

TO STUDY EFFECT OF *RASA DHATU KSHAYA* AND *VRIDDHI* ON *ARTAVA KSHAYA* AND *VRIDDHI* IN HEALTHY INDIVIDUAL

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Article Received on
15 March 2024,

Revised on 04 April 2024,
Accepted on 25 April 2024

DOI: 10.20959/wjpr20249-32195



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ABSTRACT

Ayurvedic science is one of the most ancient sciences. According to *Ayurveda*, “*dosha dhatu mala malam hi sharitam*” it means *doshas* are the biological forces which work through the medium of *dhatu*s and *malas*. *Dhatu*s and *malas* are the structural units and the *doshas* are the energy forms. Hence the *doshas* are called as *asrayees* and *dhatu*s called as *asrayaas* “*Sharira Dharanat Dhatvah*” that is those which nourish and support the body are known as *dhatu*. *Ayurveda* gives priority to maintain the healthy state of a normal human being and treat the disease of patient. *Rasa dhatu* is the more transformed from of *Ahararasa* with an ability to nourish all other six *Dhatu*. *Acharya Sushruta* has mention that the *Rasa* is formed from *Saara bhaga* of *ahara rasa*. *Rasa Upadhatu* (*stanya & artava*), *Rasa dhatu vriddhi* and *kshaya* will reflect its effect on all and *dhatu* and *upadhatu*. Its is the *Dhatu* essential for the new creation (Embryo

formation) and also maintenance of life (Recreation), so it is understanding and reviewing have its own importance in present era. Various opinion of *Acharya's* says that through *Artava* is visible at 12yrs of age but it is formed in *grabha kala* itself. This study is efficient “To Study effect of *Rasa dhatu Kshaya* and *Vriddhi* on *Artava Kshaya* and *Vriddhi* in healthy individual”.

KEYWORDS: *Rasa*, *Rasa Dhatu*, *Rasa- vriddhi*, *Rasa-kshaya*, *Artava Updhatu*.

INTRODUCTION

Ayurveda have mentioned the three fundamental components *Dosha*. *Dhatu* and *Mala* which are meant for support, and governing entities of body. The factors which do the functions of

Dharana (sustenance) of Sharira, Mana and Prana are called as Dhatu. The basic constructive framework of body is formed by Dhatu. Entity that sustains, grows and nourishes the body is called as Dhatu. Upadhatu is derivative of Dhatu and has some resemblance in terms of structure, function and nature. They are important physiological units and radically engaged to design structural architecture of the mortal. Dhatu metabolism is a nourished pool of all the body constituents.

Roots of tree are very important for maintenance, stability and growth of a tree, similarly *Dosha*, *Dhatu* and *Mala* are very important for maintaining human body. There are seven *Dhatu* which is derived from *Ahara Rasa* that is *Rasa*, *Rakta*, *Mamsa*, *Meda*, *Asthi*, *Majja* and *Shukra*. *Rasa dhatu* and *Ahararasa* are different entities. *Rasa dhatu* is the more transformed from of *Ahararasa* with an ability to nourish all other six *Dhatu*. *Dhatu*s and organs get developed in the embryological stage (*Garbha*) and after birth these *Dhatu*s gradually grow. These *Dhatu*s are nourished by *Ahara Rasa*. *Rasa dhatu* is first among the *sapthadhatu*. It is having prime importance of all *dhatu*. Main *bhuta* of *rasa dhatu* is *jala* due to this predominance, *Rasa dhatu* has tendency to circulate in whole body. It is formed out of *Ahararasa* (essence of food) after *saara kitta vibhajana* (metabolic transformation). It is supposed to nourish the all other *Dhatu*. *Acharya Sushruta* has mention that the *Rasa* is formed from *Saara bhaga* of *ahara rasa*. Composed of *Pancha mahabhuta*, *shad rasa* and having *ushna* or *sheetla* *verya*. *Rasa Dhatu* is the 1st *Dhatu* in the body beings nourished from *Ahara rasa*. The consumed *ahara* gets digested under the action of *Jatharagni* (digestive fire) and *Bhutagni* in *Annavaha srotas* and it will be differentiated into *sara* and *kitta bhaga* under the action of *rasa dhatuagni* and *bhutagni* in *rasavaha srotas*. *Annarasa* will be differentiated into *sthula* and *sukshma*. *Sthula bhaga* will nourish the *rasa dhatu* proper, where *sukshma bhaga* will further lead to the manifestation of *rakta dhatu* under the action of *rakta dhatuagni*. Updhatu is finest product of Dhatu metabolism. Dhatavagni plays major role in metabolism of Dhatu and Updhatu. Updhatu is subsidiary tissue arises from Dhatu. They are important physiological units and engaged to design the structural composition of the body. Dhatu form the basic structure of the body, they are not able to execute the functions of body without the support of Updhatu. Updhatu act as a bridge between these fundamental entities. Updhatu are also involved in emergence of diseases and the knowledge is necessary to understand the pathological conditions. *Stanya* (breast milk) and *artava* (menstrual flow) being the Updhatu of *Rasa Dhatu*; their quality, quantity excellence depends on metabolic and functional status of *Rasa dhatu*. According to *Acharya*

Charaka, Vagbhata & Sushruta, Rasadhatu is responsible for the formation of *artava*. According to *Acharya Saranghar*, *Artava* is the *updhatu* of *Rakta dhatu*. Various opinion of *Acharya's* says that through *Artava* is visible at 12yrs of age but it is formed in *grabha kala* itself. *Artava pravrutti* occur every month for a period of 3,5,7 days and *artava* undergoes continuous changes throughout the month. *Apana Vayu & Vyana vayu* mainly responsible for *Artava utpatti* and *pravrutti*. Flower and fruits do not appear in growing and old plants, and scent is not evident in the bud and decaying flowers or fruits, similarly in females *Artava*. Menstrual blood is generated from lymph, according to *Charaka, Susruta, Vagbhata, Dalhan* and *Chakrapani*. Menstrual blood, according to *Acharya Vadbhata*, is blood that accumulates in the uterus before being released. Every month, the *rakta* in the *stree* reaches the *garbha kostha* (uterus) and is ejected for 3 to 5 days, which is *Agneya* in nature. It is one of the most essential physiological mechanisms that allow *Garbha* to develop.

Need of the study: In *Ayurveda Samhita*, there is a detail description of correlation between *dhatu* and *updhatu*. According to *Samhitas*, *kshaya* and *vridhhi* of every *updhatu* is directly co-related with the *kshaya - vridhhi* of its own *dhatu*. This study titled “**To Study effect of Rasa dhatu Kshaya and Vridhhi on Artava Kshaya and Vridhhi in healthy individual**” to analysis the correlation between *dhatu* and its own *updhatu*.

AIMS AND OBJECTIVES

- To Study the effect of *Rasa dhatu Kshaya* and *Vridhhi* on *Artava Kshaya* and *Vridhhi* in healthy individuals.
- To establish the relation between *Rasa Dhatu* and *Artava Upadhatu*.
- To observe the impact of *Rasa dhatu kshaya* and *vridhhi* on status of *Artava kshaya* and *vridhhi*.

HYPOTHESIS

In our *Ayurvedic* classical texts it is mentioned that every *dahtu* have their own *updhatu*, *Rasa dhatu* has its own *upadhatu* –*Artava*. We are here to establish the effect of *Rasa dhatu kshaya and vridhhi* (Via *ahara* or *vihara*) having significant role in *Artava kshaya* and *vridhhi*.

MATERIALS

Literary Source

- The literary study was done with the help of Ayurvedic classical texts as well as modern science & from e- Samhitas.
- The *Charka Samhita*, *Sushruta Samhita* and *Ashtanga Hridaya* and *Ashtanga Sangraha*, *Kashapa*, *Sharangadhara*, *Bhavaprakasha Samhita* were scrutinized regarding the reference for the concept of *Rasa Kshaya*, *Rasa vriddhi* and *Artava kshaya*, *Artava vriddhi*, *Text book of Gynaecology*. Conceptual analysis was done for the proper understanding.

Questionnaire Source

Self prepared questionnaire will be designed on the guidelines of *Ayurvedic* classical text.

Source of data

- 30 healthy individuals will be selected for study.
- Healthy subject will take from near by campus, hospital & college girls.

METHODS

- 30 female are examined for *Rasa vriddhi - kshaya* and *Artava vriddhi –kshaya*.
- Questionnaire related to symptoms of *Artava kshaya* & *Artava vrridhi* are included.
- Questionnaire related to symptom of *Rasa Kshaya* and *Rasa Vriddhi* are included.

Ethics Committee Approval

The study was reviewed and approved by Institutional Research Committee and Ethical clearance was obtained from Institutional Ethics Committee with IEC Code: **IEC/SKAU/2021/13, Dated-18 Jan. 2021**

STUDYDESIGN

- Observational Study

SAMPLE SIZE

- 30 healthy individuals will be selected for study.
- ☐ Case paper for taking *Rasa dhatu kshaya*, *Rasa dhatu vriddhi* and *Artava kshaya and vriddhi* symptoms included questionnaire.

CRITERIA OF INCLUSION

- Take healthy unmarried female individuals of age group 16-30 yrs will be selected for study.
- Hb% with a normal limit.
- Willingness of female.

CRITERIA OF EXCLUSION

- Female individuals below 16 yrs and above 30yrs.
- The individuals of any infectious disease, thyroid, cyst, stress related disease, structural defects in the female genital tract.

SUBJECTIVE PARAMETERS

Detail Performa of Assessment of Associated Symptoms of *Rasa kshaya* and *Rasa Vriddhi* and *Artava kshaya* and *Artava vriddhi* (Self prepared questionnaire will be designed on the guidelines of *Ayurvedic* classical text).

Assessment of Associated Symptoms during *Rasa Kshaya* and *Vriddhi* and *Artava Kshaya* and *Vriddhi*

Table No.1: Assessment of *Rasa Vriddhi Lakshana*.

Sr.No	Symptoms	Questions	Yes	No
1	<i>Hridya yutkled</i>	Did you have Nausea ?		
2	<i>Agninasha</i>	Do you feel loss of appetite ?		
3	<i>Praseka</i>	Do you have excessive salivation ?		
4	<i>Aalasya</i>	Do you feel lazy ?		
5	<i>Gaurava</i>	Do you feel heaviness in body ?		
6	<i>Kasa</i>	Do you have cough repeatedly ?		
7	<i>Shwas</i>	Are you suffering difficulty breathing ?		
8	<i>Atinidrata</i>	Are you sleep even after sleeping for adequate hours ?		
9	<i>Shaitya</i>	Do you feel uncomfortable an exposure to cold ?		
10	<i>Angamarda</i>	Do you feel painful sensation all over body?		
11	<i>Arochak</i>	Did you feel lack of desire for food at any time ?		
12	<i>Shwadudevash</i>	Do you feel irritation of sweetness and altered taste in mouth ?		
13	<i>Sthalangata</i>	Do you feel looseness or loss of integrity of body parts ?		
14	<i>Pureesh Shwaity</i>	Is your stool pale colour ?		

Table No.2: Assessment of Artava Vriddhi Lakshana.

Sr.No	Symptoms	Questions	Yes	No
1	Angamarda	Do you feel painful sensation all over body ?		
2	Artavaati Parvatti	Do you feel flow or more quantity of bleeding ?		
3	Durgandha	Do you feel bad smell during menstruation ?		
4	Abdomen pain	Do you have back and abdominal pain during menstruation ?		
5	Blood clot	Do you feel passing large blood clots during menstruation ?		
6	Duration	Do you have bleeding longer than 7 days ?		
7	Shortness of breath	Do you feel shortness of breath fatigue symptoms of anemia ?		
8	Frequency	Do you menstruation more than once in a month ?		

Table No.3: Assessment of Rasa Kshaya Lakshana.

Sr. No	Symptoms	Questions	Yes	No
1	ShabdasaheeSunata	Do you not tolerate loud sound ?		
2	Hridyam tamyati	Do you feel slight exertion his heart palpates ?		
3	Swalpchesta	Do you feel body ache and slight exertion ?		
4	Hridyashula	Do you feel painful sensation around heart ?		
5	Kamp	Do you feel shivering sensation and increase in heart beats ?		
6	Tarashana	Do you feeling thirst ?		
7	Rukshata	Do you feel dryness in body ?		
8	Shrama	Did you feel getting tired easily even after little exertion ?		
9	Soash	Do you feel lean in the body ?		
10	Aangsunnata	Do you feel numbness the body part ?		
11	Ghatatesahate	Do you feel restlessness ?		
12	Galaanee	Do you feel malaise ?		
13	Spandan	Do you feel heart beat may be regular or irregular ?		

Table No.4: Assessment of Artava Kshaya Lakshana.

Sr.No	Symptoms	Question	Yes	No
1	Yathochit kala Aadarshnam	Do you have non appearance at proper time menstruation ?		
2	Artava Alpatta	Do you have scanty appearance ?		
3	Yoni Vedana	Do you feel pain in vagina ?		
4	Nausea	Do you feel headache is Nausea ?		
5	Change in Vision	Do you feel changing in vision?		
6	Pelvic pain	Do you feel pain in pelvic region ?		
7	Hair loss	Are you lost hair ?		
8	Extra facial hair	Did you have extra facial hair ?		
9	Acne on face	Did you have a acne on face ?		
10	Duration	Did you have bleeding short than 3 days ?		

STATISTICAL ANALYSIS

- Chi – Square test, Karl Pearson's Correlation Coefficient Test was applied on the subjective parameters.
- Chi – square test was adopted and P value is analysed on the basis of qualitative data and inter group comparison of subjective parameters.
- Karl Pearson's correlation coefficient – for intra group correlation between Rasa vridhhi and Artava vridhhi, and Rasa kshaya and Artava kshaya.

STATISTICAL METHOD

The present study was observational study in healthy subjects. For the calculations Chi – square test was adopted and P value is analysed on the basis of qualitative data. P value less 0.05 as significant whereas P value more than 0.05 was considered as non significant.

The obtained results were interpreted at level of Significance

- Non – significant : P value more than 0.05
- Significant : P value less 0.05
- Highly Significant : P value < 0.01
- Very Highly Significant : P value < 0.01

CRITERIA FOR ASSESSMENT OF LAKSHANAS

Rasa Dhatu Vridhhi Lakshana

<i>Rasa Vridhhi Lakshana</i>	No. of Subjects
1 – 5	
6 – 10	
>10	
Total	

Artava Updhatu Vridhhi Lakshana

<i>Artava Vridhhi Lakshana</i>	No. of Subjects
1 – 5	
6 – 10	
Total	

Rasa Dhatu Kshaya Lakshana

<i>Rasa Kshaya Lakshana</i>	No. of Subjects
1 - 5	
6 – 10	
Total	

Artava Updhatu Kshaya Lakshana -

Artava Kshaya Lakshana	No. of Subjects
1 – 5	
6 – 10	
Total	

ASSESSMENT OF RESULTS

- Assessment of *Rasa dhatu vriddhi – kshaya* and *Artava updhatu vriddhi – kshaya* with the self prepared questionnaire.

OBSERVATION AND RESULTS

The observation of the study were recorded carefully. In this study following results were found.

Data was observed of 30 patients, according to *Rasa vriddhi*, *Artavavridhhi*, *Rasakshaya* and *Artavakshaya* questionnaire (symptoms). Total score was calculated for each of these parameters as total number of symptoms observed in each of the 30 patients. Then, total score for each parameter is considered for further analysis.

Rasa Vriddhi Score	No of Patients	Percentage
1 to 5	7	23.33%
6 to 10	22	73.33%
> 10	1	3.33%
TOTAL	30	100.00%

Out of 30 patients, 7 patients were having *Rasa vriddhi* score between 1 to 5, 22 were having score between 6 to 10 and 1 was having score more than 10.

ArtavaVriddhi Score	No of Patients	Percentage
1 to 5	7	23.33%
6 to 10	23	76.67%
TOTAL	30	100.00%

Out of 30 patients, 7 patients were having *Artavavridhhi* score between 1 to 5 and 23 were having score between 6 to 10.

Rasa Kshaya Score	No of Patients	Percentage
1 to 5	25	83.33%
6 to 10	5	16.67%
TOTAL	30	100.00%

Out of 30 patients, 25 patients were having *Rasa kshaya* score between 1 to 5 and 5 were having score between 6 to 10.

ArtavaKshaya Score	No of Patients	Percentage
1 to 5	21	70.00%
6 to 10	9	30.00%
TOTAL	30	100.00%

Out of 30 patients, 21 patients were having *Artavakshaya* score between 1 to 5 and 9 were having score between 6 to 10.

Chi-Square Tests			
	Value	df	P-Value
Pearson Chi-Square	6.623	2	0.0365
N of Valid Cases	30		

Chi-Square test is carried out to test effect of *Rasa dhatu vriddhi* on *Artavaupdhatuvriddhi*. From above table we can observe that, P-Value is less than 0.05. Hence, we can conclude that, there is significant association (effect) of *Rasa dhatu vriddhi* on *Artavavriddhi*.

Chi-Square Tests			
	Value	df	P-Value
Pearson Chi-Square	3.867	1	0.0492
N of Valid Cases	30		

Chi-Square test is carried out to test effect of *Rasa dhatu kshaya* on *Artavaupdhatukshaya*. From above table we can observe that, P-Value is less than 0.05. Hence, we can conclude that, there is significant association (effect) of *Rasa dhatu kshaya* on *Artavaupdhatukshaya*.

Correlations		
		ArtavaVriddhi
Rasa Vriddhi	Pearson Correlation	0.845
	P-Value	0.000039
	N	30

Karl Pearson's Correlation Coefficient is calculated to check the correlation between *Rasa dhatuvriddhi* and *Artavavriddhi*. From above table, we can observe that, there is significant positive correlation observed between *Rasa dhatu vriddhi* and *Artava updhatu vriddhi*.

Correlations		
		ArtavaKshaya
Rasa Kshaya	Pearson Correlation	0.841
	P-Value	0.00011
	N	30

Karl Pearson's Correlation Coefficient is calculated to check the correlation between *Rasa dhatu kshaya* and *Artava updhatu kshaya*. From above table, we can observe that, there is

significant positive correlation observed between *Rasa dhatu kshaya* and *Artava updhatu kshaya*.

Interpretation of Result: “Significant”

DISCUSSION

Prior to developing any theory, *Upanaya* (Discussion) is the first step to *Nigamana* (Conclusion). Discussion is an essential component of research. The aim of discussion is also to explain any new insights about the research problem and to describe the significance of the researcher's findings in light of what was already known about the research problem.

This study titled “**To Study effect of *Rasa dhatu Kshaya* and *Vridddhi* on *Artava Kshaya* and *Vridddhi* in healthy individuals**” to analysis the correlation between *dhatu* and its own *updhatu*.

Ayurveda is the ancient holistic medical approach which aims towards maintains the health in its utmost normalcy by various preventive regims to be adopted rather than treating and curing the diseases.

- In *Ayurvedic Samhita*, there is a detail description of correlation between *dhatu* and *updhatu*. According to *Samhitas*, *kshaya* and *vridddhi* of every *updhatu* is directly co-related with the *kshaya* - *vridddhi* of its own *dhatu*.
- During the study, we have found that the *kshaya* – *vridddhi* of *Artava updhatu*, is depends on the *ksaya* - *vridddhi* of *Rasa dhatu*.

Data was observed of 30 patients, according to *Rasa vridddhi*, *Artava vridddhi*, *Rasa kshaya* and *Artava kshaya* questionnaire (symptoms). Total score was calculated for each these parameters as total number of symptoms observed in each of the 30 patients. Then, total score for each parameter is considered for further analysis.

- ***Rasa Vridddhi Score*** – Out of 30 patients, 7 patients were having *Rasa vridddhi* score between 1to 5, 22 were having score between 6 to 10 and 1 was having score more than 10.
- ***Artava Vridddhi Score*** – Out of 30 patients, 7 patients were having *Artava vridddhi* score between 1 to 5 and 23 were having score between 6 to 10.
- ***Rasa Kshaya score*** – Out of patients, 25 patients were having *Rasa kshaya* score between 1 to 5 and 5 were having score between 6 to 10.

- **Artava Kshaya Score** – Out of 30 patients, 21 patients were having *Artava kshaya* score between 1 to 5 and 9 were having score between 6 to 10.
- **Chi – Square test** is carried out to test effect of *Rasa dhatu vriddhi* on *Artava vriddhi*. From above table we can observe that, P – Value is less than 0.05. Hence, we can conclude that, there is **significant association** (effect) of *Rasa dhatu vriddhi* on *Artava vriddhi*.
- **Chi – Square test** is carried out to test effect of *Rasa dhatu kshaya* on *Artava kshaya*. From above table we can observe that, P – Value is less than 0.05. Hence, we can conclude that, there is **significant association** (effect) of *Rasa dhatu kshaya* on *Artava kshaya*.
- **Karl Pearson's Correlation Coefficient** is calculated to check the correlation between *Rasa dhatu vriddhi* and *Artava updhatu vriddhi*. From above table, we can observe that, there is **significant positive correlation** observed between *Rasa dhatu vriddhi* and *Artava updhatu vriddhi*.
- **Karl Pearson's Correlation Coefficient** is calculated to check the correlation between *Rasa dhatu kshaya* and *Artava udhatu kshaya*. From above table, we can observe that, there is **significant positive correlation** observed between *Rasa dhatu kshaya* and *Artava updhatu kshaya*.

CONCLUSION

- *Rasa* is the **first dhatu** in the body which produce directly from *Annarasa* by the action of *prakruta agni* and it is one of the vital entity for the nourishment and development & replenishment of body.
- In all three **Dhatu Poshn Nyaya**, “*Sara*” portion from *Ahara rasa* after digestion of *Rasaagni* is turned into *Rasa dhatu*. After generation of *Rasa dhatu*, it replenishes it *updhatu* (*Stanya and Artava*) and their quality, quantity excellence depends on metabolic and functional status of *Rasa dhatu*.
- It is basically produced from food material and available in liquid form in the body.
- It carries various nutrients and circulates in the body constantly and regularly with the help of *Vayana vayu*.
- Its **vriddhi** and **kshaya** will reflect its effect on the all *dhatu*. Its vitiation may show simple to very complicated effects on health.
- *Artava* are available only in females but are essential for generation and development of the next generation (i.e.reproduction).

- According to *Acharya Sushruta*, the existence of *purusha* depends upon *rasa*. Therefore, one should protect and maintain the quality and quantity of *Rasa dhatu*.
- This study shows that there is a **significant association** between *Rasa dhatu Kshaya - Vriddhi* and *Artava Kshaya - Vriddhi*.

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