

EFFICACY OF KAPALBHATI PRANAYAMA IN POLYCYSTIC OVARY SYNDROME (PCOS): A REVIEW ARTICLE OF CLINICAL STUDIES

***Dr. Kalpana K. Jadhav, Dr. Ashwini K. Patil**

DEAN., MD (Ayurved) Swasthavritta, Professor, Department of Swasthavritta, Yashwant Ayurvedic College, Post Graduate Training and Research Centre, Kodoli, Tal. Panhala, Dist. Kolhapur, Maharashtra. 416114.

H.O.D., Ph.D. Scholar, H.O.D. and Associate Professor, Dept of Swasthavritta Yashwant Ayurvedic College, P.G.T. and R.C. Kodoli, Kolhapur.

M.D. Scholar, Swasthavritta and Yoga Yashwant Ayurvedic College, P.G.T. and R.C. Kodoli, Kolhapur.

M.D. Guide and Asso. Professor, Dep. of Swasthavritta and Yoga Yashwant Ayurvedic College, P.G.T. and R.C. Kodoli, Kolhapur.

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*Corresponding Author

Dr. Kalpana K. Jadhav

DEAN., MD (Ayurved)
Swasthavritta, Professor, Department
of Swasthavritta, Yashwant
Ayurvedic College, Post Graduate
Training and Research Centre,
Kodoli, Tal. Panhala, Dist.
Kolhapur, Maharashtra. 416114.



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ABSTRACT

Background: Polycystic Ovary Syndrome (PCOS) is one of the most frequently observed endocrine disorders among women in the reproductive age group. It is commonly associated with menstrual irregularities, excess androgen production, metabolic disturbances, obesity, and insulin resistance. In recent years, yoga and breathing practices have been explored as complementary methods for managing PCOS. Kapalbhati Pranayama, a forceful breathing technique from yogic science, has been suggested to influence metabolic and hormonal functions. **Objective:** The aim of this review is to examine the available clinical research related to the role of Kapalbhati Pranayama in women diagnosed with PCOS.

KEYWORDS: Kapalbhati Pranayama, Polycystic Ovary Syndrome, PCOS, Yoga Therapy, Insulin Resistance.

INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is considered one of the most common hormonal disorders affecting women during their reproductive years. The

prevalence of the disorder varies between approximately 5% and 20 %depending on the diagnostic guidelines used.

The diagnosis of PCOS is generally based on the Rotterdam criteria, which require the presence of at least two of the following three features:

Irregular or absent ovulation
Signs of excess androgen levels such as acne or excessive hair growth.

Polycystic appearance of ovaries on ultrasound examination

Apart from reproductive abnormalities, PCOS is also linked with several metabolic problems. Many women sufferings from PCOS experience insulin resistance, which leads to increased insulin levels in the blood. This condition stimulates the ovaries to produce more androgens, disturbing the normal hormonal balance. As a result, women with PCOS have a higher risk of developing type-2 diabetes, obesity, lipid abnormalities, and cardiovascular diseases.

PCOS also affects psychological wellbeing. Anxiety, depression, and reduced quality of life are frequently reported among women suffering from this condition.

Management of PCOS usually involves lifestyle modification, weight control, hormonal therapy, and medications such as insulin-sensitizing drugs. However, these treatments may not always provide complete relief and may also cause side effects. Therefore, alternative approaches such as yoga therapy have attracted attention in recent years.

Yoga includes physical postures, breathing exercises, and meditation techniques that help improve physical as well as mental health. One of the important breathing techniques is Kapalbhathi Pranayama.

The term “Kapalbhathi” originates from Sanskrit words where “Kapal” refers to the forehead or skull and “Bhati” means shining or illuminating. The technique involves rapid and forceful exhalation while inhalation occurs passively. This process is repeated rhythmically in multiple rounds.

The abdominal movements created during Kapalbhathi may stimulate internal organs, particularly those located in the abdominal cavity. Some researchers suggest that this stimulation might influence pancreatic activity and improve glucose metabolism. Moreover, the practice may reduce stress by balancing the autonomic nervous system.

Considering these possible mechanisms, Kapalbhati has been proposed as a supportive therapy for women suffering from PCOS. However, scientific evidence is still limited, and therefore systematic examination of available research is necessary.

MATERIALAND METHODS

Study Design

This study is designed as a narrative review focusing on clinical research related to Kapalbhati Pranayama and its role in the management of Polycystic Ovary Syndrome.

Literature Search

A systematic search of scientific literature was conducted using various electronic databases including:

- * PubMed
- * Google Scholar
- * Scopus
- * IndMED
- * Cochrane Library

Inclusion Criteria

The following criteria were used for selecting studies:

- * Human studies involving women diagnosed with PCOS
- * Studies where Kapalbhati was used as an intervention either alone or as part of yoga therapy
- * Research articles reporting metabolic, hormonal, or clinical outcomes
- * Articles written in English

Exclusion Criteria

The following types of studies were excluded:

- * Animal experiments
- * Opinion articles without clinical data
- * Conference abstracts without detailed methodology
- * Studies not involving Kapalbhati practice

Data Extraction

Important information from each selected article was extracted, including:

- * Author and year of publication
- * Study design
- * Number of participants
- * Intervention details
- * Outcome measures
- * Key findings

Due to differences in study designs and outcome parameters, statistical meta-analysis was not performed. Instead, the findings were summarized and interpreted qualitatively.

PREVENTIVE MEASURES

Kapalbhati may serve not only as a therapeutic method but also as a preventive and health-promoting practice for women.

Preventive Measures

Preventive strategies aim to reduce the risk of developing PCOS or prevent complications associated with the condition.

Primary Prevention

Young women with a family history of PCOS or metabolic disorders may benefit from regular practice of Kapalbhati. Improved metabolic activity and reduced stress levels may help maintain hormonal balance and reduce the chances of developing PCOS symptoms.

Secondary Prevention

For women already diagnosed with PCOS, Kapalbhati may help prevent long-term complications such as:

- * Type-2 diabetes
- * Cardiovascular diseases
- * Excessive weight gain
- * Psychological stress and anxiety

By improving metabolism and promoting relaxation, the practice may help control insulin resistance and maintain overall health.

Promotive Measures

Health promotion focuses on improving general well-being and quality of life. Regular practice of Kapalbhathi may:

- * Improve metabolic efficiency
- * Support hormonal regulation
- * Increase energy levels
- * Enhance mental clarity and emotional stability

In addition, practicing yoga regularly often encourages individuals to adopt healthier lifestyle habits such as balanced diet and regular physical activity.

DISCUSSION

After reviewing the available literature, three important studies related to Kapalbhathi and PCOS were identified.

Study 1 – Review Article (2016)

The first article discussed the possible relationship between Kapalbhathi practice and PCOS management. The author suggested that Kapalbhathi might improve insulin sensitivity and reduce stress, which are important factors in PCOS development. However, the article concluded that clinical evidence was still insufficient and further research was required.

Study 2 – Case Report (2021)

A case report described the effect of Kapalbhathi practice in a 19-year-old woman diagnosed with PCOS. After practicing Kapalbhathi for approximately eight weeks, improvement in metabolic parameters was observed. Although the findings were encouraging, the study involved only one participant, which limits generalization.

Study 3 – Clinical Trial (2024)

A more recent clinical trial involved 50 women with PCOS who were divided into two groups. One group practiced a yoga protocol including Kapalbhathi, other breathing techniques, yogic postures, meditation, and dietary guidance. The second group followed conventional exercise such as treadmill walking and cycling. The results showed that participants practicing yoga demonstrated greater improvement in PCOS-related symptoms compared with the exercise group.

These findings suggest that integrated yoga therapy may provide additional benefits beyond

conventional physical exercise

Possible Mechanisms

Several mechanisms have been proposed to explain how Kapalbhathi may influence PCOS:

Metabolic Regulation

Rapid abdominal contractions may stimulate digestive organs and improve glucose metabolism, thereby reducing insulin resistance.

Autonomic Balance

The breathing rhythm may influence the autonomic nervous system, reduce sympathetic activity and increase parasympathetic tone.

Stress Reduction

Lower stress levels may decrease cortisol secretion, which indirectly supports hormonal balance.

Anti-inflammatory Effects

Some studies suggest that yogic practices reduce inflammatory markers and oxidative stress.

CONCLUSION

The current review highlights that scientific research on Kapalbhathi Pranayama for PCOS is still limited but gradually increasing. Early theoretical discussions were followed by case-based observations and later by controlled clinical studies.

Available evidence suggests that yoga practices including Kapalbhathi may improve metabolic health, hormonal balance, and psychological well-being in women suffering from PCOS.

However, the specific effect of Kapalbhathi alone remains unclear because most studies evaluate it as part of a combined yoga program.

Future research should include well designed randomized controlled trials with larger sample sizes and longer follow-up periods. Such studies would help determine the exact role of Kapalbhathi in PCOS treatment.

Despite the limited evidence, Kapalbhathi can be considered a safe and economical complementary practice that may support conventional management strategies for PCOS.

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