

SHUKRA DHATU AND SHUKRA DOSHA: AN ANALYTICAL REVIEW OF PHYSIOLOGICAL HARMONY AND VITIATION PATHWAYS

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ABSTRACT

Śukra Dhātu occupies a distinctive position in Ayurvedic physiology as the seventh and final Dhātu and as an important determinant of reproductive potential, vitality and the capacity for progeny. Although Śukra is frequently equated with semen or sperm in contemporary interpretations, the classical Ayurvedic concept is broader and encompasses reproductive potential, generative capacity and a systemic biological essence that is not restricted to the ejaculate. Classical texts describe Śukra as being produced through progressive Dhātu transformation and associated with nourishment, strength, reproductive competence and the maintenance of physiological harmony. Disturbance of its quality or function is described under the broader framework of Śukra Duṣṭi, Śukra Kṣaya and disorders of Śukravaha Srotas. The present narrative review analyses the concept of Śukra Dhātu and Śukra Doṣa through classical Ayurvedic literature and examines its possible interpretation alongside contemporary reproductive physiology. Particular emphasis is placed on Śukra formation, Dhātu Pāka, Śukrāgni, Śukra Sara, Śukravaha Srotas, Tridoṣa involvement and the classical eight varieties of Śukra Duṣṭi described by Caraka. These include Phenila, Tanu, Rūkṣa, Vivarṇa, Pūti, Picchila, Anyadhātūpasamsrṣṭa and Avasādi. Susruta provides an alternative classification based more directly on Doṣic predominance and pathological characteristics. From a contemporary perspective, several clinical dimensions of Śukra Duṣṭi can be discussed in relation to semen volume, sperm concentration, motility, morphology, viscosity, inflammatory changes, blood contamination and abnormalities of seminal fluid. However, such comparisons should remain interpretive because Śukra Dhātu is a conceptual construct of Ayurvedic physiology and cannot be reduced exclusively to spermatozoa or semen. Contemporary semen analysis provides objective assessment of selected reproductive parameters, whereas Ayurveda considers reproductive health within a broader framework involving Agni, Dhātu nutrition, Doṣa equilibrium, lifestyle, mental state and systemic vitality. The review proposes an integrative model in which impaired Agni, inadequate Dhātu nourishment, Doṣic disturbance, obstruction or dysfunction of Śukravaha Srotas and inappropriate dietary, behavioural and environmental exposures may collectively contribute to Śukra Duṣṭi. This framework provides a potential basis for future translational research, particularly in male-factor infertility, while emphasizing the need for standardized Ayurvedic phenotyping and correlation with validated reproductive biomarkers.

KEYWORDS: Śukra Dhātu, Śukra Duṣṭi, Śukra Kṣaya, Śukravaha Srotas, Ayurveda, Vājīkaraṇa, male infertility, semen analysis, reproductive physiology, Tridoṣa.

1. INTRODUCTION

Reproduction is regarded in Ayurveda as one of the fundamental biological functions contributing to the continuity of life. The classical Ayurvedic description of the body is based on the dynamic interaction of Doṣa, Dhātu and Mala, with the seven Dhātus representing progressively differentiated structural and functional components of the organism. Śukra is described as the seventh Dhātu and occupies a special position because of its association with reproduction and generative potential.¹

The word Śukra carries meanings including bright, pure, clear and reproductive seed. In Ayurvedic physiology, however, Śukra should not be interpreted exclusively as ejaculated semen. Classical descriptions indicate that Śukra has a systemic dimension and is associated with reproductive capacity in both male and female physiology. Contemporary Ayurvedic scholarship similarly emphasizes that the term may encompass both the reproductive material that participates directly in conception and a more generalized reproductive-endocrine principle.²

The importance of Śukra is also reflected in the development of Vājīkaraṇa Tantra, one of the eight branches of Ayurveda. Vājīkaraṇa focuses not merely on sexual performance but on the preservation and enhancement of reproductive capacity, sexual function and the potential for healthy progeny.³

Disruption of Śukra may occur quantitatively, qualitatively or functionally. Classical literature describes Śukra Duṣṭi through characteristic alterations in its appearance and properties, while Śukra Kṣaya represents a state of deficiency or depletion. Such pathological changes may contribute to conditions collectively discussed under Klaibya and other reproductive disorders.

In contemporary reproductive medicine, male fertility is assessed using clinical history, physical examination, semen analysis and selected hormonal, genetic, imaging and functional investigations. The World Health Organization's sixth edition laboratory manual provides standardized procedures for examination and processing of human semen, including assessment of semen volume, sperm concentration, motility, morphology and vitality.⁴

The conceptual overlap between classical Śukra pathology and modern reproductive dysfunction therefore presents an important area for analytical study. Nevertheless, a direct equation of Śukra with sperm is reductionistic. The present review attempts to preserve the classical meaning while identifying clinically useful areas of correspondence with contemporary reproductive science.

2. Aim and Objectives

Aim

To critically analyse the Ayurvedic concept of Śukra Dhātu and Śukra Doṣa with particular emphasis on physiological harmony, mechanisms of vitiation and possible contemporary interpretations.

Objectives

1. To analyse the classical concept of Śukra Dhātu.
2. To describe Śukra formation and Dhātu nourishment.
3. To examine the physiological functions and characteristics of Śukra.
4. To analyse the role of Agni, Doṣa and Śukravaha Srotas in Śukra physiology.
5. To classify and interpret the varieties of Śukra Duṣṭi described in Ayurvedic literature.
6. To examine the possible relationship between Śukra Duṣṭi and contemporary semen abnormalities.
7. To develop an integrative model for understanding reproductive dysfunction.
8. To identify research gaps and potential areas for future clinical investigation.

3. MATERIALS AND METHODS

The present work is a narrative analytical review. Classical Ayurvedic concepts relating to Śukra Dhātu, Śukra Duṣṭi, Śukra Kṣaya, Śukravaha Srotas, Vājīkaraṇa and Klaibya were reviewed from major Ayurvedic treatises, particularly the Caraka Saṃhitā, Suśruta Saṃhitā and Aṣṭāṅga Hṛdaya. Relevant secondary Ayurvedic literature was also examined.

Contemporary literature concerning semen analysis, male reproductive physiology and male infertility was reviewed using authoritative sources including the World Health Organization laboratory manual and contemporary professional guidelines. The WHO sixth edition manual emphasizes standardized assessment of semen volume, sperm concentration, motility, morphology and vitality. Contemporary male-infertility guidance similarly recommends semen analysis as a fundamental component of initial male evaluation and emphasizes assessment of both partners in an infertile couple.

The analysis was primarily qualitative and interpretive. Ayurvedic terms were compared with contemporary reproductive concepts only where a plausible functional or phenomenological relationship could be identified. No attempt was made to establish that an Ayurvedic construct is biologically identical to a contemporary anatomical, cellular or biochemical entity.

4. Concept of Śukra Dhātu 5,6

Śukra is the seventh Dhātu in the classical sequence:

Rasa → Rakta → Māṃsa → Meda → Asthi → Majjā → Śukra

The classical Dhātu transformation model proposes that nourishment proceeds progressively through the tissue systems, ultimately producing Śukra as the most refined reproductive tissue/essence. Some Ayurvedic interpretations describe Śukra as an all-pervading component rather than a substance confined to the reproductive organs.

This feature differentiates the Ayurvedic construct from the narrow modern definition of semen. Semen is an ejaculated fluid containing spermatozoa together with secretions from accessory reproductive glands. Śukra, by contrast, may be understood as a broader physiological concept involving reproductive potential and generative function.

Therefore:

Śukra ≠ sperm alone

and

Śukra ≠ semen alone.

Rather, sperm and semen may represent important observable manifestations of one dimension of the broader Śukra concept, particularly in the male reproductive context.

5. Formation of Śukra Dhātu 7

5.1 Dhātu Pāka

According to Ayurvedic physiology, nutrients derived from food undergo progressive transformation through Dhātu metabolism. Each Dhātu receives nourishment and contributes to the formation of the subsequent Dhātu.

The final stage is associated with Śukra formation. This classical model places reproductive health within a systemic nutritional framework rather than treating the reproductive system as an isolated organ system.⁸

Accordingly, impaired nutrition at earlier levels may theoretically influence subsequent Śukra formation.

The proposed sequence may be represented as:

Ahāra → Jatharāgni → Rasa → successive Dhātu nourishment → Majjā → Śukra

This does not imply that modern spermatogenesis literally occurs through transformation of one tissue into another. Instead, the Ayurvedic model represents a functional theory of progressive tissue nourishment and differentiation.⁹

6. Role of Agni in Śukra Physiology 10

Agni is central to Ayurvedic physiology. At the level of Dhātu, the concept of Dhātvaṇi explains tissue-specific transformation and utilization of nutrients.

Śukrāgni may therefore be conceptually understood as the metabolic principle responsible for appropriate utilization and transformation of nutrients required for Śukra maintenance.

Disturbance of Agni may theoretically result in:

- □ inadequate tissue nourishment,
- □ accumulation of improperly processed metabolic material,
- □ impaired Dhātu quality,
- □ altered reproductive function,
- □ weakness or depletion,
- □ impaired sexual function.

This provides a systemic explanation for why Ayurveda does not approach reproductive dysfunction solely through reproductive-organ therapy.

The clinical implication is that assessment of reproductive health may require simultaneous consideration of:

Agni + Ahāra + Dhātu status + Doṣa + Srotas + Manas + reproductive function.

7. Physiological Functions of Śukra 11

The principal function traditionally attributed to Śukra is Garbhotpādana, or participation in reproduction.

However, classical descriptions also associate Śukra with:

- □ reproductive capacity,
- □ sexual vitality,
- □ strength,
- □ physiological stability,
- □ generative potential,
- □ healthy progeny,
- □ psychological and physical vitality.

The Ayurvedic concept of Śukra therefore extends beyond a single reproductive parameter.

A person possessing excellent Śukra is traditionally described as having desirable reproductive and physical characteristics. Conversely, deterioration of Śukra may manifest through impaired reproductive capacity and sexual dysfunction.

8. Śukra Sara and Physiological Excellence 12

The concept of Sara describes the excellence or qualitative predominance of a Dhātu. Śukra Sara represents excellence of reproductive tissue and function.

Features attributed to Śukra excellence traditionally include:

- □ healthy reproductive capacity,
- □ strong sexual function,
- □ vitality,
- □ confidence,
- □ physical strength,
- □ reproductive competence.

From a modern perspective, some of these characteristics may overlap broadly with adequate endocrine function, nutritional status, sexual health and reproductive capacity. However, Śukra Sara should not be equated with any single laboratory parameter such as serum testosterone or sperm concentration.

9. Śukravaha Srotas 13

The concept of Srotas represents channels responsible for transportation, transformation or functional communication within the organism.

Śukravaha Srotas is the functional channel system associated with Śukra.

Classical descriptions identify the reproductive organs and testicular structures among important anatomical locations associated with Śukravaha Srotas.

Pathology may therefore arise through:

1. inadequate formation,
2. obstruction,
3. excessive loss,
4. vitiation by Doṣa,
5. tissue injury,
6. inflammatory processes,
7. improper functioning of reproductive pathways.

This conceptual framework has relevance to contemporary conditions such as impaired spermatogenesis, obstruction of reproductive ducts, inflammatory disorders and certain ejaculatory abnormalities, although direct equivalence cannot be assumed.

10. Normal Śukra: Classical Characteristics 14

Classical descriptions of healthy Śukra emphasize properties such as:

- ☐ clear or crystalline appearance,
- ☐ appropriate liquidity,
- ☐ unctuousness,
- ☐ pleasant or characteristic smell,
- ☐ whitish appearance,
- ☐ appropriate consistency,
- ☐ absence of pathological admixture.

These characteristics can be interpreted phenomenologically rather than as direct laboratory equivalents. For example:

Classical characteristic	Possible contemporary observation
Śukla/clear appearance	Gross semen appearance
Drava	Liquefaction/fluidity
Snigdha	Seminal viscosity/consistency
Madhura/Madhu-gandhi	Characteristic seminal odor
Absence of abnormal admixture	Absence of blood, pus or excessive inflammatory material
Proper quantity	Semen volume

Modern semen analysis evaluates several objective parameters, including volume, concentration, motility, morphology and vitality.

11. Concept of Śukra Doṣa 15

Śukra Doṣa refers to qualitative or functional abnormality of Śukra resulting from Doṣic disturbance and other pathogenic factors.

Caraka describes eight varieties of Reto/Śukra Doṣa:

1. Phenila
2. Tanu
3. Rūkṣa
4. Vīvarṇa
5. Pūti
6. Picchila
7. Anyadhātūpasamsṛṣṭa
8. Avasādi

The classical description is particularly noteworthy because it identifies abnormalities of physical characteristics of semen long before microscopic semen examination became available.

12. Eight Types of Śukra Duṣṭi 16,17

12.1 Phenila Śukra

Phenila refers to frothy or excessively foamy Śukra.

In Ayurvedic interpretation, this is primarily associated with Vāta predominance.

Possible contemporary observations may include altered seminal fluid characteristics or excessive frothiness during collection. However, froth alone is not a diagnostic marker of male infertility.

12.2 Tanu Śukra

Tanu indicates thin or excessively dilute Śukra.

From a contemporary perspective, it may invite consideration of altered semen viscosity, seminal fluid composition or low sperm concentration, but the two concepts should not be treated as synonymous. A thin ejaculate does not automatically indicate oligospermia.

12.3 Rūkṣa Śukra

Rūkṣa denotes dryness or loss of appropriate unctuousness.

Ayurvedically, this can be interpreted as a Vāta-associated alteration in the qualitative properties of Śukra.

Possible contemporary associations may include altered seminal consistency or reduced seminal fluid quality.

12.4 Vivarṇa Śukra

Vivarṇa means discoloration or deviation from the expected appearance.

Contemporary differential considerations for abnormal semen coloration may include:

- □ blood contamination,
- □ infection/inflammation,
- □ urinary contamination,
- □ prolonged abstinence,
- □ medication-related changes,
- □ other genital-tract pathology.

Thus, Vivarṇa is best understood as a gross descriptive finding requiring further evaluation rather than a disease diagnosis.

12.5 Pūti Śukra

Pūti denotes foul-smelling or putrid Śukra.

This classical feature can reasonably prompt consideration of infection or inflammatory pathology of the genital tract in contemporary clinical assessment.

However, odor alone cannot establish infection. Semen culture, microscopy and appropriate clinical evaluation may be required when infection is suspected.

12.6 Picchila Śukra

Picchila denotes excessive sliminess or stickiness.

Contemporary semen analysis includes evaluation of viscosity and liquefaction. Excessive viscosity may interfere with sperm motility and laboratory assessment.

The relationship between Picchila Śukra and hyperviscosity therefore represents an interesting area for translational investigation.¹⁸

12.7 Anyadhātūpasamśṛṣṭa Śukra

This refers to Śukra associated or contaminated with other tissue components.

From a contemporary perspective, this may conceptually invite consideration of:

- □ blood,
- □ inflammatory cells,
- □ pus,
- □ epithelial cells,
- □ cellular debris,
- □ other pathological admixtures.

Modern semen analysis can identify leukocytes, immature germ cells and other cellular components through extended laboratory examination.

12.8 Avasādi Śukra

Avasādi describes Śukra having abnormal heaviness or sinking characteristics.

Classical literature associates this condition with altered physical properties of the seminal material.

The contemporary physiological equivalent is uncertain, and this feature should therefore be regarded as an important area for historical and experimental investigation rather than being assigned a definite modern diagnosis.¹⁹

13. Susruta's Doṣa-Based Classification

Susruta provides a somewhat different approach to Śukra pathology, describing abnormalities according to Doṣic involvement and characteristic physical manifestations.

Descriptions include:

- □ Vāta-dushta Śukra,
- □ Pitta-dushta Śukra,
- □ Kapha-dushta Śukra,
- □ Rakta-associated abnormalities,
- □ Granthi-type changes,
- □ Pūti/Pūya-associated changes,
- □ Kṣīṇa Śukra,
- □ Mutra-Purīṣa-gandhi or Tridoṣaja abnormalities.

Secondary analyses of the classical literature demonstrate that the nomenclature differs between Caraka and Susruta, while both emphasize qualitative changes in semen as clinically meaningful.²⁰

14. Doṣic Pathogenesis of Śukra Duṣṭi 20,21

14.1 Vāta

Vāta is characterized by movement, dryness and variability. Excessive Vāta may therefore disturb:

- ☐ formation,
- ☐ transportation,
- ☐ ejaculation,
- ☐ reproductive coordination,
- ☐ tissue nourishment.

Classical Vāta-associated Śukra features include frothiness, thinness, dryness, low quantity, pain and difficulty or delay in ejaculation.

Conceptually, these features may overlap with certain manifestations of:

- ☐ ejaculatory dysfunction,
- ☐ low semen volume,
- ☐ altered semen consistency,
- ☐ pelvic dysfunction,
- ☐ selected forms of male infertility.

14.2 Pitta

Pitta is associated with heat, transformation and inflammatory processes.

Pitta-associated Śukra pathology is classically described with:

- ☐ abnormal coloration,
- ☐ excessive heat,
- ☐ foul smell,
- ☐ burning during ejaculation.

These findings may phenomenologically overlap with inflammatory or infective reproductive-tract disorders.

Contemporary medicine recognizes genital-tract infection and inflammation as potential contributors to impaired semen quality.

14.3 Kapha

Kapha contributes stability, lubrication and structure.

Excessive Kapha may produce:

- ☐ excessive sliminess,
- ☐ heaviness,
- ☐ excessive viscosity,
- ☐ obstruction.

The relationship between Picchila Śukra and increased seminal viscosity is particularly worthy of experimental investigation.

14.4 Tridoṣa

When all three Doṣas are involved, complex abnormalities may occur.

Classical descriptions include severe qualitative changes such as foul-smelling semen or admixture with urinary/fecal characteristics.

From a contemporary perspective, such findings would require careful exclusion of:

- ☐ genital infection,
- ☐ fistulous communication,
- ☐ urinary contamination,
- ☐ severe inflammatory pathology,
- ☐ structural disease.

15. Śukra Kṣaya

Śukra Kṣaya represents a deficiency or depletion state of Śukra.

It may be considered separately from qualitative Śukra Duṣṭi.

Potential Ayurvedic contributors include:

- ☐ excessive sexual activity,
- ☐ excessive physical exertion,
- ☐ inadequate nutrition,
- ☐ chronic disease,
- ☐ mental stress,
- ☐ inappropriate diet,
- ☐ suppression of natural urges,
- ☐ excessive Vāta,

- ☐ prolonged depletion.

The clinical concept of Kṣaya is broader than simply low sperm concentration. It may include diminished reproductive strength and impaired sexual vitality.

16. Etiological Factors in Śukra Vitiating 23,24

The Ayurvedic model recognizes multiple categories of causative factors.

16.1 Āhāraja Factors

Potential dietary contributors include:

- ☐ inadequate nutritional intake,
- ☐ excessive intake of excessively dry foods,
- ☐ inappropriate dietary patterns,
- ☐ poor dietary quality,
- ☐ excessive intake of incompatible foods,
- ☐ chronic undernutrition.

The Ayurvedic explanation emphasizes not merely nutrient quantity but appropriate digestion and assimilation.

16.2 Vihāraja Factors

Lifestyle-related factors may include:

- ☐ excessive exertion,
- ☐ inadequate rest,
- ☐ disturbed sleep,
- ☐ excessive sexual activity,
- ☐ sedentary behaviour,
- ☐ inappropriate sexual practices,
- ☐ suppression of natural urges.

16.3 Mānasika Factors

Mental factors may influence reproductive function through the Ayurvedic Manas–Doṣa framework.

Potential contributors include:

- ☐ anxiety,
- ☐ chronic stress,
- ☐ grief,
- ☐ fear,
- ☐ excessive psychological strain.

Contemporary reproductive medicine also recognizes that sexual and psychological factors can influence reproductive health and sexual function.

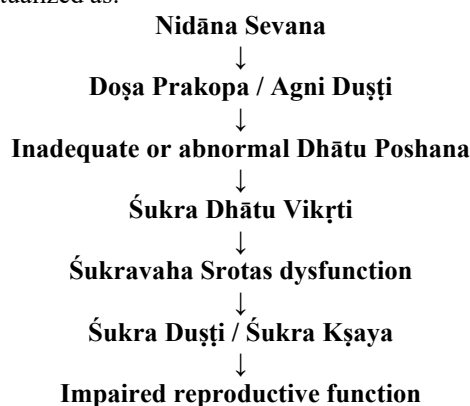
16.4 Vyādhi and Āgantuka Factors

Śukra may be disturbed secondary to:

- ☐ systemic disease,
- ☐ fever,
- ☐ inflammatory disease,
- ☐ reproductive tract pathology,
- ☐ trauma,
- ☐ surgical injury,
- ☐ medication exposure,
- ☐ toxic exposure.

17. Pathogenesis: A Proposed Ayurvedic Model 25

A generalized pathway can be conceptualized as:



↓
Klaibya / infertility-related manifestations

This model is particularly useful because it does not locate infertility exclusively at the level of the reproductive organ.

18. Śukra Dhātu and Contemporary Reproductive Physiology 26

Modern male reproductive physiology involves coordinated functions of:

- ☐ hypothalamus,
- ☐ pituitary gland,
- ☐ testes,
- ☐ Sertoli cells,
- ☐ Leydig cells,
- ☐ epididymis,
- ☐ seminal vesicles,
- ☐ prostate,
- ☐ vas deferens,
- ☐ ejaculatory pathways.

Spermatogenesis requires coordinated endocrine, cellular and metabolic mechanisms.

Contemporary semen evaluation assesses several measurable characteristics. The WHO sixth edition manual provides standardized procedures for assessment of semen volume, sperm concentration, motility, morphology and vitality, while also describing extended and advanced tests.

The Ayurvedic concept of Śukra encompasses a much broader functional field. Therefore, the most academically appropriate relationship is:

Śukra Dhātu → broader reproductive physiological construct

rather than:

Śukra Dhātu → spermatozoa only.

19. Analytical Correlation with Modern Semen Parameters

Ayurvedic concept	Classical feature	Possible contemporary parameter	Strength of correlation
Śukra Pramāṇa	Quantity	Semen volume	Moderate conceptual
Phenila	Frothy	Frothiness/seminal physical appearance	Descriptive
Tanu	Thin	Seminal consistency/viscosity	Moderate
Rūkṣa	Dry/less unctuous	Altered seminal consistency	Hypothetical
Vivarna	Abnormal colour	Semen colour	Strong phenomenological
Pūti	Foul smell	Infection/inflammation differential	Moderate
Picchila	Slimy/sticky	Semen viscosity	Potentially relevant
Anyadhātu-samsṛṣṭa	Other tissue admixture	Leukocytes/blood/cellular material	Conceptually relevant
Avasādi	Sinking/heavy property	No established direct equivalent	Uncertain
Śukra Kṣaya	Deficiency/depletion	Reduced reproductive capacity	Broad conceptual
Śukra Sara	Excellence	Overall reproductive health	Broad conceptual

The table should be interpreted as an analytical framework rather than a validated diagnostic conversion chart.

20. Śukra Duṣṭi and Male Infertility 27

Male infertility is multifactorial. Contemporary guidelines recommend semen analysis as a central component of male evaluation, while emphasizing that fertility is a characteristic of the couple rather than of the male alone.

Potential causes include:

- ☐ impaired spermatogenesis,
- ☐ endocrine disorders,
- ☐ varicocele,
- ☐ genital tract obstruction,
- ☐ infection,
- ☐ genetic abnormalities,
- ☐ testicular injury,
- ☐ environmental exposures,
- ☐ medication effects,

- ☐sexual dysfunction,
- ☐idiopathic factors.

The Ayurvedic framework of Śukra Duṣṭi can potentially provide a phenomenological classification that complements objective modern investigation.

For example:

Phenila + Alpa Śukra + Vāta features

may prompt assessment of semen quantity, viscosity, sperm concentration and ejaculatory function.

Pūti + Daha + Vivarṇa

may prompt assessment for infection or inflammation.

Picchila + Gaurava

may justify attention to semen viscosity and liquefaction.

Anyadhātu-samsrṣṭa

may prompt investigation for blood, leukocytes or other cellular components.

Such relationships are hypotheses requiring prospective validation.

21. Lifestyle and Environmental Factors 28

Modern reproductive medicine recognizes that several potentially modifiable factors can influence male reproductive health.

Varicocele, for example, may be associated with increased scrotal temperature, hypoxia and oxidative damage, with higher grades being associated with worsening semen parameters.

Similarly, contemporary male-infertility evaluation considers lifestyle, medication and medical history as relevant components of assessment.

These observations provide an interesting point of dialogue with the Ayurvedic emphasis on:

- ☐appropriate Ahāra,
- ☐appropriate Vihāra,
- ☐avoidance of excessive heat,
- ☐preservation of reproductive vitality,
- ☐management of Doṣic imbalance,
- ☐adequate rest,
- ☐mental equilibrium.

However, Ayurveda-specific causal claims should not be inferred merely because a modern risk factor resembles an Ayurvedic Nidāna.

22. Vājīkaraṇa as a Preventive and Therapeutic Framework 29

Vājīkaraṇa is traditionally concerned with preservation and enhancement of reproductive capacity.

Its therapeutic philosophy extends beyond the administration of aphrodisiac substances and includes:

- ☐adequate nutrition,
- ☐restoration of Dhātu quality,
- ☐improvement of strength,
- ☐appropriate sexual behaviour,
- ☐psychological well-being,
- ☐correction of Doṣic imbalance,
- ☐use of appropriate Rasāyana and Vājīkaraṇa measures.

The conceptual objective can therefore be summarized as:

Śukra Janana + Śukra Poshana + Śukra Saṃrakṣaṇa + reproductive functional optimization.

Modern evidence-based reproductive medicine should nevertheless be integrated whenever infertility is suspected, especially where correctable structural, endocrine, infectious or genetic causes may be present.

23. Diagnostic Approach: Integrative Perspective 30

A clinically useful integrative approach may include the following domains.

Ayurvedic assessment

- ☐Prakṛti
- ☐Vikṛti
- ☐Agni
- ☐Koṣṭha
- ☐Dhātu status
- ☐Śukra Sara
- ☐Nidāna

- ☐ Śukra Duṣṭi Lakṣaṇa
- ☐ Śukravaha Srotas assessment
- ☐ Manasika factors
- ☐ sexual history

Contemporary assessment

- ☐ detailed reproductive history,
- ☐ sexual function,
- ☐ physical examination,
- ☐ semen analysis,
- ☐ endocrine evaluation when indicated,
- ☐ scrotal examination,
- ☐ evaluation for varicocele,
- ☐ infection testing when clinically indicated,
- ☐ genetic testing in selected severe abnormalities,
- ☐ imaging when indicated.

WHO recommends standardized semen examination procedures to improve reliability and comparability between laboratories.

The AUA/ASRM guideline similarly recommends one or more semen analyses as part of the initial male evaluation and emphasizes specialist evaluation when semen parameters are abnormal or infertility is suspected.

24. Important Conceptual Distinction: Śukra Is Not Limited to Male Semen 31

One of the most important analytical points is that equating Śukra exclusively with sperm or semen may unnecessarily narrow the classical concept.

Ayurvedic descriptions of Śukra are broader and include reproductive potential. Classical Ayurvedic scholarship describes two dimensions of Śukra: an ejaculated reproductive component and a systemic component distributed throughout the body.

This broader understanding permits discussion of Śukra in relation to both male and female reproductive physiology.

Consequently, in contemporary interpretation:

- ☐ male semen is one observable reproductive manifestation,
- ☐ spermatozoa are one cellular component of semen,
- ☐ endocrine reproductive function may represent another relevant physiological dimension,
- ☐ reproductive potential is the broader functional outcome.

This approach is more consistent with Ayurvedic physiology than a simplistic sperm = Śukra equation.

25. Śukra and Psychological Well-Being

Ayurveda does not isolate reproductive health from mental and emotional health.

Chronic psychological stress, anxiety and disturbed sleep may adversely affect sexual function and reproductive behaviour. The Ayurvedic framework can interpret such factors through disturbance of Doṣa, Agni and the functional integration of Manas and Sharīra.

Therefore, the assessment of reproductive dysfunction should include:

Śarīra + Manas + Ahāra + Vihāra + reproductive physiology.

This holistic approach may be especially relevant in functional sexual disorders where anatomical abnormalities are not sufficient to explain symptoms.

26. Śukra Duṣṭi as a Multidimensional Pathology

Śukra pathology can be conceptualized across five dimensions:

1. Quantitative

Examples:

- ☐ Alpa Śukra,
- ☐ Śukra Kṣaya,
- ☐ reduced reproductive output.

2. Qualitative

Examples:

- ☐ abnormal consistency,
- ☐ frothiness,
- ☐ excessive sliminess,
- ☐ discoloration,
- ☐ abnormal smell.

3. Functional

Examples:

- □impaired ejaculation,
- □reduced sexual function,
- □impaired reproductive capacity.

4. Structural

Examples:

- obstruction,
- tissue injury,
- reproductive tract pathology.

5. Systemic

Examples:

- □Agni disturbance,
- □Dhātu depletion,
- □Doṣic imbalance,
- □psychological stress,
- □chronic disease.

This multidimensional model is potentially more useful than attempting to map every Śukra Doṣa directly to a single modern semen parameter.

27. Critical Appraisal of Ayurvedic–Modern Correlation

The comparison of Śukra Dhātu with modern reproductive biology has several strengths.

Strengths

1. Ayurveda recognizes reproductive physiology as a systemic process.
2. Classical texts provide detailed phenomenological descriptions of abnormal semen.
3. Śukra Duṣṭi includes physical, functional and systemic dimensions.
4. The framework emphasizes nutrition and tissue metabolism.
5. The concept may generate hypotheses for integrative reproductive research.

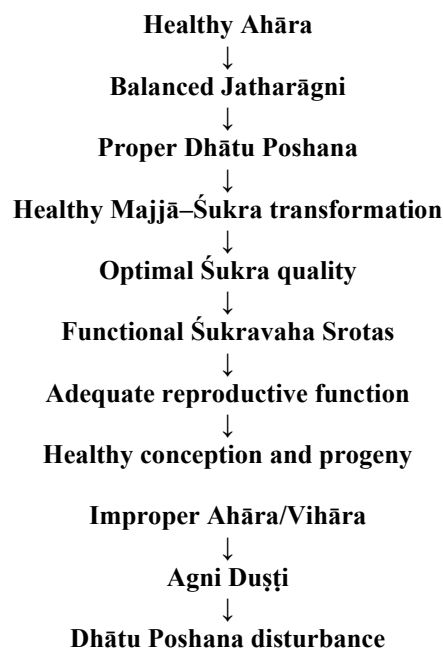
Limitations

1. Śukra Dhātu has no exact anatomical equivalent.
2. Classical qualitative terminology does not always correspond to standardized laboratory parameters.
3. Modern semen analysis evaluates selected biological variables rather than the total concept of reproductive vitality.
4. Classical descriptions are based primarily on clinical observation.
5. Many modern correlations remain hypothetical.
6. Ayurvedic diagnostic terminology is not yet sufficiently standardized for multicentre clinical research.

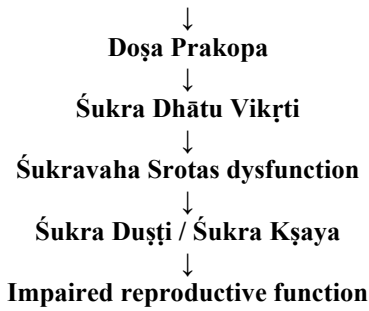
Therefore, Śukra should be treated as an Ayurvedic physiological construct, not retrospectively redefined as a modern anatomical structure.

28. Proposed Integrative Model of Śukra Homeostasis

A conceptual model can be proposed:



Conversely:



This model can serve as a conceptual foundation for clinical research.

29. Research Implications

Future studies should move beyond purely literary comparisons and develop measurable correlations. Potential research questions include:

29.1 Phenotypic correlation

Can Ayurvedic Śukra Duṣṭi phenotypes be reliably identified using standardized diagnostic criteria?

29.2 Semen correlation

Can specific Śukra Duṣṭi phenotypes be correlated with:

- ☐ sperm concentration,
- ☐ progressive motility,
- ☐ morphology,
- ☐ vitality,
- ☐ semen viscosity,
- ☐ liquefaction time,
- ☐ semen volume?

29.3 Inflammatory correlation

Can Pūti or Anyadhātūpasamsṛṣṭa phenotypes be associated with:

- ☐ leukocytospermia,
- ☐ genital tract infection,
- ☐ inflammatory biomarkers?

29.4 Endocrine correlation

Can Śukra Kṣaya phenotypes demonstrate reproducible relationships with:

- ☐ testosterone,
- ☐ FSH,
- ☐ LH,
- ☐ prolactin,
- ☐ thyroid parameters?

29.5 Oxidative stress

Can Ayurvedic Śukra Duṣṭi classifications be correlated with:

- ☐ reactive oxygen species,
- ☐ sperm DNA fragmentation,
- ☐ oxidative stress biomarkers?

29.6 Lifestyle research

Can correction of Ayurvedic Nidānas demonstrate measurable improvements in semen quality and reproductive outcomes?

Such studies should employ standardized semen analysis and contemporary clinical methodology.

30. Future Research Methodology

A useful research design could involve:

Phase I – Classical validation

Development of a standardized Śukra Duṣṭi assessment questionnaire based on primary Ayurvedic texts.

Phase II – Clinical validation

Assessment of inter-rater reliability among trained Ayurvedic physicians.

Phase III – Laboratory correlation

Correlation of each phenotype with standardized semen analysis.

Phase IV – Biomarker correlation

Assessment of hormonal and inflammatory/oxidative biomarkers.

Phase V – Clinical outcome research

Evaluation of changes following standardized interventions.

Potential endpoints may include:

- ☐ semen volume,
- ☐ sperm concentration,
- ☐ progressive motility,
- ☐ morphology,
- ☐ vitality,
- ☐ DNA fragmentation,
- ☐ hormonal profile,
- ☐ conception rate,
- ☐ time to pregnancy.

This would transform Śukra Duṣṭi from a primarily literary construct into a potentially testable clinical phenotype.³²

31. Clinical Significance

The practical value of the Śukra concept lies in its ability to encourage clinicians to consider reproductive dysfunction in a multidimensional manner.

A patient with impaired fertility should not be assessed solely according to sperm count.

An integrated evaluation should consider:

Nutrition + digestion + metabolism + systemic health + reproductive anatomy + endocrine function + semen quality + sexual function + psychological health + lifestyle.

This broad framework is compatible with contemporary infertility practice, where semen analysis is essential but cannot independently explain every case of infertility. Contemporary guidelines emphasize parallel evaluation of both partners rather than treating infertility as exclusively a male or female disorder.³³

32. CONCLUSION

Śukra Dhātu represents one of the most sophisticated and clinically relevant concepts within Ayurvedic reproductive physiology. Its classical meaning extends beyond the physical ejaculate and encompasses reproductive potential, generative capacity and systemic physiological excellence. The concept is embedded within the larger Ayurvedic framework of Agni, Dhātu Poshana, Tridoṣa and Srotas physiology. Śukra Duṣṭi represents a multidimensional disturbance characterized by qualitative, quantitative and functional abnormalities. Caraka's eightfold description—Phenila, Tanu, Rūkṣa, Vivarṇa, Pūti, Picchila, Anyadhātūpasamsrṣṭa and Avasādi—demonstrates a detailed observational approach to reproductive pathology. Contemporary semen analysis provides objective methods for evaluating semen volume, sperm concentration, motility, morphology, vitality and additional cellular or functional parameters. Several classical descriptions of Śukra Duṣṭi have plausible phenomenological parallels with abnormalities of seminal fluid; however, these relationships should not be interpreted as established one-to-one equivalences. The most scientifically defensible approach is therefore neither to reject the Ayurvedic concept as merely premodern terminology nor to equate it simplistically with sperm or semen. Instead, Śukra Dhātu may be studied as a multidimensional Ayurvedic model of reproductive physiology whose phenotypic components can be investigated using contemporary clinical and laboratory methods. Future research should focus on developing validated diagnostic criteria for Śukra Duṣṭi and correlating these phenotypes with semen parameters, endocrine markers, inflammatory indices, oxidative stress and reproductive outcomes. Such work could establish a rigorous translational bridge between classical Ayurvedic physiology and contemporary reproductive medicine.

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