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## A conceptual study of Updhatu in Ayurveda

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### Abstract

Ayurveda has explained the physiological functions of human body under three elements viz. *Dosha*, *Dhatu* and Mala. *Dosha*, *Dhatu* and Mala form the essential components of the body. They are generated from Dhatu. They are nourished from Sara portion produced in nutrient fluid in Dhatuvaha srotas. It means they are not produced directly from Ahara rasa. *Updhatu* are important physiological units and are derived from *Dhatu*s and resemble *Dhatu*s in terms of structure, function and nature. *Updhatu* are sub tissues or secondary tissues in the body which serve as important components and have certain fixed functions to render. *Dhatu*s are closely associated with the *Updhatu*s.

*Updhatu* are derived from the first four *Dhatu*s. *Updhatu* are finest product of *Dhatu* metabolism. *Dhatavagni* plays major role in metabolism of *Dhatu*s and *Updhatu*s. References related *Dhatu*s are very less in *Ayurvedic* literature. In this conceptual study an effort is made to collect the information regarding the concept of *Updhatu* which is being scattered in *Ayurvedic* Samhitas. The basic concept of *Updhatu* and various *Updhatu*s mentioned by different *Acharayas* has been collected in this study from various sources.

**Keywords:** Updhatu, agni, Dhatu, Strotas, Dhatvagni

### 1. Introduction

According to the various *acharayas* *Dosha*, *Dhatu* & Mala are the fundamental and the three pillars of our body. *Dhatu*s are the most stable constituents of the body.

They are generated from Dhatavah. They are nourished from Sara portion produced in nutrient fluid in Dhatu vaha srotas. It means they are not produced directly from Ahara rasa. It is needed for Ahara Rasa to undergo more digestion for giving rise to dhatu as well as Updhatu. *Updhatu* are important physiological units and are derived from *Dhatu*s and resemble *Dhatu*s in terms of structure, function and nature. Updhatu are alike Dhatu in view point of some qualities and some functions.

Apart from this the above told basic elements, some other indeterminate elements were also discovered later by *Acharyas* and these were termed as Updhatu<sup>[1]</sup>

The word *Updhatu* has been made by combination of two words i.e *Up* and *Dhatu*. 'Upa' is a prefix attached to the word "*Dhatu*". Prefix changes the meaning of the word with which it is acting. *Dhatu* form the Basic architecture of the body, they are not accomplished to execute the functions of the body without the support of Updhatu. So, Updhatu are basically the derivatives of the *Dhatu*s and resemble *Dhatu*s in terms of functional and structural in nature. so, it is mandatory to disclose the basic concept of Updhatu.

Nirukti 1. "Dhatu Samipe Bhava Upadhatavah |" Upadhatu are produced along with *Dhatu*s<sup>[2]</sup>

2. "Dhatoh Upadanabhutat Jato Anya Dhatuh" "Upadana" means Samavayi Karana (immediate cause). *Dhatu* are the immediate cause of Upadha

### 1.1 Definitions of Upadhatu

#### Updhatu has been defined variously

Upmitah Dhatubhi Iti Dhatuh (shabda thomas mahanidhi). That which is similar or identical to Dhatu is an up adhatu. In Modern Era, Te Ch Stanyadyo Dhat wantar poshanachsharirposhaka Api Upadhatu Shabdenochyate. The *Ayurvedic* scholars like P.S. Variyara, Dr. C. Dwarkanatha, and Ranjitrai Desai have tried to explain these Upadhatu. Astanga Sangraha-kara has mentioned these components under 'Prasadaja' elements. In Samhita Kala Charaka Samhita was the first who had elucidated *Upadhatu* collectively in one *Sutra*.

## 1.2 Evolvement of Upadhatu

*Acharya Charaka* while describing the nutrition of body elements defines a separate group of elements, but has not entitled them. Further while analyzing this unit commentator *Cakrapani* entitled them as *Upadhatu*. These seven components are *Stanya*, *Rakta* (indicative of *Raja*), *Kandara*, *Sira*, *Vasa*, *Twak* and *Snayu*. *Cakrapani* has also quoted the opinion of *Acharya Bhoja* in this regard. *Bhoja* has mentioned only five components of this unit, which are *Sira*, *Snayu*, *Raja*, *Stanya* and *Twak*. He has nomenclated this unit as *Upadhatu*. *Sushruta* is seen not to have described *Upadhatu*

but his commentator *Dalhana* is seen to have not only taken note of them but also to have included *sandhis*(joints) in the list. *Tatha Hi Rasat Stanyamartavam Ch Raktat Kandara Sirashch Mansadvasatwacho Medasah Snayusandhya Iti. (Dalhan on su.sut.14:10)* *Acharya Vagbhata* has considered *rajah* n *stanya* as two different entities, while elucidating the *Anjali Pramana* of body elements (A.S.sa5/93). Revered oracle *Laghu Vagbhata* has not mentioned these components collectively anywhere and also not used the term “*Upadhatu*”. commentators of A.S. & A.H. have not nomenclated these components as *Upadhatu* [3].

**Table 1: Upadhatu Quoted by Acharyas**

Name of Acharyas	Name of Upadhatu Mentioned	NO
Sharangdhar, Bhavmishra, Trimalla Bhatt, Y.T.	Stanya, Raja, Vasa, Sweda, Danta, Kesha, Oja.	07
Vridha Vagbhata, Dalhana.	Stanya, Raja, Kandara, Sira, Vasa, Twak, Snayu, Sandhi.	08
Charaka Samhita, Gayadass, Chakrapani	Stanya, Raja, Kandar, Sira, Vasa, Twak, Snayu.	07
Acharya Bhoj	Stanya, Raja, Vasa, Sweda, Danta, Kesha, Oja. Stanya, Raja, Sira, Twak, Snayu	05

## 1.3 Physiology of Upadhatu Formation-

*Dhatu* metabolism is a nourished pool of all the body constituents. Food after digestion takes two forms viz. the *Prasadaja* (essence) and the *Kitta*. Depending upon their nourishment from *Prasadaja* or the *Kitta*, the tissue elements of the body are described of two types, the pure once “*Prasadakhya*” and waste product “*Malakya*”. From *Prasadaja* portion all the *Dhatus* are formed in progressive order. *Upadhatu* are also nourished from this *Prasadaja* part or are produced from out of the breakdown products of *Sthira Dhatu*.

## 1.4 Utpatti (Origin) of Upadhatu

*Sarirasthana* of classics have illustrated this subject in “*Garbhavakranti Sarira*” and “*Garbhavyakarana Sarira*.” In this regard ancient seers have explained that: “*Trutiye Masi Sarvendriyani Sarvanga Avayavasca Yaugapadyena Abhinirvartante*” [S. Sa. 3/15]

*Origin* of all the body constituents takes place at embryological stage. “*Raktadayo Hi Garbhat Prabhuhi Eva Utpanna...I*” [C. Ci. 15/16-Cakra]

While commenting on the verse regarding the nourishment of *Dhatu*, *Cakrapani* has clearly mentioned that all the *Dhatus* manifest during gestational period itself. Their “*Sastame Masi Snayu Sira Twak Bala.... Utpatti*” [A. H. Sa. 1/51]

Revered seer has stated that during sixth month of gestational period emergence of *Snayu*, *Sira* and *Twak* takes place. The characters, which are present since birth, are termed as “*Nitya Bhava*.” All the *Dhatus* and *Upadhatu* are termed as “*Nitya Bhava*” of the body. *Upadhatu Raja* and *Stanya* are exceptions for this, since they emerge few years after birth and also not continue throughout the life. Such entities are known as “*Anitya Bhava*” [4]

## 1.5 Characters of Upadhatu-

*Upadhatu* are derived from *Dhatus*. *Acharya Charaka* has explained their specific correlation in the following verse:

“*Rasat Stanyam Tato Raktam Asrjah Kandarah Sirah Mamsat Vasa Twacah Sat Ca Medasah Snayu Sambhavah* |” [C.Ci15/17]

- *Dhatu* Related *Upadhatu*s
- *Rasa Stanya*, *Raja*
- *Rakta Kandara*, *Sira*
- *Mamsa Vasa*, *Twak*

## ➤ Meda Snayu, Sandhi (Dalhana)

First four *Dhatus* are related with *Upadhatu*.

“*Vivista Karyantara Utpada Darsanartham* |” [S.Su. 14/10 – *Dalhana* [5]

## 1.6 Upadhatu Raja & Stanya

*Raja* & *Stanya* are present only in females. They are derived by means of specific function attributed to female physiology that is reproduction. They are called as *Upadhatu*s because they derive their nourishment from *Prasadaja* portion of *Dhatus*. Both the entities are present in liquid state. These two entities are functional one. These two entities are excretory in nature. After certain period they are to be expelled from the body, otherwise they function as *Mala* and will be pathological for body.

### A. Rajas

*Rajas* is the menstrual blood. menstruation is intimately correlated with the normal functional states of the female and it is an index of her well being. As in developing and aged plants flower and fruits do not come up, as in bud and decaying flowers or fruits the fragrance is not explicit, similarly in females *Raja* (menstrual blood)

### B. Stanya

(milk) before twelve years and after fifty years of age are not visible. *Upacaya* means slow accumulation of the *Raja* in the *Garbhasaya*. According to Modern Science the gonadotrophic hormones and ovarian steroidal hormones are the causative factors for the menstrual blood. These are the reasons elucidated by classics regarding the *Utpatti* of *Raja* for specific time period [6].

## 1.7 Kandara

*Vyutpatti* - “*Kadi + Aran Tapa Ca* |”

*Nirukti* - “*Mahatyah Snayavah Proktah Kandarah*” [BH.Pu.51]

## 1.8 Synonyms

*Asthivatsthusshirayam Mahasnayo (Vd shabd sindhu) Ehhikandara shabden Sthulsnayuruchyate (Chkrapanich.chi.15:17).....Sthul sira.....(Sushruta)*

*Mahasnayu* are termed as *Kandara*. Annotator *Cakrapani* named it as *Sthula Snayu*. Commentator of *Sarngadhara* quotes it as *Mahanadya*.

**1.9 Sira**

Vyutpatti- "Senoti |Sin Bandhane | Bahulam Anyatrapī" [A.K.]

Saranam means flowing, moving, proceeding, going. [S.E. Dic.]

They receive their nourishment from *Rakta Dhatu*. gen. this term stands for blood vessels, even *Sushruta* also used it in the sense of nerves (*Vatavaha sira*), lymphatics (*Kaphavaha Sira*). *Sira* lies at the site of *Marma* and supply nutrition to *Snayu*, *Asthi*, *Mamsa*, and *Sandhi* and thus maintains the body.

**2. Vasa Upadhatu**

Utpatti - "Vasa Mamsa Niryasah |" [S.Su.23/12] *Vasa* is derived from essence of *Mam Dhatu*. It is nothing but the extract of *Mamsa Dhatu*.

**2.1 Functions of Vasa:** *Snehana*, *Varnya*, *Brmhana*, *Bala* and it alleviates *Vata dosha*. it represents the fat that fills up muscle spaces and supports various structures like blood vessels and nerves etc.

**2.2 Twak Uadhatu**

Vyutpatti - "Twak+ Paksa Tap |"

Nirukti - "Tvacati Samvrnnoti Meda Sonitadikam

*Sarvasariram |" [SKD]*

Synonyms - *Asrgdhara*, *Tattika*, *Chavi*, *Carma*, *Kwalli*. *Chadani*, [A.K.; *Sabdaratnavali*]

**a) Utpatti**

When the fertilization takes place, the fetus develops very rapidly through the process of transformation. Each and every molecule is involved in this process. Skin is mentioned as *Upadhatu* of *Mamsa* by all except *Sarangadhara*. An author of *Sarnghadhara Samhita* has explicated *Twak* as "*Mamsa Mala*."<sup>[7]</sup>

**b) Snayu Upadhatu**

Acc to *Vd.Shabd Sindhu Snayus* are the nadis that conduct *vayu*

*Snayu-vayuvahinadyam (vd shabda sindhu)*

*Vayu* conducts the *sneha* of *medas* and makes the *sira a snayu*.

**2.3 Functions of the Snayu**

"*Snayavo Bandhanani Syuh Dehe Mamsasthi Medasam|"* [SA.Pr.5/36; BH.Pu.3/258-259]

*Snayu* bound the various structures of the body. *Mamsa*, *Asthi*, *Meda* are fastened by the *Snayu*. It supports the above structures.

**Table 2:** Relation of Updhatu with their Disease Status

Upadhatu	Disease Status
Rajah, Stanya	Concern with female physiology
Kandara, Sira, Snayu, Sandhi	Distinctly related with vatavyadhi & involved in chronic stages of other diseases.
Sira	Conveyance of doshas to the place of "kha- vaigunya" thus involved in pathogenesis of many diseases.
Vasa	Distinctly involved in prameha, one of the <i>dusya</i> of <i>prameha</i> .
Twak	Many underlying pathological conditions manifest on skin <sup>[8]</sup>

"*Asthi Samyogah Tatra Upanibaddhah Ca Snayuh |"* [C. Su. 11/48]. Due to contiguous support of *Snayu* all the joints of the body are able to sustain the body weight.

Classics have described Nine hundred *Snayu*. These are of four types:

1. *Pratanavati* (ramifying and branching)
2. *Vrtta* (ring shaped)
3. *Prthu* (thick or broad)
4. *Susira* (hollow)

**Table 3:** Relation of Dosha with their Updhatu

Dosa	Updhatu
Vata	Kandara, Sira, Snayu, Sandhi, Twak (su.ni.1/25-29 nyaychandrika)
Pitta	Rajah, Twak
Kapha	Stanya, Vasa

**Table 4:** Relation of Updhatu with their Rogmargas

Upadhatu	Rogmarga
Rajah, stanya	Bahya
Kandara, Sira, Snayu, Sandhi	Madhyam
Vasa, Twak	Bahya

**3. Discussion**

*Updhatu*s are the by products of the *Dhatu* metabolism but they cannot be considered as the *Malas* because *Updhatu*s are nourished by the *prasadaj* part of the *Dhatu*.

*Dhatu*s are dissimilar from *Updhatu*s in the subsequent framework:

- a. *Updhatu*s are by product of *Dhatu*s.
- b. *Updhatu*s have no fate to get transformed into another

component.

c. *Updhatu* does not have any fate to nourish *Dhatu*s.

d. Some of the *Updhatu*s act as *Mala Bhava* for the body like *Kesha*, *Nakha*.

*Dhatvagni* of each *Dhatu* resides at *Srotasa*, which is responsible for *Parinamana* of *Dhatu* from one state to another. *Dhatvagni* is closely related with *Upadhatu*.. Hence it is stated that *Upadhatu* are also having their own *Srotas*, through which they receives their nutrients<sup>[9, 10]</sup>.

**4. Conclusion**

The different *Acharayas* at different periods of time enlightened the concept of *Updhatu* in their own ways. *Updhatu*s do not nourish any successive. *Updhatu*s are basically nourished from the *Sukshma Prasadaj* part of the *Dhatu*, which also nourishes the subsequent *Dhatu*. *Dhatvaagni* and *Srotas* play an important role in the nourishment of *Dhatu* and *updhatu*s. Each *updhatu* has its own *dhatvaagni*. *Updhatu*s are of two type i.e. structural entities & functional entities. *Kandara*, *Sira*, *Snayu*, *Sandhi* and *Twak* are principally involved to design the structural architecture of the body. *Kandara* & *Snayu* show anatomical and functional resemblance. *Upadhatu* of *Rakta* is *Kandra* while *Upadhatu* of *Meda* is *Sanayu*. *Upadhatu* of *Mamsa* is *Vasa*<sup>[11]</sup>. It is a lubricating agency placed for smooth functioning of muscles. *Twak* mantles the whole body, it also provides platform for various functions of *Vayu* and other

*Dosa. Sandhis* are *Upadhatu* of *Meda*. They are articulating joints of the body. All the movements of body are practiced due to presence of this entity. *Upadhatus* have great importance in pathogenesis of disease. *Kandara, Sira, Snayu and Sandhi* are included in *Madhyama Roga Marga*, which are intricate for treatment.

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