



## **Relationship between Shukra Sara Purusha with Quality of Semen: A Pilot Study**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

*Dhatu sarata* is an excellent state for any particular *dhatu* (tissue). *Shukra dhatu* (Reproductive tissue) is one of the seven *dhatu* reflects reproductive health. *Garbhotpadan* (reproduction) is main function of *Shukra dhatu* (Reproductive tissue). Characteristics future of *shukra* (Semen) is given by *ayurvedacharya* and this quality of *shukra* (Semen) said to be best for fertility. *Shukta dhatu* (Semen) can be correlated with semen. Its quality and quantity affects reproduction and any deformity is lead to infertility in male. Pilot study was conducted to find out relationship between *Shukta dhatu sarata* and quality of semen. An observational pilot study conducted on apparently healthy volunteers. 30 male volunteers of age group 25-35 yearr were selected and their *Shukra dhatu sarata* (Supreme quality of Reproductive tissue) were assessed with standard proforma. Then categorized into *Uttam* (supreme), *Madhayama* (Moderate) & *Hina* (Average) sara on the basis of presence number of characteristics. Semen analysis i.e. semen volume, total sperm count, sperm motility is done in laboratory of same individuals. Higher Sperm count, good Sperm motility and high semen volume are found in *Uttam Shukradhatu*sara (Supreme quality of Reproductive tissue) individuals as compare to *hina shukradhatu*sara (Average quality of Reproductive tissue) individuals. It is not possible to come to any conclusion as this was pilot study. Further study should be conducted on large sample size.

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## 1. INTRODUCTION

*Dhatusara* (Supremacy of body tissue) reflects qualitative and functional status of *dhatu* (tissue) [1]. In Ayurveda, characteristics of each *dhatusara* is mentioned and it shows excellent state of same *dhatu*. *Garbhotpadan* (reproduction) is main function of *Shukra dhatu* (Reproductive tissue) [2]. Quality of *Shukra dhatu* (Reproductive tissue) is mentioned i.e. *Stree-priya* (liking by opposite gender) *Stree-Upbhoga*, (enjoy sexual activities) *Balavant* (having good strength) *Apatyabhaj* (good progeny) [3]. Quality of semen is very much essential for conception and healthy progeny. Any type of deformity in semen (volume, count, motility of sperm) leads to infertility in male. Further is lead to stressful situation in married life. Main purpose of present study to make awareness regarding reproductive health. Pilot study was conducted to find out relationship between *Shukra dhatusarata* and quality of semen.

### 1.1 Aim and Objectives

- To find relationship between *Shukra dhatusara purusha* and quality of semen
- To Assess *Shukra dhatusarata* in apparently healthy Individuals,
- To assess semen analysis (semen volume sperm count and sperm motility) of different *shukra dhatusarata* individuals.

## 2. MATERIALS AND METHODS

This observational pilot study was conducted on 30 healthy male volunteers of different *Shukra dhatusara* to analysis quality of semen.

### 2.1 Sampling Technique

Purposive sampling.

### 2.2 Sample Size

30.

### 2.3 Selection Criteria

#### 2.3.1 Inclusion criteria

- Apparently healthy male volunteers.
- Age between 25 to 30 years

#### 2.3.2 Exclusion criteria

- Individuals having any diagnosed systemic disorders and on medication for the same.
- Individual not living together with their sexual partner

### 2.4 Parameter of Assessment

**Subjective:** *Shukra dhatusarata* [4].

- *Shukra dhatusarata* was assessed with standard proforma. Questionnaires are based on characteristics are given in *Ayurved samhita*.

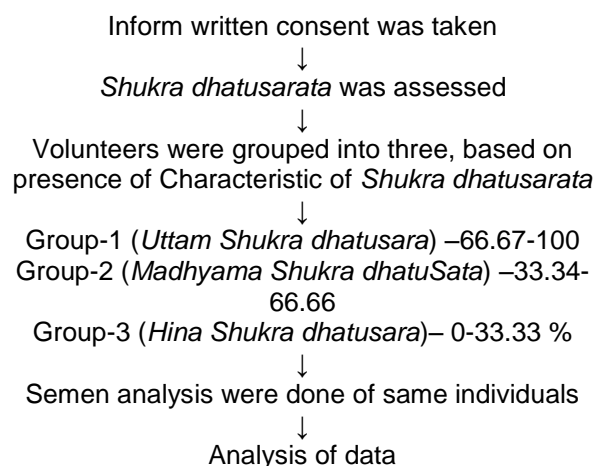
**Objective:** Semen analysis.

Semen Volume, Sperm count, Sperm motility.

- It was done in laboratory.

**Collection of Semen:** volunteer must had to abstinence of at least 3 days, sample was collected by masturbation method in dry, sterile, plastic container. Semen volume, Sperm count and Sperm motility were analyzed.

### 2.5 Study Design



## 3. OBSERVATIONS

A total of 30 male volunteers were participated in the study.

**Table 1. Age of volunteers**

Age group(Year)	No. Of individuals	percentage
25-30	18	60
31-35	12	40
Total	30	100

**Table 2. Shukra dhatu sarata parikshana**

Types of Sarata	Score	Subjects	Percentage
Uttama	13-19	11	36.66
Madhayama	7-12	10	33.34
Hina	0-6	9	30

**Table 3. Semen volume in different Shukra dhatu sarata individuals**

Types of Sarata	Average Semen volume per ejaculation	Total
Uttama	4.79 ml	11
Madhayama	3.52 ml	10
Hina	2.3 ml	9

**Table 4. Sperm count in different Shukra dhatu sarata individuals**

Types of Sarata	Average Sperm count (million /ml)	Total
Uttama	98.18	11
Madhayama	62.2	10
Hina	26.55	9

**Table 5. Sperm motility in different Shukradhatu sarata individuals**

Types of Sarata	Average Sperm motility (%)	Total
Uttama	74.72	11
Madhayama	55.9	10
Hina	38.89	9

#### 4. STATISTICAL ANALYSIS AND RESULTS

Parsons's correlation test was applied to know relationship between relationship between *shukra dhatu sarata purusha* with quality of semen.

**Table 6. Correlation of characteristics of Shukra dhatu sarata and semen volume**

Characteristics of Shukradhatu sarata (X) and Semen volume (Y)	X	Y	N-No. of Subject	r	P-Value
	10.2	3.62	30	0.9218	0 .00001.

*X = Mean of Characteristics of Shukra dhatu sarata, Y= Mean of Semen volume, N=No. of Subject, r = Correlation coefficient*

*The result is significant at  $p < .01$  this is a strong positive correlation, which means that high Characteristics of Shukra dhatu sarata go with high Semen volume and vice versa*

**Table 7. Correlation of characteristics of Shukra dhatu sarata and sperm count**

Characteristics of Shukradhatu sarata and Sperm count	X	Y	N	r	P-Value
	10.2	64.7	30	0.9116	< .00001

*X = Mean of Characteristics of Shukra dhatu sarata, Y= Mean of Sperm count, N=No. of Subject, r = Correlation coefficient*

*The result is significant at  $p < .01$  this is a strong positive correlation, which means that high Characteristics of Shukradhatu sarata go with high Sperm volume and vice versa*

**Table 8. Correlation of characteristics of Shukra dhatu and sperm motility**

Characteristics of Shukra dhatu and Sperm motility	X	Y	N	r	P-Value
	10.2	57.7	30	0.9412	< .00001

*X = Mean of Characteristics of Shukra dhatu, Y= Mean of Sperm motility, N=No. of Subject, r = Correlation coefficient*

*The result is significant at  $p < .01$ . This is a strong positive correlation, which means that high Characteristics of Shukra dhatu go with high Sperm motility and vice versa*

## 5. DISCUSSION

### 5.1 Discussion on Shukra Dhatu and Shukra Dhatu Sarata

- The substance which comes out during coitus is 'Retas' (Semen).
- Principle organs of *Shukra Vaha Strotasa* (male reproductive system) i.e. Shukra dhatu (Reproductive tissue) are testes and penis [5]. *Shukra Dhatu* is present in whole body. Seventh 'Kala' is '*Shukradhara Kala*' [6] (membrane separate tissue) which is present all over the body but it is particularly located at the distance of two '*Angula* (fingers)' laterally to the right side of '*Bastidwara*' (bladder) & '*Mutramarga*' (urethra and penis) [7].
- By the active participation of '*Panchamahabhuta*' (five basic elements) *Sapta Dhatu utpatti* (formation of seven tissue) takes place. *Shukra dhatu* (Reproductive tissue) is formed at the last stage, 'Agni' (Biotransformation power) digests the '*Majjadhatu*' (bone marrow) present in hollow spaces of '*Asthidhatu*' (bone tissue) and formation of '*Soma*' (watery) *Gunatmaka* (Quality) *Shukradhatu* occurs.<sup>7</sup> It takes one month for generation of *Shukra* (Semen) [8]. By the special action milk is turned immediately into *Shukra*.
- Shukra* (Semen) is *Soumya* (mild), *Avidahi* (Cool), *Drava* (fluid), *Shweta* (white), *Sphatikasannibha* (Quality like quartz), smelling like honey, *Picchila* (slimy), *Bahala* (abundant) and its color is like oil or honey. Such semen is supposed to be fertile. Extreme '*Snigdha*' *Guna* (Unctuous) is chief property of *Shukra* (Semen) is capable of offering strength to the body [9].
- Principle function of *Shukradhatu* is *Garbhotpadana* (reproduction). It gives courage to person. Further it has functions –*Chyavan* (get ejaculated smoothly during

intercourse), *Priti* (creates softness in mind), *Dehabala* (strength to the body) and *Harsha* (arouse man for reproduction) [10].

- Shukra dhatu individuals are mild looking pleasant to look, Their eyes are as if filled by milk<sup>2</sup>, always happy, their teeth are set equally, are of *Snigdha Guna* (unctuous) look round, close to each other, their voice and color is pleasant, *Snigdha*. Their pelvic region is broad and they are dear to females. They enjoy females. They are strong, achieve happiness, wealth, health, money, felicitation and children [11].
- These individuals have *Snigdha* (unctuousness), *Samahata* (compact) white teeth and nails. They have strong sex desires and are fertile [12].

### 5.2 Discussion on Semen Analysis

#### 5.2.1 Semen

Semen is a white or gray fluid that contains spermatozoa. It is the collection of fluid from testes, seminal vesicles, prostate gland & bulbourethral glands. Semen is discharged during sexual act and the process of discharge of semen is called ejaculation. Testis contributes sperms. The prostate secretion gives milky appearance to semen. And the secretion gives milky appearance to semen. And the secretions from seminal vesicle and Bulbourethral glands provide mucoid consistency to semen. At the time of ejaculation, human semen is liquid in nature. Immediately it coagulates and after some time it undergoes a secondary liquefaction. The fibrinogen secreted by seminal vesicle is converted into a weak coagulum by the clotting enzymes, Secreted by the prostate gland. The coagulum is liquefying after about 30 minutes as it lysed by fibrinolysin. Fibrinolysin is the activated form of profibrinolysin produced from prostate gland. When semen ejaculates; the sperm are non-motile due to the viscosity of the coagulum. When coagulum dissolves, the sperms become motile [13].

### 5.2.2 Properties of semen [14]

- Specific gravity -1.028.
- Volume-2-6 ml. per ejaculation.
- Reaction – it is alkaline with pH of 7.5. The alkalinity is due to the secretion from prostate gland.

i.e. Semen volume, sperm count & sperm motility.

Test is significant there is relationship between characteristics of Shukra dhatusara and Semen volume, sperm count & sperm motility.

### 5.2.3 Composition of semen [15]

Semen contains 10% sperms and 90% of fluid part which is called seminal plasma. The seminal plasma contains the product from seminal vesicle and prostate gland. It also has small number of secretions from the mucus glands, particularly the Bulbourethral gland.

As discussed earlier, *Shukra Dhatusarata* is reflection of supreme quality and function of *shukra dhatu*. *Shukravaha strotas* can be correlated to that of Male Reproductive system. Quality of *Shukra dhatu* described in Samhita is similar to that of semen. Best quality of both is responsible for new offspring i.e. reproduction. Hence *Shukra dhatu* can be correlated with semen on the basis of their same quality and function.

Semen examination is an integral part of the evaluation of the infertility. As a result of relative simplicity semen examination is often requested before the complicated and expensive examinations of females. Repeat examination should be done if once it is found to be abnormal.

Semen volume is seen more in Uttam shukra dhatusara individuals that reflects Bahal (abundant) quality of shukra dhatu. Less volume is seen in Hina shukradhatu sara individuals due to average quality shukra dhatu. Sperm count and sperm motility were found in higher range in *uttam shukra dhatusara* individuals as compare to *madhyam* and *hina shukra dhatusara* individuals. That reflects average quality of semen and *shukra dhatu* in *hina shukra dhatusara* individuals.

### 5.3 Discussion on Statistical Analysis and Result

Parsons’s correlation test was applied to know relationship between relationships between *shukra dhatusara purusha* with quality of semen

**Table 9. Semen analysis testing**

The WHO has provided normal limits of reference for semen analysis. The values mentioned in the chart below represent the accepted 5th percentile for the parameters measured [16].

Volume	> 1.5 mL
Total sperm number	39 million sperm per ejaculate or more
Morphology	>4 percent normal forms using the tygerberg method
Total (progressive motility and non progressive motility)	>40%
Viscosity	<2 cm after liquefaction
pH	>7.2
Vitality	>58% live sperm
No sperm agglutination	

**Table 10. Classification of semen quality [17]**

Semen parameter	Normal quality	Marginal quality	Abnormal quality
Semen volume(ml.)	2-5	1-2	<1
Sperm motility (%)	>50	40-50	<40
Sperm concentration. ( mill/ml)	20-250	10-20	<10

## 6. CONCLUSION

- Average Semen volume in uttam, madhyam & hina Shukrasara individual is 4.79 ml, 3.52 ml & 2.3 ml respectively. Semen volume is higher in Uttam shukrasara
- Average Sperm count in uttam, madhyam & hina Shukrasara individual is 98.18 million /ml, 62.2 million /ml & 26.55 million /ml respectively
- Sperm motility in uttam, madhyam & hina Shukrasara individual is 74.72%,55.9%,&38.89% respectively
- There is supreme quality of semen and shukra dhatu is found in uttam shukra dhatusara individuals
- On the basis of same quality and functions Shukra dhatu is correlated with semen
- *Uttam shukra dhatusarata* and best quality of semen are the sign of best Reproductive health.
- There is significant relationship between characteristics of *Shukradhatusara* & Semen volume, sperm count & sperm motility.

## CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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