, sciatica, and menstrual discomfort.

**Ushtrasana (Camel pose)** - This *Asana* stimulates the abdominal organs, stimulates the thyroid gland and reduces the abdominal fat. It also improves digestion.

**Padmasana (Lotus pose)** - *Padmasana* is a basic meditation pose that is often included in *Pranayama* Breathing Exercise. This pose helps to stretch the pelvic region and also helps to correct hormonal imbalance which is vital for PCOS treatment. It helps to reduce menstrual discomfort, control blood pressure, ease childbirth and relax the mind.

**Naukasana (Boat pose)** - *Naukasana* is good in case of PCOS as the boat pose put excess pressure on the abdominal region. The boat pose is one of the useful *Yogasanas* for PCOS treatment that is also beneficial for weight loss as well. It is the best type of Yoga for weight loss that helps to achieve a perfectly flat abdomen. It puts controlled pressure on the abdominal region, increases blood flow to the reproductive organs and enhances the functions of the ovaries.<sup>[20]</sup>

**Chakki Chalanasana (moving the grinding wheel)** - Helps to modify the endocrine glandular function thus enhances the efficiency of hormonal secretion. The pose massages the liver, kidneys, pancreas, uterus and reproductive organs. It tones the uterine muscles and is very useful in preventing dysmenorrhoea if practiced regularly. Similarly consistent practice also helps to reduce the abdominal fat. Different Yoga poses like forward and backward bending enhance the energy flow in the second chakra which is known as the seat of creation and contains the reproductive organs. Yoga poses relax the abdomen area which improves blood flow to the reproductive organs and relieves tension in

the area. Yoga positions help to improve ovulatory functioning by reducing tension.

**Pranayam for PCOS**

*Pranayama* is control of breath. *Prana* is vital energy and *Ayam* means control. Regular practicing *Pranayama* techniques increases lungs efficacy, life span and maintains health by controlling the process of breathing.

- **Kapalbhati (Cleansing breath)** - *Kapalbhati Pranayama* is practiced before meditation to improve concentration span while practicing meditation. In *Kapalbhati* the breathing is with high force which provides great impact on abdomen and pelvic organ. It also increases the blood circulation and corrects glandular secretions which help in management of PCOS. (21)
- **Ujjayi (Ocean breath)** - *Ujjayi* is an audible breath that is often compared to the sound of the ocean. It is most common form of *pranayama* used during *asanas*. It is useful in depression and helps to regulate body temperature.
- **Nadisodhan Pranayama (Alternate Breathing)** - It is also called *Anulom Vilom*, which helps to relax body and mind. Thereby helpful in reducing anxiety. It brings peace and comfort to your body thus cures PCOS naturally. It promotes overall wellbeing.
- **Bhramri Pranayama** - It is the only *Pranayamas* which control all the negative domains such as stress, strain, anxiety, tension, depression, etc. So, it is helpful in contending your mood swings. *Bhramari Pranayama* prevent the hypothalamic - pituitary axis from receiving estrogen-negative feedback by inhibiting estrogen biosynthesis, thus increasing follicle - stimulating hormone (FSH) production and promoting follicle growth. Thus FSH/LH ratio became normal. Ovulation occurs at proper time and menses get regular.<sup>[22]</sup>

**Meditation for PCOS**

Meditation will help to stabilizing your mind and acts like as mood elevator and facilitates calming effect.

Meditation brings harmony within the body, mind and emotions to control PCOD naturally.

- **Nispandabhav (Unmoving Observations)** - Stress and tension have negative impact on the symptoms of PCOS and make things worse, so controlling stress is also an important part of the treatment. One of the best ways to alleviate stress is by practicing Conscious relaxation through Nispanda Bhava, which works as good relaxing techniques. This exercise involves passive listening which brings forth mental peace and relaxation.
- **Shavasana (Corpse pose)** - Last but not the least is the corpse pose, which holds an extremely important place in Yoga, and no Yoga session can come to an end without this ending posture. This relaxing posture is beneficial for polycystic ovary syndrome also because it helps to relax the body and mind and relieve stress and tension in an effective manner.

## DISCUSSION

Regular *Yogasana* practice is associated with increases endorphins and decreases insulin and estrogen, it aids in preserving hormonal balance. It improves the mood of PCOS sufferers as well. It has been discovered that because of hormone irregularities and symptoms, PCOS patients are more likely to experience depression. *Yogasana* alters glandular functions and maximize the effectiveness of the endocrine system. Exercise on a regular basis releases endorphins, which are feel-good hormones. Along with a healthy diet, Yoga and meditation have been shown to help people lose weight. The benefits of Yoga pose include physical, mental and emotional balance to naturally manage PCOS

## CONCLUSION

PCOS is a life style disorder that has no specific etiology. Thus, adopting holistic approach with Therapeutic Yoga can proved to be an effective management of PCOS. Yoga can help reduce the effects of PCOS by promoting both mental and physical healing. Because of its holistic approach, Yoga might be more cost-effective and long-lasting. Because of this,

Yoga may be recommended as a primary intervention or as an addition to standard medical care. The benefits of Yoga practice for women with PCOS to aid in their recovery are discussed in this paper. Finally, Therapeutic Yoga is one of the most beneficial forms of exercise for the body, mind and spirit of women with PCOS and most importantly without any side effects. Restorative Yoga (supported postures), breath work and guided meditation techniques are all incorporated in therapeutic Yoga, making it a great option for maintaining good health. Therapeutic Yoga, which includes *Asana*, breathing exercises, meditation aids in systemic detoxification and stress reduction. Yoga facilitates relaxation and pelvic stretches, while pranayama and meditation aid to quiet the mind. Hence it is most significant and revitalizing modality for the management of PCOS.

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