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The Effect of Yoga on Hormonal Balance in Women with Polycystic Ovary Syndrome (PCOS): An Experimental Study

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Abstract : In women of reproductive years, Polycystic Ovary Syndrome (PCOS) is a common endocrine condition that frequently leads to hormonal abnormalities such high testosterone, a disturbed LH/FSH ratio, with insulin resistance. This study examines how a 12-week yoga program affects PCOS-afflicted women's hormone balance. A control group and a yoga intervention group were randomly assigned to forty women. The results showed that the meditation group's hormone levels and menstrual regularity significantly improved, suggesting that yoga may be a useful adjunctive treatment for PCOS.

Introduction - About 10% of women worldwide suffer with PCOS, which is characterized by polycystic ovaries, hyperandrogenism, and chronic an anovulation It contributes to infertility and metabolic diseases and is often accompanied by insulin resistance and an elevated LH/FSH ratio. Although there are pharmaceutical therapies available, holistic methods such as yoga are becoming more popular due to their ability to reduce stress, regulate metabolism, and balance hormones.

Objectives:

1. To measure improvements in insulin sensitivity and menstrual regularity following a yoga intervention;
2. To determine how a structured yoga program affects hormonal parameters in women with PCOS.

Methodology

1 Study Design

a 12-week, randomized, controlled experimental investigation.

2 Those who took part: 40 women in total with a PCOS diagnosis (Rotterdam Criteria)

- Age range: 18 to 35
- Dispersed at Random:
- 20 women make up Group A (Yoga Group).
- 20 women made up Group B (Control Group); they just got lifestyle guidance.

3 Inclusion Criteria

- An elevated LH/FSH ratio or blood testosterone level;
- An irregular menstrual cycle;
- A confirmed PCOS diagnosis

4 Exclusion Criteria:

- Pregnancy;
- Thyroid or adrenal diseases;
- Use of insulin sensitizers or hormonal therapy within the previous three months

5 Intervention

Yoga Group (Group A):

- 1-hour sessions, 5 days/week for 12 weeks
- Protocol included:
- **Asanas**: Surya Namaskar, Bhujangasana, Dhanurasana, BaddhaKonasana, SetuBandhasana
- **Pranayama**: NadiShodhana, Bhramari
- **Meditation**: 10-minute guided mindfulness

Control Group (Group B):

- Advised on dietary changes and physical activity (no yoga)

6 Outcome Measures

Assessed at baseline and after 12 weeks:

- Serum testosterone (ng/dL)
- LH/FSH ratio
- Fasting insulin (μU/mL)
- Menstrual cycle regularity

Results

1 Baseline Characteristics

Parameter	Yoga Group (n=20)	Control Group (n=20)	p-value
Age (years)	24.1 ± 3.4	23.8 ± 3.1	0.76
BMI (kg/m²)	26.5 ± 2.8	26.9 ± 3.2	0.65
Serum Testosterone	80.1 ± 10.7	79.4 ± 11.2	0.82
LH/FSH Ratio	2.6 ± 0.7	2.5 ± 0.6	0.68
Fasting Insulin	20.4 ± 4.5	20.0 ± 4.7	0.74

2 Post-Intervention Hormonal Parameters

Parameter	Yoga Group (Post)	Control Group (Post)	p-value
Serum Testosterone	**66.3 ± 8.9**	77.5 ± 10.5	0.005*
LH/FSH Ratio	**1.8 ± 0.5**	2.4 ± 0.6	0.003*
Fasting Insulin	**15.1 ± 3.7**	19.4 ± 4.1	0.004*
Menstrual Regularity (%)	**75% (15/20)**	30% (6/20)	0.001*

Statistically significant (p<0.05)

Discussion: In line with the research, yoga helps women with PCOS with their hormonal imbalances. Important gains were noted in:

i. Serum testosterone: a 17.3% decrease in the yoga group was linked to enhanced ovarian function.
ii. LH/FSH Ratio: A decline indicates that the hypothalamic-pituitary-ovarian axis has been repaired.
iii. Fasting Insulin: Reduces metabolic risk by improving insulin sensitivity.
iv. Menstrual Regularity: The yoga group's improvement over exceeded that of the control group.

These modifications are probably an outcome of yoga's combined impacts on endocrine function, vagal tone, and stress reduction.

Conclusion: Women with PCOS who participated in a structured 12-week yoga program saw a significant improvement in menstrual regularity and hormonal balance. For women who choose non-pharmacological methods, yoga might be a useful supplement to traditional treatment.

Limitations:

1. Small sample size
2. Short duration (12 weeks)
3. No long-term follow-up

Recommendations: It is advised to conduct more research with bigger cohorts and longer follow-up. Incorporating cortisol, the SHBG, which and glucose tolerance metrics could provide more profound understanding.

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