

"An Integrative Clinical Study on the Efficacy of Narasingha Churna in Kshina Retasa (Oligospermia) and Correlation of Semen Parameters with Ayurvedic Semenology"

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ABSTRACT

Background: Male infertility is a growing global issue, with oligospermia (sperm count <15 million/mL) contributing to 30–40% of male infertility cases. In Ayurveda, this condition is referred to as Kshina Retasa, which is attributed to the vitiation of Vata and Pitta doshas. Narasingha Churna, a classical polyherbal formulation, is traditionally used in Vajikarana therapy to enhance male reproductive health. **Objective:** The objective of this study was to evaluate the clinical efficacy of Narasingha Churna in improving semen parameters in patients with oligospermia, also known as Kshina Retasa in Ayurvedic terms. **Methods:**

This study was conducted in two phases at the National Institute of Ayurveda, Jaipur. Phase I involved the standardization of Ayurvedic semen examination (Retas Pariksha) among 500 males using WHO guidelines. In Phase II, an interventional study was performed on 30 oligospermic males (with sperm counts between 5 and 15 million/mL). These participants were administered 4g of Narasingha Churna twice daily with lukewarm cow milk for 90 days. Pre- and post-treatment semen analysis, along with symptom assessments, were conducted to evaluate the outcomes. **Results:** Statistically significant improvements were observed in several semen parameters following treatment. The sperm count increased by 55.91%, semen volume rose by 20.4%, sperm motility improved by 20.93%, and immotile sperm decreased by 15.78%. Additionally, the percentage of morphologically normal sperm increased by 9%. Alongside these improvements, symptoms such as low libido, fatigue, and joint pain showed marked improvement. No adverse effects were reported during the study. **Conclusion:** Narasingha Churna demonstrated significant potential in improving male fertility parameters in oligospermic patients. This supports its efficacy as a Rasayana and Vajikarana formulation in enhancing male reproductive health. Further randomized controlled studies are recommended to confirm these findings.

Keywords: Semen Parameters, Ayurvedic Semenology, Narasingha Churna, Oligospermia

How to cite this article: Itani N, Sevatkar BK, Acharya A, Yogesh, Kothiyal R, Parveen T, Paudel K, Acharya A. An Integrative Clinical Study on the Efficacy of Narasingha Churna in Kshina Retasa (Oligospermia) and Correlation of Semen Parameters with Ayurvedic Semenology. *Int J Drug Deliv Technol.* 2026;16(25s): 336-342. DOI: 10.25258/ijddt.16.25s.42

1. INTRODUCTION

Infertility, a condition that affects approximately 15% of couples globally, is a complex issue with various underlying causes. Male factors contribute to nearly half of all infertility cases, with one of the leading causes

being oligospermia. Oligospermia refers to a condition in which a male's sperm count falls below 15 million sperm per milliliter of semen, which is significantly lower than the normal range of sperm count, typically considered healthy when it exceeds 20 million sperm

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per milliliter. As sperm count plays a crucial role in the fertilization process, a low sperm count directly impacts fertility, making oligospermia a serious concern for couples seeking to conceive.

In traditional medical systems such as Ayurveda, infertility and related conditions are understood in terms of the body's inner balance and the functioning of its doshas (energetic forces). Ayurveda, the ancient system of medicine originating from India, provides a comprehensive approach to treating infertility, particularly male infertility. According to Ayurvedic literature, infertility and related reproductive health issues like oligospermia are primarily attributed to an imbalance in the body's doshas, specifically Vata and Pitta. These doshas are responsible for various bodily functions, including metabolism, energy levels, and the health of reproductive tissues.

In Ayurveda, the concept of infertility is often associated with the term "Kshina Retasa," which can be roughly translated as "reduced semen quality and quantity." This condition is marked by a decrease in the overall quality and quantity of semen, resulting in challenges with fertility. Kshina Retasa is generally believed to arise from a vitiated or imbalanced state of Vata and Pitta doshas. Vata governs movement and transportation in the body, including the movement of sperm, while Pitta is associated with transformation and metabolism. When these doshas become imbalanced, they can lead to issues like reduced sperm count, motility problems, and decreased vitality, all of which contribute to infertility.

One of the main therapeutic approaches to addressing male infertility in Ayurveda is through Vajikarana, a specialized branch of Rasayana therapy. Rasayana therapy focuses on rejuvenation and the enhancement of vitality, longevity, and overall wellness. Vajikarana, in particular, is focused on improving reproductive health and strength. It includes treatments that aim to nourish and revitalize the reproductive tissues, promote the production of healthy sperm, and balance the doshas that govern the reproductive process. Vajikarana therapy includes a combination of dietary changes, lifestyle modifications, herbal remedies, and specific practices that are believed to restore the body's natural balance and enhance fertility.

In the context of Ayurvedic treatments for male infertility, one of the most well-known and commonly used formulations is Narasingha Churna. Narasingha Churna is a multi-herbal composition that has been referenced in several classical Ayurvedic texts, including the *Bhaishajya Ratnavali*, one of the most revered texts in traditional Ayurvedic medicine. This herbal remedy is traditionally indicated for a range of conditions, including infertility, aging, and metabolic decline. The unique blend of herbs used in Narasingha Churna is believed to have rejuvenating and revitalizing properties that can help restore the balance of the doshas and improve reproductive health.

The primary action of Narasingha Churna is its ability to nourish the reproductive tissues and enhance overall vitality. It is said to support the production of high-quality semen by enhancing the function of the male reproductive organs, boosting sperm count, and improving sperm motility. By addressing the root causes of infertility, which often lie in imbalances within the reproductive system, Narasingha Churna can help to restore reproductive function and improve the chances of conception.

Narasingha Churna also plays a significant role in correcting the doshic imbalances that contribute to male infertility. The formulation is believed to act as a natural dosha-balancer, particularly in addressing the vitiated states of Vata and Pitta. Vata imbalance can lead to irregularities in sperm production and transport, while Pitta imbalance can cause excess heat or inflammation in the reproductive tissues, which can further compromise fertility. By addressing these imbalances, Narasingha Churna helps to restore harmony to the body, promoting overall health and well-being, which is crucial for successful conception.

Beyond its effects on the reproductive system, Narasingha Churna is also believed to have a positive impact on overall health and vitality. Its multi-herbal composition is rich in nutrients and antioxidants, which help to support the body's metabolic processes, improve energy levels, and promote longevity. This rejuvenating effect can be particularly beneficial for men who may be experiencing infertility due to age-related factors or general metabolic decline.

In addition to Narasingha Churna, Ayurvedic approaches to infertility often include a variety of lifestyle modifications and dietary recommendations aimed at supporting reproductive health. For example, individuals suffering from infertility are often advised to avoid stress, excessive physical exertion, and poor dietary habits that may further exacerbate doshic imbalances. Stress, for instance, is known to elevate Vata, which can interfere with the proper functioning of the reproductive system. A balanced diet that includes foods known to nourish the reproductive tissues, such as whole grains, healthy fats, and certain fruits and vegetables, is often recommended.

Furthermore, Ayurvedic practitioners often emphasize the importance of regular physical activity, adequate sleep, and mental relaxation to maintain a healthy balance of Vata, Pitta, and Kapha. Meditation, yoga, and breathing exercises are also frequently recommended to help reduce stress and support the overall health of the reproductive system.

It is important to note that Ayurveda views infertility as a complex and multifactorial issue. Treatment plans are often individualized based on the patient's unique doshic constitution, lifestyle, and the specific factors contributing to infertility. For example, a person with a predominance of Vata might require treatments that focus more on stabilizing the body's energy flow, while

someone with a Pitta imbalance might benefit from treatments aimed at cooling and calming the system.

Standardization of semen with Ayurvedic Parameters

1. Phenila:

Assessment of the Phenila Dusti of Retasa, was carried out as follows developed by:

- Just after liquefaction, the semen was transferred into measuring cylinder of the capacity of 10 ml and initial volume was recorded.
- Thereafter bubbles were generated by using aquarium bubbler. For this, bubbler tube was inserted till the bottom of the measuring cylinder, taking care not to touch the bottom. Bubbling was done for 30 seconds and then the tube was taken out. The froth generated was allowed to stand for 1 minute without further disturbance.
- After 1 min., the final reading of volume was noted.
- The difference between the initial volume and the final volume of generated froth semen was calculated for each sample.
- These differences were subjected to statistical analysis and the readings were converted to a standard distribution curve.
- The Z score was calculated for each reading. Z scores, falling within +2SD range (i.e. +2SD and -2SD), were considered to be within normal limits (93.2% of population) and the Z scores above +2SD (6.8%) were deemed to be Phenila.

2. Tanu:

It was assessed on the basis of

- Thin consistency of semen, or
 - Sperm count < 15 million/ml, or
 - Liquefaction time <30 min.
- Very thin seminal plasma is seen in case of oligospermia and Azospermia.
 - Therefore, as per the definition of oligospermia in WHO manual 2010, sperm count less than 15 mil/ml should be taken as parameter for Tanu Retasa.

3. Ruksha:

Semen having pH 8.5 was considered as Ruksha.

- As semen is in liquid form, dryness cannot be demonstrated. As per Ayurveda the buttermilk is Ruksha,
- It may be understood that the material need not be physically dry rather it must exert dryness on administration.
- From this concept it may state that increased pH of seminal plasma may be considered as Ruksha.
- Increased pH >8.5 exerts reversed osmotic pressure on sperms thereby disturbing the spermatozoan function.
- If there is vata dosha involvement, there will be painful ejaculation and ejaculate will be in less quantity.
- Seminal fluid is alkaline in nature.

g) Prostatic fluid- pH 6.3 to 6.4 (acidic). Hence, pH of semen may be counted by using developed method.

4. Vivarna:

This type of Dusti was assessed on the basis of physical examination of semen.

Semen having the colour other than the normal i.e. Sphatikabha (Alum coloured), was considered having Vivarna type of Retas Dusti.

5. Puti and Puya:

It was assessed on the basis of

- Putrid or foul smell of semen, or
- Large no. of pus cells present in the semen (>5HPF)

6. Picchila:

It was assessed on the basis of physical examination of semen as-

- Having sticky nature, or
- There was formation of thread of 2 cm or more (The viscosity should be recorded as abnormal when the thread exceeds 2 cm), when the semen was lifted up by glass rod after liquefaction i.e. semen with increased viscosity.

7. Anyadhatupasamsrsta:

This type of Retas Dusti was assessed by both physical and microscopic of semen, based on following findings-

- Semen mixed with other tissue elements:
- R.B.Cs. present in the sample.
- Presence of mucous threads.
- Presence of epithelial tissue.

8. Avasadi/Granthibhita:

- Normal semen disperses when added to water,
- The semen sample which is not dispersed in water and the drop of semen either suspended or settled to bottom (without dispersion), due to vitiation of Vata and kapha, may be considered as Avashadi Retodusthi.
- Semen having liq. Time >30 min is also considered to be Avasadi.

2. MATERIALS AND METHODS

2.1 Study Design

The study was conducted in two phases between 2020–2023:

Phase I: Nidanatmaka (Observational Phase)

A total of 500 males aged 18–60 were evaluated to correlate Ayurvedic semen characteristics with modern semen parameters (WHO 2010). Types of *Retasa Dusti* identified included:

- Tanu Retasa* (22.4%): Low sperm count and/or delayed liquefaction
- Vivarna Retasa* (23.6%): Discolored semen
- Picchila Retasa* (17.8%): Sticky semen

This phase provided diagnostic standards for *Kshina Retasa*.

Phase II: Upasayatmaka (Interventional Clinical Study)

Thirty male patients aged 21–50, with confirmed oligospermia (5–15 million/mL), were enrolled. The intervention involved administration of:

- **Drug:** *Narasingha Churna*

- **Dose:** 4 grams twice daily
- **Vehicle:** Lukewarm cow milk
- **Duration:** 90 days

Semen parameters and associated symptoms (e.g., libido, fatigue) were assessed before and after treatment.

2.2 Composition of Narasingha Churna

S.No	Ingredient	Botanical Name	Part Used	Quantity
1	Shatavari	<i>Asparagus racemosus</i>	Root	768 g
2	Gokshura	<i>Tribulus terrestris</i>	Fruit	768 g
3	Varahi Kanda	<i>Dioscorea bulbifera</i>	Tuber	960 g
4	Guduchi	<i>Tinospora cordifolia</i>	Stem	1.2 kg
5	Bhallataka (Shuddha)	<i>Semecarpus anacardium</i>	Fruit	1.53 kg
6	Chitraka	<i>Plumbago zeylanica</i>	Root	480 g
7	Tila	<i>Sesamum indicum</i>	Seed	768 g
8	Trikatu	<i>Ginger, Pepper, Long pepper</i>	Blend	384 g
9	Sharkara (Sugar)	-	-	3.36 kg
10	Vidari Kanda	<i>Pueraria tuberosa</i>	Tuber	768 g
11	Madhu (Honey)	-	-	1.68 kg
12	Ghrita (Ghee)	-	-	840 g

This formulation is *Tridosahara*, with predominant *Madhura Rasa*, offering *Brimhana* (nourishing) and *Balya* (strengthening) effects.

Mode of Action:

Chief Ingredients of Narasingha Churna possess *Vrishya* and having properties like *Yogavahi*, *Dhatuvrudhhikara* etc leads to stimulant effect mainly on endocrine gland. This adapto-immuno-endocrino-modulator properties of drug may act on nerve impulses and also decreased the level of depression and anxiety which further results into improvement of sexual drive like erection, satisfaction etc.

These strengthen and stimulative effects ultimately improve metamorphosis of all dhatus. As a result of this improvement in immunity and nutrition may lead to improvement in generalized health status.

The main line of treatment in *Ksheena Retasa* has been suggested as “*Kshine Retasakari Kriya*” and *Upachaya* and it can be also managed by the line of treatment advocated for *Retasavaha Srotodushti* and *Dushta Retasa Rogas*.

Doshapratyanika Chikitsa can also be adopted i.e. *Vataaja*, *Pittaja Retasa Dushti* for better management of *Ksheena Retasa*.

The drugs, which are having *Madhura Rasa*, *Snigdha* and *Guru Guna* (unctuous and heavy quality), *Jivana* (promotes quality of life), *Brimhana* (nourishing property) are highly recommended in the management of *Ksheena Retasa*.

Probable mode of action of Narasingha Churna:

1. Narasingha Churna contains the drugs like *Satavari*, *Vidari*, *Gokshur*, *Sarkara* and *Madhu* etc.
2. Most of the drugs are *Madhura Rasa* predominant and *Pruthvi* and *Jala* (*Kapha*) *Mahabhut Pradhan*. Hence, pacifies *Vata* and *Pitta Dosh* which are responsible for *Ksheena Retasa*.
3. Among these drugs, *Gokshur* is *Balya* for *Apan Sthan* and pacifies *kupit Vayu* by the virtue of its *Snigdhatva*, *Madhura Vipaka*, and *Madhura Rasa*.
4. *Satavari* having *Tikta Rasa* and *Sheeta Virya*, pacifies *Pitta* and by the virtue of its *Snigdhatva* pacifies *Vata Dosh* also it restores *kapha Guna* in *Dhatu*.
5. *Vidari*, is having *Madhura Rasa*, *Snigdha*, *Pichhila Guna* which leads to the formation of *Retasa Dhatu* by *Rasadi Dhatuposhan Karma*.
6. They have *Brimhan*, *Balya* and *Ojovardhak* effect on *Shareer Dhatu*. Also these drugs are *Rasayana* drugs at different level of *Dhatuposhan karma*.
7. *Anupan* of Narasingha Churna is *Godugdha* which is *Sheeta*, *Viryavardhak*, *Brihnana*, *Ojovardhaka*, *Shrama*, *Ghani* and *Pipasa*hara.
8. *Maricha* - It is responsible for *Deepan*, *Pachana* and *Vatanulomana karma*.
9. *Pippali*- It is responsible for *Deepana* and *Vrishya Karma*.

10. Sunthi-It is also responsible for Deepan, Pachana, Rochana, Vrishya karma

11. Go-Ghrita (Cow ghee): Ghrita is one among Maha Sneha. It is considered to be the best among the Sneha Dravyas because of its qualities.

12. It is considered to be the best Dravya for Vata-Pitta Shamana.

13. The qualities of Ghrita are Soumya, Mridu, Alpabhisyandi, Snehana, Guru and Shita which promotes Brimhana karma and Pusti karma and finally formation of Shukra in an adequate quantity.

14. Madhu also possesses Madhura, Kashaya Anurasa, Ruksha, Sukshma, Laghu and Yogvahi guna, Sheeta Virya and Madhura Vipaka, It is responsible for Vrishya, Sandhankar, Ropankrita, Svarya, Samgrahi, Prasadana, Shodhaka. Due to all these properties Madhu also promotes Shukra formation.

3. RESULTS

The clinical evaluation of Narasingha Churna, a traditional Ayurvedic formulation, was conducted on a cohort of 30 male patients diagnosed with oligospermia, also known as *Kshina Retasa*. Oligospermia is characterized by a low sperm count, a condition that can significantly impair male fertility. The study aimed to assess the effectiveness of Narasingha Churna in improving seminal parameters and alleviating the associated symptoms of oligospermia. The intervention lasted for 90 days, and the results showed statistically significant improvements in various key sperm parameters, as well as subjective symptom relief, offering insights into its potential therapeutic benefits.

Sperm Count:

One of the most critical parameters in evaluating male fertility is sperm count. A statistically significant increase of 55.91% in sperm count was observed following the 90-day treatment period. This improvement indicates enhanced spermatogenic activity, suggesting that Narasingha Churna may have a stimulatory effect on sperm production. A higher sperm count is often correlated with improved fertility potential, as it increases the likelihood of successful fertilization. The result was statistically significant ($p < 0.05$), which strengthens the credibility of the findings and suggests that the Churna has a potential therapeutic effect in improving sperm production in men with oligospermia.

The increase in sperm count could be attributed to the formulation's ingredients, many of which are believed to have aphrodisiac and reproductive-enhancing properties in traditional medicine. Ayurvedic formulations like Narasingha Churna typically combine herbs and minerals that support various bodily functions, including improving sperm health by balancing the doshas (Vata, Pitta, and Kapha) and nourishing the reproductive tissues.

Semen Volume:

The volume of semen is another critical indicator of male reproductive health. In this study, there was an increase of 20.4% in semen volume following the intervention. This improvement suggests a positive effect on the seminal vesicles and accessory glands, which are responsible for producing the fluid component of semen. A sufficient volume of semen is essential for optimal sperm motility and protection, as it serves as a medium for sperm transportation and provides nutrients that support sperm viability.

The increase in semen volume observed in this study could be linked to the action of Narasingha Churna in improving the function of the male reproductive system. Several herbs used in Ayurvedic formulations are known to have a synergistic effect on the genital and urinary systems, helping to restore balance and promote the optimal functioning of seminal vesicles and prostate glands. These glands contribute significantly to the overall semen volume, and their enhanced function may have contributed to the observed improvement.

Sperm Motility:

Sperm motility is another crucial factor in determining male fertility. The total motile sperm count increased by 20.93%, indicating that the sperm had a higher level of viability and movement after treatment. Additionally, there was a notable 15.78% decrease in the percentage of immotile sperm, which is a positive sign of enhanced sperm health. Higher motility is a key factor in successful fertilization, as sperm must be able to swim effectively through the female reproductive tract to reach and fertilize the egg.

The improvement in sperm motility could be attributed to Narasingha Churna's potential to enhance overall sperm vitality. Traditional Ayurvedic formulations often contain adaptogens and other herbal ingredients that are believed to support vitality, improve circulation, and stimulate the production of healthy sperm. As sperm motility is closely linked to sperm health and function, this improvement suggests that Narasingha Churna could play a significant role in boosting fertility in men with low sperm count.

Morphological Integrity:

Morphological integrity refers to the structure and shape of sperm cells, which are crucial for their ability to fertilize an egg. A 9% improvement in the proportion of morphologically normal sperm forms was noted after 90 days of treatment. This indicates that Narasingha Churna may positively influence sperm development, ensuring that a higher proportion of sperm have the appropriate shape and size necessary for successful fertilization.

Improved sperm morphology is often seen as a reflection of better spermatogenesis, which is the process of sperm cell production. Normal sperm morphology is associated with higher chances of successful conception, as abnormal sperm are less likely to penetrate and fertilize the egg. The increase in normal

sperm forms could be attributed to the balancing effects of the Ayurvedic herbs in Narasingha Churna, which may support the overall health of the male reproductive system and enhance sperm maturation.

Subjective Symptom Relief:

In addition to the objective improvements in seminal parameters, significant relief was reported in various subjective symptoms associated with oligospermia. Over 70% of patients experienced an improvement in low libido, a common issue faced by men with reduced sperm count and fertility problems. The relief of this symptom suggests that Narasingha Churna might also have a positive impact on sexual health, potentially enhancing libido through its effect on hormonal balance and reproductive function.

Furthermore, patients reported a reduction in general weakness and musculoskeletal discomfort, both of which are commonly associated with male fertility issues. These improvements could be indicative of Narasingha Churna's broader therapeutic benefits, potentially addressing underlying imbalances in the body that contribute to fatigue and pain. The positive effects on energy levels and musculoskeletal comfort may also suggest that the formulation supports overall vitality and well-being, which is essential for both reproductive health and quality of life.

Absence of Adverse Effects:

An important finding from the study was the absence of any adverse effects or intolerance reported by the participants during the 90-day intervention period. This is particularly significant in the context of Ayurvedic treatments, which are often considered safer alternatives to conventional medications. The lack of negative side effects enhances the appeal of Narasingha Churna as a potential therapeutic option for oligospermia, as it suggests that it can be used without significant risk of harm or discomfort.

4. DISCUSSION

The significant enhancement in seminal parameters observed in this study affirms the classical Ayurvedic claims regarding *Narasingha Churna's* efficacy in treating *Kshina Retasa*. The observed improvements in sperm count, motility, and morphology are consistent with the pharmacological actions of its ingredients.

The Rasayana nature of the formulation likely contributed to systemic rejuvenation, while specific *Vajikarana dravyas* (e.g., *Shatavari*, *Gokshura*, *Vidari Kanda*) are known for their direct spermatogenic effects. *Guduchi*, as an immunomodulator and antioxidant, may have helped reduce oxidative stress—one of the key contributors to idiopathic male infertility. The use of lukewarm cow milk as an adjuvant, a traditional *Anupana*, potentially enhanced the absorption and nourishing properties of the formulation, further supporting reproductive tissue nourishment (*Shukra Dhatu*).

Clinical Significance

The results suggest that *Narasingha Churna* can serve as an effective, natural, and well-tolerated therapeutic alternative for men suffering from oligospermia. In addition to improvements in semen profile, the subjective relief in symptoms like fatigue, libido loss, and joint pain suggests broader systemic rejuvenation, aligning with the Ayurvedic principle of *Brimhana* (tissue nourishment) and *Balya* (strengthening).

Study Strengths and Limitations

Strengths:

- Dual-phased design including Ayurvedic parameter standardization.
- Evaluation of both biochemical and symptom-based outcomes.

Limitations:

- The small sample size (n=30) limits the generalizability of findings.
- Absence of a control group prevents comparisons with placebo or conventional therapies.
- No long-term follow-up data to assess durability of the therapeutic effect.

Despite these limitations, the findings provide preliminary support for integrating Ayurvedic formulations like *Narasingha Churna* into male infertility management protocols, especially in cases of idiopathic oligospermia.

5. CONCLUSION

The results of this clinical evaluation support the potential of *Narasingha Churna* as a therapeutic option for improving seminal parameters in men with oligospermia. The significant improvements in sperm count, semen volume, sperm motility, and sperm morphology indicate that the formulation may enhance spermatogenesis and overall fertility. Additionally, the relief of associated symptoms like low libido, general weakness, and musculoskeletal discomfort suggests that the Churna has broader therapeutic effects, contributing to overall well-being.

The absence of adverse effects and the positive subjective responses from patients further support the safety and efficacy of *Narasingha Churna* in managing oligospermia. These findings lay a foundation for future research into the use of *Narasingha Churna* as a fertility-enhancing treatment in men with low sperm count and other related reproductive health issues.

However, while the results are promising, further studies with larger sample sizes and longer follow-up periods are needed to confirm these findings and better understand the long-term effects of *Narasingha Churna* on male fertility.

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