

The Efficacy of Vethathiri Maharishi's Makarasana and Simplified Kundalini Yoga (SKY) as a Therapeutic Intervention for Polycystic Ovarian Disease among the Collegiate Female Population

A. Srikavitha,

Assistant Professor, Department of Human Excellence,

NGM College, Pollachi 642001, Tamilnadu, India

Email: srikutty9942@gmail.com

Abstract

Polycystic Ovarian Disease (PCOD), alternatively conceptualized as Polycystic Ovary Syndrome (PCOS), has escalated into a primary endocrine-metabolic crisis among the adolescent and young adult female populations in contemporary India. This heterogeneous disorder, characterized by hyperandrogenism, ovulatory dysfunction, and polycystic ovarian morphology, is increasingly prevalent in the high-stress environments of higher education. Current epidemiological data indicates prevalence rates in college cohorts ranging from 8.2% to as high as 22.5%, with some localized studies suggesting even greater risk levels among specific demographics. Traditional pharmacological interventions, while efficacious in symptom suppression, often necessitate long-term adherence and carry significant metabolic and psychological side effects. Consequently, there is a growing scholarly and clinical interest in non-pharmacological, holistic interventions. This report investigates the physiological and psychological efficacy of Makarasana—a restorative posture within the Simplified Kundalini Yoga (SKY) system as formulated by the philosopher and spiritual scientist Vethathiri Maharishi. Through the systematic modulation of the Hypothalamic-Pituitary-Adrenal (HPA) axis, reduction of serum cortisol, and mechanical stimulation of the pelvic and abdominal viscera, Makarasana serves as a potent neuroendocrine regulator. The synthesis of clinical research indicates that regular practice of Makarasana, alongside supplementary SKY components such as Kayakalpa Yoga and Kundalini meditation, significantly improves reproductive outcomes, insulin sensitivity, and psychological resilience. This report provides a comprehensive analysis of the prevalence, pathophysiology, and yogic mechanisms of action required to address the PCOD epidemic within the collegiate setting.

Keywords: PCOD, Makarasana, Vethathiri Maharishi, Simplified Kundalini Yoga (SKY), Hormonal Homeostasis, Cortisol Regulation, College Student Wellness, Kayakalpa Yoga, Neuroendocrinology, HPA Axis.

The Contemporary Crisis of Adolescent Endocrine Health in Indian Universities

The socio-cultural and physiological landscape of the modern Indian college student is marked by an unprecedented intersection of academic rigor, sedentary behavior, and dietary transition. This confluence has created a fertile ground for the manifestation of Polycystic Ovarian Disease (PCOD), a complex endocrine disorder that now affects millions of women worldwide.¹ Historically perceived as a reproductive issue of late adulthood, the clinical onset of PCOD is increasingly observed during the late adolescent and early collegiate years, a phase characterized by significant neuroendocrine plasticity.¹ The condition is essentially a functional derangement of the hypothalamic-pituitary-ovarian axis, leading to the development of multiple immature follicles in the ovaries—a result of the failure of the physiological ovulatory cycle.¹

The implications of PCOD extend far beyond menstrual irregularity. Affected students frequently report a constellation of symptoms including weight gain, persistent acne, hirsutism, and severe emotional disturbances such as anxiety, irritability, and low self-esteem.¹ These clinical features not only impact personal health but also exert a detrimental effect on academic performance, attendance, and social integration.¹ As the prevalence of PCOD continues to rise in urban educational centers, the limitations of the current medical model—which often relies on hormonal contraceptives or insulin sensitizers—have become increasingly apparent.¹ The demand for cost-effective, non-invasive, and sustainable interventions has led to a re-evaluation of ancient yogic practices through the lens of modern physiological research. Vethathiri Maharishi's Simplified Kundalini Yoga (SKY) system, particularly the restorative posture known as Makarasana, has emerged as a scientifically viable solution for restoring hormonal equilibrium and enhancing the quality of life for young women.¹

Epidemiology and Sociodemographic Determinants of PCOD in College Cohorts

The prevalence of PCOD in India has reached alarming proportions, with studies highlighting a significant upward trajectory over the last decade. Systematic reviews and meta-analyses indicate that the pooled prevalence

of PCOS among Indian women is approximately 11.34% when applying the Rotterdam criteria.¹³ However, when isolating the data for college students and adolescents in urban settings, the incidence rates are notably higher. For instance, a 2024 study in the Delhi NCR region identified a 17.40% prevalence rate among college-going women aged 18–25 years, representing a substantial increase from previous decade-level estimates of roughly 8%.²

Regional Prevalence and Clinical Variability of PCOD in India

Region/City	Study Population	Prevalence Rate (%)	Diagnostic Criteria Used	Source ID
Delhi NCR (2024)	College Students (18–25 yrs)	17.40	Rotterdam	²
Mumbai (2014)	Young Adolescents (15–24 yrs)	22.50	Rotterdam	¹³
Navi Mumbai	Medical/Dental Students	21.05	Clinical/Ultrasound	⁶
Bhopal	School/College Girls (15–21 yrs)	8.34	Rotterdam/USG	¹⁷
Chennai	Young College Students	19.50	Rotterdam	³
Thrissur, Kerala	College Students (18–21 yrs)	25.20 (Risk factor rate)	Rotterdam	¹⁸
Andhra Pradesh	Adolescent Girls (15–18 yrs)	9.13	Rotterdam/NIH	¹³
Pondicherry	Young Women (19–25 yrs)	11.76	Rotterdam	¹³

The variation in these rates is often attributed to the diagnostic criteria employed (NIH vs. Rotterdam vs. AES) and the lifestyle profiles of the specific cohorts.¹³ Sociodemographic analysis reveals that risk factors such as residing in an urban environment, belonging to a nuclear family, and pursuing higher levels of education are significantly associated with increased PCOD risk.² Urban students often face higher exposure to "obesogenic" environments characterized by high-calorie diets and a marked reduction in physical activity, as well as heightened psychological stress from academic pressures.⁶ Interestingly, studies have noted that females from East Indian ancestry or those in nuclear families exhibit a nearly twofold increase in risk compared to those from rural or joint family structures.²

Pathophysiology and the Neuroendocrine Stress Axis

The underlying biological mechanisms of PCOD are complex, involving a dysregulation of the hypothalamic-pituitary-ovarian (HPO) axis. In affected individuals, there is typically an increased pulse frequency of Gonadotropin-Releasing Hormone (GnRH), which favors the secretion of Luteinizing Hormone (LH) over Follicle Stimulating Hormone (FSH).¹ This elevated LH/FSH ratio stimulates the ovarian theca cells to overproduce androgens, while the insufficient FSH levels prevent the selection and maturation of a dominant follicle.¹ This results in the characteristic clinical presentation of oligomenorrhea and polycystic ovaries.

Comparison of Clinical Markers: PCOS Subjects vs. Healthy Controls

Clinical Parameter	PCOS Group (Mean \pm SD)	Control Group (Mean \pm SD)	p-value	Significance	Source ID
Systolic Blood Pressure (mmHg)	131.0 (123–134)*	120.0 (108.5–126)*	0.001	Significant	¹⁹
Diastolic Blood Pressure (mmHg)	86.0 (77–90)*	70.0 (60–80)*	0.001	Significant	¹⁹
Body Mass Index (BMI kg/m ²)	26.98 \pm 4.71	23.21 \pm 3.25	<0.001	High	¹⁹
Serum Testosterone (ng/dL)	40.4 (36.2–48.7)*	32.55 (26.8–38.7)*	0.001	Significant	¹⁹
Serum Irisin (ng/mL)	10.82 (8.5–14.3)*	2.57 (2.1–4.6)*	<0.001	Very High	¹⁹

Clinical Parameter	PCOS Group (Mean \pm SD)	Control Group (Mean \pm SD)	p-value	Significance	Source ID
Total Cholesterol (mg/dL)	168.12 \pm 29.71	151.44 \pm 25.43	0.022	Moderate	¹⁹
Hirsutism (Clinical Presence %)	66.7%	12.5%	<0.001	Significant	¹⁹

Values represented as Median (IQR) in specific datasets.

Central to the progression of these symptoms is the role of cortisol and the Hypothalamic-Pituitary-Adrenal (HPA) axis. Chronic academic stress and lifestyle imbalances trigger the sustained release of cortisol, which interferes with the metabolic regulation of glucose and fats.¹ High cortisol levels are positively correlated with insulin resistance, leading to compensatory hyperinsulinemia.⁴ Insulin, in turn, acts synergistically with LH to increase androgen production and suppresses the hepatic synthesis of sex hormone-binding globulin (SHBG), thereby increasing the bioavailability of free testosterone.¹ This circular relationship between stress, cortisol, and insulin forms the primary target for yogic interventions like Makarasana.

The Vethathirian Paradigm: Simplified Kundalini Yoga (SKY)

Vethathiri Maharishi, born in 1911, dedicated over four decades to simplifying the complex systems of traditional yoga to make them accessible to the common person.¹ His system, known as Simplified Kundalini Yoga (SKY), is built upon a profound understanding of the relationship between the life force (bio-current), bio-magnetism, and the physical body.²³ Maharishi posited that the human system is maintained by the circulation of three vital media: blood/liquid, heat, and air.²³ Any disturbance in the quality, quantity, or pace of circulation of these media results in physical pain or chronic disease.²³

Core Principles of the SKY Yoga System

The SKY system is structured around four primary pillars designed to achieve holistic well-being:

- Simplified Physical Exercises:** A series of nine practices (hand, leg, neuromuscular breathing, eye, Kapalabathi, Makarasana, massage, acupressure, and relaxation) that regulate the five types of circulation: blood, heat, air, life force, and bio-magnetism.²³
- Kayakalpa Yoga:** A specialized practice for the transmutation of sexual energy into spiritual energy, focusing on nerve toning and life-force conservation.⁴
- Kundalini Meditation:** Techniques to lower the frequency of mental waves from the beta range to alpha, theta, and delta ranges, thereby enhancing awareness and reducing stress.⁹
- Introspection:** A psychological tool for the moralization of desires, neutralization of anger, and eradication of worries to achieve emotional stability.²⁴

For the collegiate female population, the SKY system offers a particularly potent remedy for PCOD because it requires minimal time—approximately 30 minutes for the entire routine—and avoids the strenuous physical strain of advanced traditional postures.¹

Makarasana: Biomechanical and Physiological Analysis

Makarasana, or the "Crocodile Pose," is categorized as a restorative and relaxing posture, yet its influence on the endocrine system is transformative.¹ In the SKY system, Makarasana is divided into Part A and Part B, each targeting different aspects of physiological circulation.¹²

Part A: Supine Regulation and Pelvic Circulation

In Part A, the practitioner lies in a supine position (flat on the back). The exercises involve specific leg movements, such as lifting the legs at varying angles and performing rhythmic rotations.¹² These movements increase the blood supply to the abdominal and pelvic regions, effectively "flushing" the reproductive organs with fresh, oxygenated blood.⁴ This phase is crucial for strengthening the pelvic floor and correcting imbalances in the lower spine that may obstruct the nerve supply to the ovaries.⁹

Part B: Prone Compression and Endocrine Normalization

Part B involves lying in the prone position (on the stomach), which is the classic Makarasana posture.¹² The practitioner rests the chin or head on the hands, with the elbows providing support on the floor.³³

- Mechanical Compression:** As the individual breathes while lying on the abdomen, the internal organs—including the ovaries, uterus, liver, and pancreas—experience a gentle rhythmic compression against the ground.¹ This acts as an internal massage, improving the functional efficiency of these glands.⁴

2. **HPA Axis Modulation:** By resting the body in a prone position, the pressure on the chest and rib cage is minimized, allowing for deep, diaphragmatic breathing.¹ This activates the vagus nerve and shifts the autonomic nervous system from sympathetic dominance (stress) to parasympathetic dominance (restoration).¹
3. **Sacral and Spinal Decompression:** The pose emphasizes the contraction of the sacrum, the triangular bone at the base of the spine.²⁹ This enables flexible hip movements and removes bio-magnetic blockages in the spinal nerves, which are often the site of referred pain in PCOD.⁹
4. **Endocrine Gland Activation:** Clinical observations suggest that the light pressure applied to the abdomen and lower back in Makarasana helps to normalize the secretion of insulin and reproductive hormones.²³ The support of the chin also influences the throat area (Vishuddhi Chakra), regulating thyroid function and metabolic rate.³¹

Clinical Evidence: Impact on Cortisol and Metabolic Markers

The therapeutic value of Makarasana and SKY Yoga is validated by significant clinical outcomes. A primary goal in treating PCOD is the reduction of hypercortisolemia.³⁷ Studies on medical students—a group comparable in stress levels to the general college population—show that consistent yoga practice leads to a marked decrease in morning serum cortisol.²¹

Summary of Yoga's Effect on Serum Cortisol (12-Week Study)

Group	Pre-Test Cortisol (ng/ml)	Post-Test Cortisol (ng/ml)	p-value	Source ID
Yoga Intervention Group	10.27 ± 2.54	4.023 ± 1.82	0.00 (Sig.)	²¹
Control Group (No Yoga)	11.43 ± 3.77	10.27 ± 2.54	0.06 (N.S.)	²¹

In a separate study specifically targeting patients with Type 2 Diabetes and metabolic syndrome (conditions often comorbid with PCOD), a 12-week SKY Yoga program including Makarasana resulted in a significant reduction in fasting blood glucose (from 115.1 to 92.8 mg/dl) and HbA1c levels (from 8% to 6%).¹² These metabolic improvements directly translate to the PCOD context, as better glucose regulation leads to lower insulin levels, thereby reducing the stimulus for ovarian androgen production.⁴

Furthermore, yoga has been shown to improve the lipid profile of PCOS patients. In a 2024 study, serum LDL levels were significantly reduced after a three-month yoga intervention, while HDL levels—the "good" cholesterol—showed a positive upward trend.¹⁹ This is of particular significance for college girls, as cardiovascular risk factors often begin to develop during the early stages of PCOD.¹⁹

Kayakalpa Yoga: The Science of Biological Transmutation

Within the SKY system, Makarasana is often paired with Kayakalpa Yoga, a specialized technique for physical rejuvenation and spiritual progress.⁴ Kayakalpa, meaning "immortal body," focuses on the maintenance of the sexual vital fluid and its transmutation into spiritual energy.⁴

The Mechanism of Aswini Mudra and Ojas Breath

1. **Aswini Mudra:** This involves the rhythmic contraction and relaxation of the anal sphincter muscles.⁴ Physiologically, this exercise tones the nerves surrounding the sexual glands and improves the circulation of bio-magnetism in the genetic center.⁵ For women with PCOD, this serves to strengthen the uterus and ovaries, reducing the formation of cysts and alleviating menstrual pain.⁴
2. **Ojas Breath:** This is a respiratory technique that directs the enriched bio-magnetic waves from the genetic center upward through the spinal column to the brain.⁴ By stimulating the pituitary and pineal glands (the "master glands"), Ojas breath helps to restore the proper secretion of FSH and LH, effectively resetting the hormonal balance.⁴

Clinical trials involving women with PCOS have demonstrated that Kayakalpa techniques, practiced alongside Makarasana, can cure infertility and control the physiological changes associated with the disorder.⁴ The practice is noted for its ability to increase the "Ojas" or vital energy of the body, leading to improved memory, mental agility, and a delay in the aging process.⁸

Psychological Resilience and Emotional Well-being

PCOD is as much a psychological challenge as it is a physiological one. Adolescent and college-age girls often suffer from heightened levels of anxiety, depression, and poor self-image due to the visible manifestations

of the disorder.¹ Makarasana, when practiced with mindfulness and deep relaxation, provides a "meditative effect" that calms the nervous system.¹

The reduction in mental wave frequency achieved through SKY meditations and restorative poses like Makarasana has profound implications for emotional regulation. During the alpha state (8–13 Hz), the mind becomes a "unified force," sharper and more straightforward.⁹ This state of consciousness allows the individual to practice the introspection techniques taught by Maharishi—such as the "Eradication of Worries" and "Neutralization of Anger"—to manage the psychological stressors that trigger or worsen PCOD symptoms.²⁴

Impact of SKY Yoga on Psychological Traits (Experimental Group Study)

Psychological Attribute	Improvement Observed (Pre vs. Post)	Significance	Source ID
Stress Management	High improvement in resilience	p < 0.05	⁴
Learning Skills	Significant increase in concentration	Significant	⁹
Social Behavior	Enhanced emotional stability/harmony	Significant	⁴
Anxiety/Depression	Marked reduction in HAMA/HAMD scores	p < 0.001	³¹
Memory Power	Pre-test 28.50 to Post-test 64.60	High	⁸

The inward focus cultivated during Makarasana fosters self-acceptance, which is critical for young women struggling with body image issues related to acne and hirsutism.¹ By reducing emotional excitability through the stimulation of the prefrontal cortex and the inhibition of the limbic system, yoga allows for a more "equipoise" state of mind, enabling students to face academic pressures with clarity and calmness.⁹

Comparative Analysis: Yoga vs. Conventional Pharmacological Treatment

While conventional medical treatment for PCOD typically involves oral contraceptive pills (OCPs), anti-androgens, or metformin, these options are often viewed with skepticism by young women due to their side effects and the need for long-term usage.¹ Yoga, by contrast, offers a holistic and side-effect-free alternative that addresses the root causes of the disorder—stress and lifestyle imbalance.¹

Holistic Intervention vs. Conventional Pharmacological Care

Feature	Conventional Therapy (Hormones/Metformin)	SKY Yoga (Makarasana/Kayakalpa)	Source ID
Primary Action	Symptom suppression (Hormone blockade)	Systemic restoration (Stress/Circulation)	¹
Side Effects	Weight gain, mood swings, nausea, liver stress	None; Improved general vitality	¹
Cost and Accessibility	Ongoing medication costs; clinic visits	Minimal cost; Practice anywhere	⁵
Psychological Impact	May exacerbate mood swings	Primary tool for stress/anxiety reduction	⁴
Long-term Outlook	Symptoms often return post-cessation	Permanent lifestyle and habit modification	¹⁰
Compliance	High attrition due to side effects	High satisfaction and community support	¹⁰

Studies comparing the two approaches have found that while hormonal therapy can quickly regulate the menstrual cycle, yoga therapy is more effective at reducing ovarian volume and improving long-term metabolic markers without the metabolic "cost" of synthetic hormones.³⁹ Furthermore, 62.8% of participants in a recent study found yoga to be an "acceptable" or "highly acceptable" complementary therapy, highlighting its high level of patient satisfaction.¹⁰

Implementation Strategies for Higher Education Institutions

Educational institutions represent the most effective platform for the delivery of yogic solutions to the PCOD crisis. Many colleges in India, particularly those in Tamil Nadu, have already integrated SKY Yoga into their standard wellness and academic modules.⁴⁴

Strategic Integration Steps

1. **Wellness Curriculum:** Incorporating SKY Yoga and Makarasana into orientation programs and physical education courses for female students.⁴⁴
2. **Menstrual Health Workshops:** Conducting awareness drives to educate students on the link between stress, cortisol, and PCOD, and providing Makarasana as a daily management tool.¹
3. **Hostel Wellness Modules:** Promoting a short, 15–30 minute evening routine of Makarasana and relaxation in student housing to mitigate the effects of all-day sitting and study stress.¹
4. **Yoga Clubs and Peer Support:** Establishing campus clubs where students can practice together, as group support has been shown to further enhance the cortisol-lowering effects of exercise.¹

By institutionalizing these practices, colleges can reduce absenteeism related to menstrual pain, enhance student concentration, and empower young women with a lifelong tool for health and inner harmony.¹

Nuanced Insights and Future Directions

The current synthesis of research indicates that PCOD in college students is not merely a biological malfunction but a systemic "lifestyle puncture".²³ The rise in prevalence among postgraduate students and those in urban nuclear families points to a profound lack of physical and energetic "earthing"—a concept Vethathiri Maharishi addresses through the practice of lying prone in Makarasana and the grounding of bio-magnetism.²

A critical third-order insight from this data is the role of bio-magnetic conservation. In the high-stimulation environment of the modern university, students "leak" bio-magnetic energy through constant sensory input and mental worry.⁹ SKY Yoga, specifically through the "Chin Mudra" practiced during certain phases of Makarasana, helps to "short-circuit" this energy loss and preserve the life force for systemic healing.⁵ As we move toward more integrated medical protocols, the combination of Ayurvedic dietary principles and SKY Yoga appears to be the most promising path for weight-related PCOD outcomes.⁴²

Future research should prioritize longitudinal studies with objective clinical measurements—such as 24-hour cortisol monitoring and ultrasound-based follicle counts—to further validate the anecdotal and survey-based improvements reported by students.¹⁰ There is also a need for genetic and epigenetic studies to understand how the regulation of the stress axis through yoga might mitigate the inherited predispositions for insulin resistance often found in the Indian population.⁵

Conclusions

Vethathiri Maharishi's Makarasana and the broader Simplified Kundalini Yoga (SKY) system represent a scientifically robust and socio-culturally appropriate intervention for the PCOD epidemic currently affecting Indian college girls. Through the targeted modulation of the HPA axis, the reduction of hypercortisolemia, and the mechanical revitalization of the pelvic organs, these practices address the multi-dimensional nature of the disorder. The prevalence rates in collegiate settings—now surpassing 20% in some urban cohorts—demand an immediate and scalable response. SKY Yoga, characterized by its simplicity, time-efficiency, and lack of side effects, is uniquely positioned to fill the gap left by conventional pharmacological care.

By restoring the "three media" of liquid, heat, and air circulation and transmuting vital life force through Kayakalpa, young women can achieve not only reproductive health but also enhanced psychological resilience and academic focus. The integration of these practices into university wellness programs is no longer a luxury but a health-promotion necessity. Empowering the youth with such natural, restorative tools lays the groundwork for a healthier, more balanced, and spiritually aware generation. The wisdom of Maharishi, distilled into the gentle form of Makarasana, offers a timeless bridge between ancient yogic science and the demanding realities of modern student life.

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