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### Nourishing Mother and Mind: Rasa-Dhatu, Kshaya and Hormonal Imbalance in Postpartum Depression and Lactation Physiology; an integrative Ayurvedic Neuroendocrine Review

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### **ABSTRACT:**

Background: Postpartum depression (PPD) is a growing concern that affects a mother's emotional well-being and her ability to bond with her newborn. While modern science links PPD primarily to hormonal changes after childbirth, Ayurvedic thought offers a complementary perspective rooted in the depletion of Rasa Dhatu the body's primary nourishing tissue. This review brings together both modern neuroendocrine insights and classical Ayurvedic principles to offer a more integrative understanding of the condition. Aim: To examine the role of hormonal fluctuations and Rasa Dhatu depletion in the development of PPD, and to explore how Ayurveda can contribute to a more holistic approach in its prevention and care. Materials and Methods: This narrative review draws upon Ayurvedic classical texts alongside contemporary scientific studies. Key hormones involved in postpartum physiology such as estrogen, progesterone, prolactin, and oxytocin were examined in the context of their influence on mood, lactation, and bonding. Results and Discussion: Postpartum hormonal shifts, especially the sudden drop in estrogen and progesterone, are known to affect mood regulation. Disruptions in prolactin and oxytocin levels impact emotional connection and milk production. These physiological disturbances mirror the classical signs of Rasa Dhatu Kshaya and fatigue, low milk output, emotional vulnerability, and mental dullness. Conclusion: Addressing PPD by emphasizing the nourishment of both body and mind. This integrative lens underscores the importance of early postpartum care that goes beyond symptom management.

**Key words:** Postpartum Depression; Rasa Dhatu; Rasa Dhatu Kshaya, Manovaha Srotas; Rasayana Therapy.

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### Introduction

Postpartum depression (PPD) is a common mental health issue that affects many women after childbirth. It can impact a mother's emotions, energy, ability to care for her baby, and overall health. Around the world, 10% to 20% of women experience PPD. In India, this number is even higher, ranging from 22% to 28%. According to the World Health Organization (WHO), about 13% of women globally suffer from PPD, and the rates are 20% or more in developing countries. These numbers show how important it is to understand the physical and emotional changes a woman goes through after delivery.1

According to Ayurveda, the human body is built on three basic pillars: Dosha (body energies), Dhatu (body tissues), and Mala (waste products). Among the seven types of Dhatus, Rasa Dhatu is the first to form and plays a very important role. It is created right after digestion from the nutritious part of the food, through a process called Saar-Kitta and Mala Vibhajan, where the useful part (Saar) becomes Rasa. Rasa Dhatu nourishes the whole body and especially supports the mind and heart, which are considered its main seats, or Sthana, according to Acharya Charaka.

After childbirth, a woman naturally loses a lot of Rasa Dhatu due to blood loss, physical stress, and the body's effort to produce breast milk. In women, Rasa Dhatu also forms two important secondary tissues, or Upadhatus, Stanya (breast milk) and Raja (menstrual blood). So, when Rasa is low, breast milk may reduce, and menstruation may stop. This explains why many mothers experience low milk supply and do not get their periods for several months while breastfeeding. This is also supported by modern science, where high levels of prolactin (a hormone needed for milk production) naturally stop menstruation to help the body focus on feeding the baby.

However, when the mother is tired, anxious. or stressed. her hormones especially prolactin and oxytocin can become imbalanced. This may reduce milk flow and affect her mood and connection with the baby. Avurveda describes these problems as signs of Rasa Dhatu depletion, which affects both the mind (emotions) and the heart (circulation and strength). In this way, Ayurveda and modern science both show that nourishing the mother's body especially the Rasa Dhatu is key to healthy breastfeeding and emotional wellbeing after childbirth. Understanding this connection can help us take better care of mothers, support their healing, and prevent or manage postpartum depression in a more holistic way.

### **Rationale:**

1. Postpartum depression and lactation difficulties significantly impact maternal and infant health worldwide. While imbalances hormonal particularly fluctuations in progesterone recognized are contributors these conditions, to current biomedical models often overlook holistic interpretations of well-being. Ayurveda's maternal concepts of rasa dhatu and Dhatu Kshaya offer a unique framework to understand the physiological and psychological changes during the postpartum period, emphasizing the nourishment and integrity of bodily tissues that support both mental health and lactation.<sup>2</sup>

Integrating Ayurvedic principles with neuroendocrine research can deepen our understanding of how hormonal dynamics, such as progesterone decline, correspond with rasa depletion and tissue instability. This integrative approach has the potential to inform more comprehensive strategies for managing postpartum depression and supporting lactation by addressing both biochemical and subtle systemic imbalances.

Given the paucity of research that bridges these two knowledge systems, this review aims to synthesize current evidence on hormonal changes in the postpartum period and interpret them through the Ayurvedic framework, thereby fostering a more holistic model for maternal care.

### Methods

This study is an integrative systematic review that brings together insights from classical Ayurvedic texts and modern neuroendocrine research to explore the physiological and emotional aspects of postpartum depression and lactation. The review focuses on the Ayurvedic concepts of Rasa Dhatu and Shaya, and how these may relate to hormonal imbalances particularly involving oxytocin—in the postpartum period.

### Literature Sources and Selection

gather relevant biomedical То research, a thorough literature search was conducted across databases including PubMed, Scopus, and Google Scholar. Articles published between 1990 and 2025 were considered. Search terms included: depression," "postpartum "lactation physiology," "oxytocin dysregulation," "maternal hormones," "Rasa Dhatu." "Shaya," "Avurveda and and neuroendocrinology."

At the same time, primary Ayurvedic texts were consulted to understand traditional perspectives on maternal health, mental well-being, and nourishment. These included:

- Charaka Samhita especially sections from Sharira and Chikitsa Sthana
- Sushruta Samhita with focus on anatomical and physiological concepts of Shaya
- Kashyapa Samhita known for its dedicated chapters on childbirth, lactation, and postpartum care
- Additional classical texts such as Ashtanga Hridaya, Bhavaprakasha, and Madhava Nidana were also referred to, along with commentaries and scholarly interpretations.

### **Inclusion Criteria**

Article Selection; out of 240 records identified, 45 duplicates were removed. 195 abstracts were screened, and 71 full-texts were reviewed. Finally, 25 sources were included 13 online research articles and 12 classical Ayurvedic texts. The process followed PRISMA 2020 guidelines; the flow diagram is available on request. Population Inclusion Criteria

> The review includes literature that focuses on human females in the postpartum period, typically up to 12 months after childbirth.

• Studies involving mothers experiencing postpartum depression (PPD) or emotional/mental disturbances related to childbirth are prioritized.

### **Exclusion Criteria**

Articles were excluded if they lacked relevance to postpartum mental or hormonal health, involved nonpostpartum populations, were not peerreviewed, were in languages other than

English or Sanskrit, or lacked full-text access.

### Data Extraction and Integration

Biomedical studies were reviewed to extract information about hormonal shifts during the postpartum period, especially related to oxytocin, prolactin, estrogen, and cortisol. At the same time, Ayurvedic descriptions of Rasa Dhatu formation, depletion (Dhatu Kshaya), and the structural and functional role of Kshaya were compiled. Both streams of knowledge were then brought into conversation with each other.

The goal was to identify how traditional Ayurvedic ideas about nourishment, emotional balance, and tissue strength might intersect with modern understandings of hormonal regulation in postpartum mental health and lactation.

### Results

Ayurveda, the ancient Indian medical science, emphasizes the maintenance of health and prevention of disease through a balance of body, mind, and spirit. Rooted in natural laws and the concept of Tridosha (Vata, Pitta, Kapha), Ayurveda defines health as the harmonious functioning of doshas, Dhatu, Malas, and Agni.

Among its foundational texts, Charaka Samhita stands as the primary authority on Ayurvedic internal medicine (Kayachikitsa). Attributed to Acharya Charaka and based on the teachings of Atreya Punarvasu, it presents a comprehensive framework of medical theory, physiology, and clinical practice.

The concept of Dhatu, derived from the root (dhru) meaning to support, refers to the seven bodily tissues that sustain and nourish the body. Dhatu is which holds or supports the body. Name of dhatu's in Ayurveda with Modern Co-relation its Sthan and Deficiency-symptoms are mentioned below:-

1) Rasa (Plasma, lymph) its stan is hridaya, dhamanis, twak (heart, blood plasma, skin) and its deficiency symtoms Shosha (emaciation), are Aruchi (anorexia), Trishna (thirst), Shrama (fatigue), Dehvdration, fatigue, poor circulation

Each Dhatu is formed sequentially from the metabolic transformation of the previous Dhatu through the action of Dhatvagni.

They maintain both anatomical structure and physiological function, the Rasa Dhatu, the first among them, is derived from Ahara Rasa the essence of digested food. It serves as the substratum for the formation of all subsequent Dhatus. Charaka states:

- Rasa forms all the other Dhatus. Rasa Dhatu has two Upadhatus (subsidiary tissues): Stanya (breast milk) and Raja (menstrual fluid in females).
- The quantity of Rasa Dhatu according to Charaka in a healthy person is 9 Anjali. Its Sthana (site) is primarily the Hridaya (heart), and functionally it also nourishes and communicates with the Manovaha Srotas the channels associated with mental functioning. Vagbhata adds:

The heart and mind constitute the Manovaha Srotas. Rasa Dhatu plays a vital role in the hormonal and neuroendocrine system, particularly during the postpartum period. It is the carrier of Ojas, governs hydration, immunity, and emotional balance, and has a deep connection with maternal hormones like oxytocin and prolactin.

Depletion or kshaya of Rasa can disrupt the Stanya (lactation), alter maternal bonding, and impact the psycho-emotional state of the mother.

In cases of Postpartum Depression (PPD), Ayurveda attributes the pathogenesis to Rasa Dhatu Kshaya, especially due to blood loss, emotional exhaustion, and digestive weakness post-delivery. This leads to disturbance in Manovaha Srotas and Vata vriddhi, affecting the mother's emotional and cognitive stability.

when Rasa Dhatu, the primary nourishing fluid in the body, becomes depleted, it leads to noticeable physiological and psychological changes. The body begins to exhibit Rookshata, or dryness, due to the lack of adequate internal lubrication and moisture. This manifests as roughness of the skin, dryness in tissues, and general depletion. Alongside this, a person may develop Shabda Asahanasheelata, or intolerance to sound, reflecting heightened nervous sensitivity and reduced mental resilience. This sensitivity arises because Rasa Dhatu not only nourishes the body but also stabilizes the mind. Its deficiency disrupts both physical hydration and emotional equilibrium, leading to irritability and fatigue.4 Ournal for Empi

Ojas as the vital essence of all Dhatus, especially derived from Rasa Dhatu. It is unctuous, cool and nourishing (Somatmak), pure, and slightly reddishyellow in color. Ojas is the foundation of life—its presence sustains life, and its loss causes death.<sup>5</sup>

### **Relation to Rasa**

Ojas is considered the saar (essence) of Rasa Dhatu, the first tissue formed after digestion. When Rasa is properly formed and circulated, it gradually nourishes all Dhatus and ultimately produces Ojas. Thus, healthy Rasa formation is essential for Ojas, and any weakness in Rasa directly affects Ojas quality.

### **Relation to Mind (Manas)**

Ojas is closely linked to the mind. It maintains mental clarity, emotional stability. courage, contentment, and enthusiasm. When Ojas is abundant, the mind remains peaceful, sattvic, and resilient. Loss of Ojas leads to fear, confusion, anxiety, and mental instability. Thus, Ojas acts as a bridge between the body and mind, supporting both physical health and mental well-being. Which in term stands strong for building healthy mind for mother and gets linked to postpartum depression when disturbed.

# Modern Perspective: Hormonal Correlates of Rasa Dhatu:-

### Pregnancy: Hormonal Landscape and Rasa Dhatu

During pregnancy, the maternal endocrine system undergoes profound changes to support foetal development, placental function, and maternal adaptation. The levels of estrogen and progesterone rise steadily, synthesized mainly by the placenta after the first trimester.

These hormones contribute to uterine quiescence. vascular re-formation of immune tolerance, and emotional stability. Simultaneously, prolactin and oxytocin prepare the body for lactation and bonding. From an Ayurvedic standpoint, this state is one of heightened Rasa Dhatu production and circulation. Rasa nourishes the developing foetus (via Garbhashaya), forms Upadhatus like Stanva. and maintains maternal emotional stability.

The increasing Snigdha (unctuous) and Sara (fluid) qualities during pregnancy are reflective of enriched and stable Rasa Dhatu. Rasa continuously nourishes and follows the foetus throughout pregnancy.<sup>6</sup>

**Postpartum Period: Hormonal Shifts and Dhatu Kshaya:** After delivery, the endocrine environment changes abruptly, leading to a sudden drop in certain hormones and elevation of others. This critical window represents both physiological vulnerability and the need for replenishment of Rasa Dhatu.

### a) Estrogen

Estrogen levels fall sharply within 24 hours of delivery. Since estrogen has neuro protective and mood-regulating properties, its withdrawal is strongly linked to mood disturbances, anxiety, and cognitive fog in the postpartum period. Ayurvedic correlation: Estrogen's Somalike (nourishing, stabilizing) qualities parallel the function of Rasa Dhatu. Its sudden depletion may mimic Rasa Kshaya, leading to dryness, emotional instability, and disturbed sleep.

### b) Progesterone

Progesterone also declines post-delivery. It normally exerts a calming, antiinflammatory, and anxiolytic effect during pregnancy. Its withdrawal may exacerbate depressive symptoms and is associated with increased sensitivity to stress. Ayurvedic view: Progesterone's stabilizing influence on tissues and Vata dosha aligns with the Kapha-anubandhi function of well-nourished Rasa Dhatu. Its fall may aggravate Vata, especially Prana Vata, leading to mental unrest.

### c) Prolactin

Prolactin, regulated by the hypothalamus, rises in response to suckling and promotes milk production. High prolactin levels are vital for Stanya (an Upadhatu of Rasa). However, prolactin excess without adequate emotional support may contribute to fatigue and emotional blunting.

Breast milk is a product of Rasa Dhatu. Insufficient Rasa Dhatu or disturbed Dhatvagni can lead to Stanya Kshaya, resulting in hypogalactia or agalactia and emotional depletion in the mother.<sup>7</sup>

### d) Oxytocin

Oxytocin, secreted in pulsatile fashion during breastfeeding, enhances maternal bonding, reduces stress, and promotes uterine involution. It is closely linked to emotional attachment, empathy, and activation. parasympathetic Synthetic oxytocin, widely used to induce labour, has been shown to bypass natural regulatory mechanisms, potentially disrupting emotional bonding and altering maternal affective states. Overuse or inappropriate timing may desensitize oxytocin receptors or blunt endogenous oxytocin release. According to Ayurveda, oxytocin's functions align with Rasa Dhatu's role in Manovaha **Srotas** and emotional nourishment. Deficient or poorly circulating Rasa impairs this, neural hormonal axis, leading to symptoms of detachment, anxiety, mood or dysregulation.

### Hormonal Fluctuations, Rasa Dhatu, and Maternal Mind:-

The postpartum hormonal collapse, if not counterbalanced by adequate nutritional recovery, sleep, and emotional care, can lead to Rasa Dhatu Kshaya. This affects the Manas (mind), weakens Ojas, and increases susceptibility to Postpartum Depression (PPD). Fluctuations in estrogen and progesterone reduce, neural protection and impair mood regulation, inadequate prolactin function leads to poor lactation and self-doubt in maternal identity and Oxytocin disturbances affect maternal bonding and stress modulation. In Rasa depletion, dryness and mental delusion inevitably follow. Therefore,

postnatal care (Sutika Paricharya) as prescribed in Ayurveda, emphasizes replenishment of Rasa through Snigdha, Rasayana, and Hridaya-balya dravyas, aligning with modern strategies to restore endocrine balance and prevent PPD. <sup>8</sup>

### Discussion

Postpartum depression (PPD) and impaired lactation are increasingly recognized as interconnected outcomes of both neuroendocrine dysregulation and Rasa Dhatu depletion, as understood in Ayurveda.

The sudden drop in estrogen, progesterone, and oxytocin postpartum parallels the Avurvedic notion of Dhatu Shaya, particularly of Rasa Dhatu, which is central to both emotional well-being and lactation. Rasa, the first Dhatu formed post Ahara, nourishes digestion of all subsequent tissues, including Stanya (breast milk), and supports the Manovaha Srotas (channels of mental function).

Thus, an integrative model of postpartum care that nourishes both the body and mind becomes essential in preventing and managing PPD and lactation disorders.

An effective integrative postpartum care approach should combine Ayurvedic dietary and herbal interventions with emotional and physical support modalities.

### For Rasa Dhatu Balance-Ayurvedic Drug-Care (Hormonal Balance):-

Lactation support must address not only the act of breastfeeding but also systemic nourishment through Rasayana chikitsa, such as Shatavari Kalpa, Ghruta Paan, and medicated milk formulations.

These therapies restore Rasa Dhatu, support Agni, and improve Ojas, the essence of immunity and vitality. Key Rasa-promoting herbs include Shatavari (Asparagus racemosus), Vidari (Pueraria tuberosa), Yashtimadhu (Glycyrrhiza glabra), Draksha (Vitis vinifera), and Gokshura (Tribulus terrestris). These drugs are nourishing, galactagogue, and hormone-supportive. <sup>9</sup>

# For Manovaha Strotas Care (Mental Wellbeing):-

Simultaneously, mental health support must target Manovaha Srotas, which are prone to Vata aggravation postpartum, leading to anxiety, insomnia, and mood swings. Herbs like Brahmi (Bacopa monnieri), Ashwagandha (Withania Jatamansi (Nardostachys somnifera). jatamansi), Vacha (Acorus calamus), and Tagara (Valeriana wallichii) have proven efficacy as Medhya Rasayanas, acting as adaptogens, anxiolytics, and mood stabilizers. 10

Integration of counseling and structured family support also reduces isolation and the psychological burden on the mother.

For General Physical Well Being of Mother:-

In addition to diet and herbs, yoga and pranayama play a vital role in pre- and postnatal mental and physical health. Yoga supports uterine recovery, balances Vata, and enhances neuromuscular coordination. Specific postnatal-safe asanas such as

- 1) Supta Baddha Konasana (Reclining Bound Angle Pose)
- 2) Bhujangasana (Cobra Pose)
- 3) Balasana (Child's Pose)
- 4) Viparita Karani (Legs-Up-the-Wall Pose)
- 5) Marjaryasana–Bitilasana (Cat–Cow Pose)
- 6) Gomukh Asana (Cow face pose)

These poses help in pelvic circulation, spinal alignment, fatigue reduction, and hormonal regulation. These poses also gently stimulate the parasympathetic nervous system, essential for oxytocin and emotional regulation; release complementing these are Pranayamas (breathing excercises) like,

- 1) Anulom-Vilom (Alternate nostril breathing)
- 2) Bhramari (Bee breathe)
- 3) Ujjavi (Ocean breathe)
- 4) Sheetali (Cooling breathe)
- 5) Sheetkari (hissing breathe)
- 6) Kapalbhati (Skull Shining breathe)

Which collectively calm the mind, reduce cortisol levels, and support hormonal equilibrium by regulating Prana Vata and Sadhaka Pitta. These practices also positively influence limbic activity and hypothalamic-pituitary-adrenal (HPA) axis modulation, creating a biological basis for improved mental stability.

# **Importance of Meditation:-**

Meditation during prenatal and postnatal phases is emerging as a low-cost, highimpact tool for neuroendocrine stability. Meditation enhances connectivity in the prefrontal cortex and reduces amygdala hyperactivity, making mothers more resilient to and stress emotional fluctuations.

Practicing mindfulness-based meditation or guided visualization techniques can 4. Vagbhata. Astanga Hrdayam with significantly reduce the risk of postpartum depression, improve maternal-infant bonding, and improve milk production via oxytocin regulation. Also following Avurvedic Dincharya and Ritucharya will benefit the mother for lifelong.

# **Alternative Care:-**

Similarly, music therapy especially classical ragas tuned to circadian rhythms has shown benefits in reducing anxiety and enhancing milk ejection reflexes. These modalities can be incorporated into daily minimal routines with effort and maximum return.

**Conclusion:** А holistic, integrative postpartum care model that emphasizes Dhatu preservation, Manovaha Rasa Srotas stabilization, mind-body practices, herbal Rasavana support, and psychological counseling offers а multidimensional path to healing. This synergistic approach not only improves lactation physiology and maternal mental health but also strengthens long-term neuroendocrine resilience, paving the way for sustained motherhood well-being.

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