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Review Article

ROLE OF *TRAYOPASTAMBHA* IN *STREE VANDHYATVA*: AN AYURVEDIC PERSPECTIVE WITH MODERN REPRODUCTIVE CORRELATION

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ABSTRACT

Female infertility, referred to broadly as *Stree Vandhyatva* in Ayurveda, is influenced by multiple biological, psychological, environmental, and lifestyle-related factors. Ayurveda identifies *Ahara* (diet), *Nidra* (sleep), and *Brahmacharya* (regulated sexual conduct and disciplined lifestyle) as the three supporting pillars of health, collectively termed *Trayopastambha*. These pillars are directly relevant to reproductive health because successful conception requires appropriate nourishment, metabolic balance, hormonal regulation, mental well-being, and timely sexual intercourse. This narrative review presents the Ayurvedic relevance of *Trayopastambha* in *Stree Vandhyatva* and correlates it with concepts from modern reproductive medicine. Ahara is discussed in relation to nutritional status, body mass index, insulin resistance, polycystic ovary syndrome (PCOS), and micronutrient adequacy. *Nidra* is correlated with circadian rhythm, melatonin, stress regulation, and the hypothalamic-pituitary-ovarian axis. *Brahmacharya* is interpreted as healthy, regulated sexual behavior, appropriate timing of intercourse, and psychological balance. *Trayopastambha* offers a holistic lifestyle framework that complements evidence-based infertility assessment and management.

INTRODUCTION

Sushruta compared the human body to a building, emphasizing that the primary factors ensuring a building's stability are its main pillars and supporting sub-pillars; without their presence and proper maintenance, the structure will collapse [1]. Similarly, in the context of human life, *Tridanda (Satva*, *Atma*, and *Sharira* according to Charaka [2]) or *Tridosha* (*Vata, Pitta*, and *Kapha* according to Sushruta [3]) act as the main sustaining pillars. These primary pillars are supported by sub-pillars termed *Trayopastambha*. Hence, these sub-pillars are equally fundamental to maintaining health and vitality.

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Ayurveda considers female reproductive health to depend upon the proper functional state of *Beeja* (gametes), *Artava Chakra* (menstrual cycle), *Garbhashaya* (uterus), *Ritu* (appropriate fertile period), *Ahara* (nourishment), and the balanced state of *Dosha, Dhatu, Agni*, and *Manas* (mind). Disturbance in any of these interrelated factors may contribute to *Vandhyatva*.

In modern reproductive medicine, infertility is defined as the inability to achieve pregnancy after 12 months or more of regular, unprotected sexual intercourse[4]. It may arise from female, male, combined, or unexplained aetiologies. In women, common contributing factors include polycystic ovary syndrome (PCOS), diminished ovarian reserve, tubal factor disease, endometriosis, uterine structural abnormalities, metabolic disturbances, and age-related functional decline.

The Ayurvedic concept of *Trayopastambha* provides a structured framework for examining lifestyle-related influences on fertility. Balanced

adherence to these pillars promotes physical strength, vitality, mental stability, and longevity, whereas their neglect or disturbance contributes to disease pathogenesis. Since reproductive health depends on systemic well-being, *Trayopastambha* plays a vital role in the prevention and supportive management of *Stree Vandhyatva*.

Concept of *Stree Vandhyatva* in Ayurveda

The term *Vandhyatva* broadly denotes the inability to conceive or produce offspring. Ayurveda does not view infertility as an isolated pathology restricted to a single reproductive organ. Rather, it represents systemic dysfunction affecting one or more essential physiological components:

- *Beeja* and *Artava*: Imperfection in quality or function of female gametes and menstrual blood.
- *Artavavaha Srotas* & *Garbhashaya*: Structural or functional impairment of female reproductive channels, particularly the uterus.
- *Ritukala*: Misalignment with the fertile window optimal for conception.
- *Tridosha* (particularly *Vata dosha*): Imbalance in functional governing forces, especially *Vata dosha* which regulates reproductive physiology.
- *Agni* and *Dhatu Poshan*: Compromised digestive/ metabolic fire leading to poor tissue formation and maturation.
- Psychological Stability & Lifestyle: Emotional distress, anxiety, or unwholesome daily habits impacting systemic balance.

Improper diet, sleep disturbances, chronic stress, irregular sexual activity, and unhealthy daily routines directly impair these physiological factors. Therefore, *Trayopastambha* offers a preventive and restorative approach to reproductive well-being.

Concept of *Trayopastambha*

The term *Trayopastambha* is composed of two words: *'Traya'* (three) and *'Upastambha'* (sub-support or secondary pillar)[5]. The prefix *'Upa'* denotes secondary support or proximity[6], while *'Stambha'* is derived from *'Stambha-rodhane'*, meaning a firm pillar capable of sustaining structural integrity[7].

According to classical Ayurvedic literature, Charaka defines the three sub-pillars as follows:

> **त्रय उपस्तम्भा इति आहारः स्वप्नो ब्रह्मचर्यमिति; एभिस्त्रिभिर्युक्तैरूपस्तब्धमुपस्तंभैः शरीरं बलवर्णोपचितमनुवर्तते यावदायुः संस्कारात संस्कारमहितमनुपसेवमानस्य, य इहैवोपदेक्ष्यते ||**
>
> Translation: The three sub-pillars are *Ahara* (diet), *Svapna/Nidra* (sleep), and *Brahmacharya* (regulated conduct/lifestyle). Supported by these three sub-pillars, the body maintains strength, complexion, and growth throughout life, provided one refrains from unwholesome practices. (Charaka Samhita Sutrasthana 11/35) [8]

Charaka explains that human lifespan is influenced by *Daiva* (past karmic impressions), operating through the fundamental *Tridanda* of life. By strengthening the body and mind through proper *Ahara, Nidra*, and *Brahmacharya*, an individual can enhance Purusha Bala (human effort and biological resilience) to overcome adverse *Daivabala* [9].

Vagbhata similarly identifies the three sub-pillars as *Ahara, Nidra*, and *Abrahmacharya* (regulated non-abstinence in domestic life), emphasizing that when followed appropriately, they sustain and nourish the physical body [10].

The three pillars can be summarized as:

- Ahara- Proper food, balanced nutrition, and healthy eating habits.
- Nidra- Adequate, restorative, and timely sleep.
- Brahmacharya/Abrahmacharya- Disciplined conduct, emotional control, and regulated sexual activity within the fertile window.

Table 1: Summarizes the Ayurvedic relevance and modern reproductive correlations of *Trayopastambha*

Ayurvedic Pillar	Ayurvedic Relevance	Modern Reproductive Correlation
Ahara (Diet)	Supports *Agni, Dhatu* formation, *Bala*, and *Artava* production	Nutritional status, BMI, metabolic health, ovulation, PCOS, and micronutrient adequacy
Nidra (Sleep)	Promotes *Pushti, Bala*, mental equilibrium, and vitality	Circadian rhythm alignment, melatonin, cortisol regulation, HPO axis stability
Brahmacharya / Abrahmacharya	Encourages disciplined and appropriately timed sexual conduct	Timed intercourse during fertile window, sexual health, stress reduction, relationship well-being

Role of *Ahara* in *Stree Vandhyatva*

Ayurvedic Perspective

> **प्राणाः प्राणभृतामन्नमन्नम लोकोऽभिधावति||**
> **अन्नम वृत्तिकराणाम श्रेष्ठम||**
> **प्राणिनां पुनर्मुलमाहारो बलवर्णओजसां च ||**
> Food is the life of all living beings, and the entire world seeks nourishment. Food is foremost among life-sustaining factors, acting as the root cause of strength, complexion, and vitality. (Charaka & Sushruta) [11-13]

Ahara is regarded as the primary determinant of health because it nourishes bodily tissues, fuels *Agni* (digestive fire), and forms the basis for *Rasa, Rakta*, and subsequent *Dhatus*. Properly digested food leads to the optimal formation of *Bala* (strength), *Varna* (complexion), *Ojas* (immunity/vitality), and reproductive elements.

In contrast, *Vishamashana* (irregular eating), *Adhyashana* (overeating before previous digestion), *Viruddhahara* (incompatible food combinations), and consumption of unwholesome food impair *Agni*, generating *Ama* (metabolic toxins) [14]. *Ama* obstructs microchannels *(Srotorodha)* and impairs *Dhatu* transformation, directly impacting *Artava* (menstrual fluid/ovum) quality and fertility.

Modern Correlation

Modern reproductive endocrinology confirms that nutritional status and metabolic health are critical determinants of female fertility. Both underweight status (BMI<18.5 kg/m^2) and obesity (BMI≥30kg/m^2) impair hypothalamic-pituitary-ovarian (HPO) axis signalling, leading to ovulatory dysfunction and menstrual irregularity [15].

Adiposity-associated insulin resistance and hyperinsulinemia impair ovarian follicular development and stimulate excess androgen production, representing a chief pathophysiological hallmark of Polycystic Ovary Syndrome (PCOS). Dietary interventions aimed at improving insulin sensitivity frequently restore regular ovulatory cycles[15,16].

Diets high in saturated fats, trans-fatty acids, refined sugars, and high-glycemic carbohydrates correlate with higher risks of ovulatory infertility. Conversely, adherence to diets rich in plant proteins, dietary fiber, antioxidants (vitamins C, E, carotenoids, polyphenols), and monounsaturated fats enhances reproductive performance and oocyte quality [16].

- Achieving and maintaining a healthy body mass index (BMI 18.5–24.9kg/m^2).
- Sufficient intake of essential micronutrients (folic acid, iron, zinc, vitamin D, and B-complex).
- Adoption of low-glycemic index foods to optimize insulin signaling in metabolic infertility.
- Reduction of ultra-processed foods, trans fats, and excess refined sugars.

Role of *Nidra* in Female Infertility

Ayurvedic Perspective

Nidra (sleep) is essential for physical restoration, tissue nourishment, mental clarity, and longevity. Charaka describes sleep as a physiological state that occurs when the mind *(Manas)* and sensory organs *(Indriyas)* become fatigued and temporarily disengage from their objects [17].

Vagbhata emphasizes that timely and adequate sleep confers *Sukha* (happiness), *Pushti* (nourishment), *Bala* (strength), *Vrishyata* (virility/fertility), and *Jeevitam* (longevity)[18]. Conversely, inadequate, excessive, or irregular sleep *(Ratri Jagarana)* provokes *Vata dosha*, increases *Rukshata* (dryness), and produces *Daukshya, Daurbalya* (fatigue), *Klaibya* (sterility/infertility), and systemic imbalance [18,19].

Apana Vata governs reproductive organs and pelvic functions. Disruption of sleep rhythms aggravates *Vata* and directly interferes with *Apana Vata*, leading to menstrual irregularities, ovulatory dysfunction, and psychological stress.

Modern Correlation

Sleep is intimately linked with neuroendocrine regulation, circadian rhythm, and HPO axis function. Shift work, irregular sleep patterns, and chronic sleep restriction alter nocturnal melatonin secretion and elevate hypothalamic-pituitary-adrenal (HPA) axis activity [20,21].

Melatonin functions as a powerful intra-follicular antioxidant that protects oocytes against oxidative stress during folliculogenesis. Suppression of melatonin due to artificial night-time light exposure or sleep disruption adversely affects oocyte quality, LH surge dynamics, and luteal phase durability [20].

Furthermore, sleep deprivation elevates serum cortisol levels. Chronically high cortisol alters GnRH pulsatility, decreases LH/FSH secretion, and impairs oocyte maturation and endometrial receptivity during assisted reproductive technology (ART) cycles [22-24].

- Maintaining consistent sleep-wake timing (7–8 hours per night).

- Minimizing blue-light exposure from screens prior to sleep.
- Managing stress via mind-body interventions (*Yoga, Pranayama*, mindfulness).

Role of Brahmacharya in *Stree Vandhyatva*

Ayurvedic Perspective

In the context of domestic life *(Grihasthashrama), Brahmacharya* does not imply absolute celibacy, but rather disciplined, ethical, and appropriately timed sexual activity *(Samyak Abrahmacharya)* [25,26]. Dalhana defines *Brahmacharya* as *'Samastendriya Samyama'*- the harmonious control over all sensory faculties [27].

Ayurveda emphasizes *Ritukala*- the physiological fertile period following menstruation- as the most auspicious time for sexual intercourse leading to healthy conception. Indiscriminate, excessive, or forced sexual activity causes *Dhatu Kshaya* (depletion of vital tissues), aggravates *Vata dosha*, and creates psychological disharmony between partners.

Modern Correlation

Modern reproductive medicine identifies the 'fertile window'- the 6-day period ending on the day of ovulation- as the optimal timeframe for intercourse to maximize conception probability. Regular intercourse every 1–2 days during this window yields the highest fecundability rates.

Excessive psychological anxiety related to timed intercourse can precipitate sexual dysfunction, performance stress, and marital strain. The disciplined, mindful, and emotionally harmonious approach advocated under *Brahmacharya* aligns with contemporary recommendations for couple-centered fertility counseling and stress reduction.

DISCUSSION

The Ayurvedic framework of *Trayopastambha* highlights the foundational role of lifestyle regulation in female reproductive physiology. Rather than treating infertility as an isolated organ deficiency, Ayurveda emphasizes that systemic health, metabolic fire *(Agni),* tissue nourishment *(Dhatu Poshan),* and emotional equilibrium *(Manas)* are prerequisites for successful conception.

Ahara directly governs *Rasa Dhatu*, which provides the precursor elements for *Artava. Nidra* regulates *Vata dosha* and preserves nervous and endocrine homeostasis. *Brahmacharya* optimizes energy expenditure, promotes emotional intimacy, and targets reproductive effort during the fertile *Ritukala*.

Modern scientific literature strongly supports these ancient tenets: nutritional optimization improves metabolic parameters and ovulatory function in PCOS; circadian hygiene protects oocyte quality and HPO signalling; and psychological stress reduction improves ART outcomes and natural conception rates.

CONCLUSION

Trayopastambha provides a comprehensive, preventive, and integrative lifestyle model for addressing female infertility *(Stree Vandhyatva).* Optimizing *Ahara* (diet), *Nidra* (sleep), and *Brahmacharya* (regulated conduct) supports systemic metabolic balance, neuroendocrine harmony, and reproductive resilience. Integrating these Ayurvedic lifestyle pillars into modern evidence-based preconception care and clinical infertility management offers a promising holistic paradigm to improve patient outcomes.

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