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Phase-Specific Hormonal Dynamics and Dosha–Agni Modulation Across the Menstrual Cycle: An Integrative Review of Nutritional and Lifestyle Interventions

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Abstract

Background: The menstrual cycle is governed by the hypothalamic–pituitary–ovarian axis and reflects systemic endocrine and metabolic health. Ayurveda conceptualizes menstruation (Artava) through cyclic variations in Dosha predominance, Agni status, and Dhatu physiology.

Objective: To synthesize biomedical and Ayurvedic literature correlating menstrual phases with hormonal fluctuations, Dosha–Agni states, nutritional requirements, dietary recommendations, lifestyle regulations, and management of common menstrual disorders.

Methods: A structured narrative review of classical Ayurvedic texts including Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, along with contemporary biomedical literature including Guyton and Hall Textbook of Medical Physiology and publications indexed in PubMed, was conducted. Government

resources from the National Institutes of Health were also reviewed.

Results: Hormonal shifts during menstrual phases demonstrate conceptual parallels with cyclical Dosha predominance: Vata during menstruation, Kapha during follicular proliferation, Pitta at ovulation, and Vata–Kapha interplay in the luteal phase. Stage-specific nutritional modulation and lifestyle practices correspond with symptom patterns and metabolic changes.

Conclusion: Integrating endocrine physiology with Ayurvedic Dosha–Agni principles offers a phase-specific framework for menstrual health optimization. Rigorous clinical trials are required to validate integrative interventions.

Keywords: Menstrual cycle, Dosha, Agni, Nutrition, PMS, Dysmenorrhea, Ayurveda

Introduction

The menstrual cycle (21–35 days) is regulated by pulsatile gonadotropin-releasing hormone (GnRH), stimulating follicle-stimulating hormone (FSH) and luteinizing hormone (LH), which regulate ovarian oestrogen and progesterone secretion¹. These endocrine fluctuations coordinate follicular maturation, ovulation, endometrial proliferation, and menstruation.

In Ayurveda, Artava (menstrual blood) reflects the health of Rasa and Rakta Dhatus and proper functioning of Apana Vata²⁻⁴. Cyclic Dosha dominance offers a physiological model paralleling endocrine changes.

Methods

A structured narrative systematic review methodology was used.

Inclusion Criteria

- Hormonal physiology of menstrual phases
- Nutritional modulation of menstrual symptoms
- Classical Ayurvedic descriptions of menstruation and Rajswala Paricharya

Exclusion Criteria

- Non-scholarly opinion articles
- Non-reproductive endocrine disorders

Literature sources included biomedical textbooks, peer-reviewed journals, and classical Ayurvedic treatises.

Results

Phase-Wise Hormonal and Dosha Correlation

1. Menstrual Phase (Day 1–5)**Hormonal Profile:**

Estrogen ↓, Progesterone ↓, Prostaglandins ↑¹

Symptoms

Cramps, fatigue, loose stools, emotional lability

Ayurvedic Correlation:

- Dominant Dosha: Vata (Apana Vata)
- Agni: Vishama or Manda

- Gunas: Ruksha, Laghu, Chala

Nutritional Needs

Iron, magnesium, warm unctuous foods

Dietary Recommendation

Warm rice gruel, mung dal soup, sesame, jaggery, ginger decoction

2. Follicular Phase (Day 6–13)**Hormonal Profile**

Estrogen rising, FSH-mediated follicular growth

Symptoms

Increased vitality, improved mood

Ayurvedic Correlation:

- Dominant Dosha: Kapha
- Agni: Balanced
- Gunas: Snigdha, Sthira

Nutritional Needs

Protein, essential fatty acids, zinc, B vitamins

Dietary Recommendation

Whole grains, soaked nuts, moderate ghee, seasonal fruits

3. Ovulatory Phase (~Day 14)**Hormonal Profile**

Estrogen peak, LH surge

Symptoms

Heightened libido, mild pelvic discomfort

Ayurvedic Correlation:

- Dominant Dosha: Pitta
- Agni: Tikshna
- Gunas: Ushna, Tikshna

Nutritional Needs

Antioxidants, hydration, cooling foods

Dietary Recommendation

Coconut water, pomegranate, coriander water, leafy greens

4. Luteal Phase (Day 15–28)**Hormonal Profile**

Progesterone ↑, basal temperature ↑

Symptoms

Bloating, irritability, breast tenderness, cravings

Ayurvedic Correlation:

- Early: Kapha

Comparative Table

Menstrual Phase	Hormonal Changes	Dosha	Agni Status	Common Symptoms	Nutritional Needs	Suggested Diet	Rationale
Menstrual	Estrogen↓ Progesterone↓	Vata	Vishama/ Manda	Cramps, fatigue	Iron, Mg	Warm soups, sesame	Pacifies Vata
Follicular	Estrogen↑	Kapha	Balanced	Energy ↑	Protein, EFAs	Whole grains, nuts	Supports anabolic growth
Ovulatory	Estrogen peak LH surge	Pitta	Tikshna	Mild pain, heat	Antioxidants	Cooling foods	Prevents Pitta aggravation
Luteal	Progesterone↑	Kapha→V ata	Variable	PMS, bloating	B6, Ca, Mg	Warm frequent meals	Stabilizes mood & Vata

Lifestyle Regulation during Menstruation (Rajswala**Paricharya)**

Classical texts advise avoidance of:

- Heavy exercise
- Sexual intercourse
- Day sleep
- Emotional stress
- Cold exposure²⁻⁴

These restrictions aim to prevent Apana Vata disturbance, excessive bleeding, and dysmenorrhea.

Menstrual Disorders: Ayurvedic Overview**Dysmenorrhea (Kashtartava)**

- Dosha: Vata
- Symptoms: Severe cramps
- Diet: Warm, oily foods; ginger

- Late: Vata aggravation

Nutritional Needs

Complex carbohydrates, vitamin B6, calcium, magnesium

Dietary Recommendation

Warm soups, root vegetables, small frequent meals

Menorrhagia (Raktapradara)

- Dosha: Pitta-Rakta
- Symptoms: Excess bleeding
- Diet: Cooling foods (pomegranate, amla)

Amenorrhea (Anartava)

- Dosha: Vata obstruction
- Diet: Nourishing foods; milk, ghee, sesame

Premenstrual Syndrome

- Dosha: Vata-Pitta
- Diet: Warm cooked meals; reduce caffeine

Discussion

Micronutrient interventions including magnesium, calcium, and vitamin B6 have demonstrated benefit in PMS reduction⁵. Hormonal inflammatory cascades during menstruation parallel Vata aggravation patterns described in Ayurveda.

The integrative framework supports individualized, phase-specific dietary modulation; however, high-quality randomized controlled trials remain limited.

Limitations

- Limited quantitative correlation between Dosha assessment and hormonal biomarkers
- Predominantly narrative evidence synthesis
- Heterogeneity in nutrition trials

Conclusion

Phase-specific endocrine changes correlate conceptually with Dosha–Agni dynamics. Integrative nutritional and lifestyle strategies may support menstrual health and reduce symptom severity. Future interdisciplinary research is warranted.

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