

A REVIEW ARTICLE ON CONCEPT OF UPDHATU IN AYURVEDA

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ABSTRACT

Dosh, Dhātu and *Mala* form the essential components of the body. *Ayurveda* has explained the physiological functions of human body under three elements viz. *Dosha, Dhātu* and *Mala*. *Updhatus* are important physiological units and are derived from *Dhatus* and resemble *Dhatus* in terms of structure, function and nature. *Updhatus* are sub tissues or secondary tissues in the body which serve as important components and have certain fixed functions to render. *Dhatus* are closely related to the *Updhatus*. *Updhatus* are derived from the first four *Dhatus*. *Updhatus* are end product of *Dhātu* metabolism. *Dhatavagni* plays an important role in metabolism of *Dhatus* and *Updhatus*. References about *Dhatus* are very less in *Ayurvedic* literature. In this review article 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 *Updhatus* mentioned by different *Acharayas* has been recollected in this article.

KEYWORDS: *Dhātu, Updhatu, agni, Dhatavagni, Strotas.*

INTRODUCTION

According to the ancient *Ayurvedic* literature, *Dosha, Dhātu & Mala* are the fundamental units of the body. *Dhatus* are the most stable constituents of the body. Apart from the above said basic elements, some other undefined elements were also discovered later by *Acharyas* and these were termed as *Updhatus*. The word *Updhatu* has been made by combination of two words i.e. *Up* and *Dhātu*. 'Upa' is a prefix attached to the word 'Dhātu'. Prefix changes the meaning of the word with which it is acting. The literary meaning of 'Upa' is Towards, near to, by the side of, resemblance, nearness, with the idea of subordination n inferiority. *Dhātu* form the Basic architecture of the body, they are not accomplished to execute the functions of the body without the support of *Updhatus*. so, *Updhatus* are basically the derivatives of the *Dhatus* and resemble *Dhatus* in terms of structure, functions and nature. *Updhatus* form and important bridge between the basic elements of the body. so, it is mandatory to disclose the basic concept of *Updhatu*.

Nirukti

1. "Dhatubhava Te Upadhatavah |" *Updhatus* are evolved from *Dhatus*.
2. "Dhātu Samipe Bhava Upadhatavah |" *Updhatu* are produced along with *Dhatus*.

3. *Dhatubyah Ca Upjayante Tasmāt Ta upadhatva*" Those which are derivatives of *Dhatus*, produced at complimentary, subsidiary level, are known as *Updhatus*.

4. "Dhatoh Upadanabhutat Jato Anya Dhātu" "Upadana" means *Samavayi Karana* (immediate cause). *Dhātu* are the immediate cause of *Updhatu*.

5. "Upagatah Vaikrtyam Prapto Dhātu Upadhatuh" Vitiated state of *Dhātu* is termed as *Updhatu*.

Definitions of Upadhatu**Updhatus has been defined variously**

Upmitah Dhātubhi Iti Dhātuh (*shabdasthoma mahanidhi*). That which is similar or identical to *Dhātu* is an *upadhatu*. *Gativivarjitam* (*chakrapanidutta on ch.chi.15:17*) Elements of the body which are not subjected to any transformation are *Upadhatu*.

Te Ch Sanyadyo Dhatwantarposhanachsharirposhaka Api Upadhatu Shabdenochyate. Structural elements that support the body and not nourish it are *Updhatus*. In *Samhita Kala Caraka Samhita* was the first who had elucidated *Updhatus* collectively in one *Sutra*. *Susruta* has given the description of the *Updhatu* components separately but not as a unit. *Astanga Sangraha* has mentioned these components under 'Prasadaja' elements. In *Madhya Kala*, Commentator *Cakrapani* and *Dalhana*

have elaborately explained the *Upadhatu* concept. *Acarya Sarngadhara* has introduced a modified unit of *Upadhatu*. In Modern Era, The *Ayurvedic* scholars like *P.S. Variyara, Dr. C. Dwarkanatha, and Ranjitrai Desai* have tried to explain these *Upadhatus*.

Evolution of *Upadhatus*

Acarya Caraka 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 *Acarya 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 *Upadhatus* 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 Raktatandara Sirashch Mansadvasatwacho Medasah Snayusandhya Iti. (Dalhan on su.sut.14:10)* *Acharya Vagbhatta* has considered *raja* n *stanya* as two diff entities, while elucidating the *Anjali Pramana* of body elements (*A.S. sa 5/93*). Revered oracle *Laghu Vagbhatta* 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*.

Review of Classics

Table No - 1

Century	Name of Acharya	Mentioned The Upadhatu as A Unit	Used The Term "Updhatu"	
			YES	NO
4 th – 6 th	<i>Charak</i>	+		+
4 th - 6 th	<i>Sushruta</i>		+	+
4 th – 6 th	<i>Vridha Vagbhatt</i>	<i>As prasada element</i>		+
4 th – 6 th	<i>Laghu Vagbhat</i>		+	+
11 th	<i>Bhoj</i>	+		
11 th	<i>Gayadas</i>	+		
11 th	<i>Chakrapani</i>	+		
12 th	<i>Dalhana</i>	+		
13 th	<i>Indu, arundatt, Hemadri</i>		+	+
14 th	<i>Shadangdhar</i>	Modified unit		
16 th	<i>Bhav prakash</i>			
17 th	<i>Yogtarangni</i>			

Upadhatus Quoted by Acharyas

Name of Acharyas	Name of <i>Upadhatus</i> Mentioned	NO.
<i>BHOJ</i>	<i>STANYA, RAJA, SIRA, TWAK, SNAYU</i>	05
<i>CHARAKA, GAYADASS, CHAKRAPANI</i>	<i>STANYA, RAJA, KANDARA, SIRA, VASA, TWAK, SNAYU.</i>	07
<i>VRIDDHA VAGBHATT, DALHANA.</i>	<i>STANYA, RAJA, KANDARA, SIRA, VASA, TWAK, SNAYU, SANDHI.</i>	08
<i>SHARANGDHAR, BHAVMISHRA, TRIMALLA BHATT, Y.T.</i>	<i>STANYA, RAJA, VASA, SWEDA, DANTA, KESHA, OJA.</i>	07

Utpatti (Emergence) 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*] Emergence of all the body constituents takes place at embryological stage. "*Raktadayo Hi Garbhat Prabhati 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 further nourishment is achieved by *Dhatu* metabolism. Further while explaining the nourishment of *Upadhatus* from *Dhatus* he has very clearly stated *Poshan Krama* of it. Thier emergence supervenes at gestational period itself. *Acharya Laghu Vagbhata* has clearly explained the emergence of *Upadhatu* in "*Garbhavakranti*" *Sarira* as follows.

"*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 *Dhatu*s and *Upadhatus* 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 through out the life. Such entities are known as "*Anitya Bhava*".

Physiology of *Upadhatu* Formation

Dhatu metabolism is a nourished pool of all the body constituents. Through this pool all elements including *Upadhatus* derive their nourishment. *Upadhatu* are sustained being fed by their nourishing factor. 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 *Dhatu*s 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*.

Characters of *Upadhatu*

Classics have explained the concept of *Upadhatu* in correlation with *Dhatu*. *Upadhatu* are derived from *Dhatu*s. *Acarya Caraka* 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 *Upadhatus*
- *Rasa Stanya, Raja*
- *Rakta Kandara, Sira*
- *Mamsa Vasa, Twak*
- *Meda Snayu, Sandhi (Dalhana)*

First four *Dhatu*s are related with *Upadhatus*. Revered annotator *Dalhana* in *Sutrasthana* elucidates the rationale behind this.

"*Vivista Karyantara Utpada Darsanartham* |" [S.Su. 14/10 - *Dalhana*]

In the context of nourishment of *Dhatu*s, *Acarya Susruta* has specified the term "*Prajayate*" for first four *Upadhatus* only.

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 *Upadhatus* because they derive their nourishment from *Prasadaja* portion of *Dhatu*s. Both the entities are present in liquid state. *Raja* nourishes developing

embryo during gestational period and *Stanya* nourishes infant for specific period of time. 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.

Rajas

Rajas is the menstrual blood. menstruation is intimately co-related with the normal functional states of the female and it is an index of her well being. The justification for the inclusion of this fluid under *Upadhatu* is due to its intimate relationship to her biological functions. 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) and *Stanya* (milk) before twelve years and after fifty years of age are not visible. *Susruta* has indicated that "Yoni Abhivrdhi" and slow accumulation of *Raja* causes its appearance in *Yuvavastha*. *Bhavamisra* has specified the *Upacaya Rupa Vrddhi* as the causative factor for the *Raja Utpatti*. *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.

Kandara

Vyutpatti - "*Kadi + Aran Tapa Ca* |"

Nirukti - "*Mahatyah Snayavah Prokta Kandarah*" [BH.Pu.51]

Synonym

Asthivatsthulshirayam Mahasnayo (*Vd shabd sindhu*)

Eh hi kandara shabden sthulsnayuruchyate (*Chkrapanich.chi.15:17*)

.....*Stul sira*..... (*Sushruta*)

Mahasnayu are termed as *Kandara*. Annotator *Cakrapani* named it as *Sthula Snayu*. Commentator of *Sarngadhara* quotes it as *Mahanadya*. Revered *Cakrapani* while commenting on *Susruta Samhita* quotes it as *Sthula Sira*.

Sira

Vyutpatti- "*Senoti /Sin Bandhane / Bahulam Anyatrap*" [A.K.]

Nirukti - "*Sr Sa rati Asmin Anena I*" [A. K.]

"*Saranat Sira* |" [C. Su. 30/12]

Saranam means flowing, moving, proceeding, going. [S.E. Dic.] Nourishment of *Upadhatu Sira* - "*Asrjah Kandarah Sirah* |" [C. Ci. 15/17]

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.

Vasa Upadhatu

Vyutpatti- "*Vasati, Vaste Va* |" [A.K]

Nirukti- a) *Vasa Nivase*- "*Vasati Sarire Visestatah Mamse Iti Vasa* |"

It resides in the abodes of *Mamsa Dhatu*.

b) *Vasa Acchadane*- "*Accadayati Sariram Mamsam Udaradikam Va Iti Vasa* |"

It mantles the *Mamsa Dhatu*.

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

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.

Twak Uadhatu

Vyutpatti - "*Twak+ Paksa Tap* |"

Nirukti - "*Twacati Samvrnnoti Meda Sonitadikam Sarvasariram* |" [SKD]

"*Twacati | Twaca Samvarane | Yadva Tanoti| Tanyate Va |Tanu Vistare| Tenoteranacca Vah|* [A.K. 223/62]

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

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 *Sarngadhara*. Annotator of *Sarngadhara Samhita* has explicated *Twak* as "*Mamsa Mala*."

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*.

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 No - 2

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

"*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.

3) *Prthu* (thick or broad)
(hollow)

4) *Susira*

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

1) *Pratanavati*(ramifying and branching) 2) *Vrtta* (ring shaped)

Importance of Upadhatus in Pathogenesis

Upadhatus Relation with Doshas and Rogmargas

Table No - 3

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

Table No - 4

<i>Upadhātu</i>	<i>Rogmarga</i>
<i>Rajah, stanya</i>	<i>Bahya</i>
<i>Kandara, Sira, Snayu, Sandhi</i>	<i>Madhyam</i>
<i>Vasa, Twak</i>	<i>Bahya</i>

DISCUSSION

A review of ancient literature reveals that the concept of *Upadhātu* is not available in *Ayurveda* in a detailed way. *Upadhatus* are the by products of the *Dhatu* metabolism but they cannot be considered as the *Malas* because *Upadhatus* are nourished by the *Prasadaj* part of the *Dhatu*.

*Dhatu*s are different from *Upadhatus* in the following context:

- Upadhatus* are by product of *Dhatu*s.
- Upadhatus* have no fate to get transformed into another component.
- Upadhātu* does not have any fate to nourish *Dhatu*s.
- Some *Upadhatus* function for specific time only like *Rajah* and *Stanya*.
- Some of the *Upadhatus* 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 *Upadhātu*. Deteriorated status of *Dhatvagni* affects the normal functions of *Upadhātu*. To convey the nourishing material to the abodes of *Upadhatus Srotas* is necessary. Hence it is stated that *Upadhātu* are also having their own *Srotas*, through which they receive their nutrients.

CONCLUSION

The introduction of *Upadhātu* was given by *Acharya Charak*. Different *Acharayas* at different periods of time enlightened the concept of *Upadhātu* in their own ways. *Upadhatus* do not nourish any successive *Dhatu*, but they nourish other constituents of the body. *Stanya*, *Raja*, *Kandara*, *Sira*, *Twak*, *Vasa*, *Snayu* & *Sandhi* are the components of *Upadhātu* unit. *Upadhatus* are basically nourished from the *Sukshma Prasadaj* part of the *Dhatu*, which also nourishes the subsequent *Dhatu*. *Dhatvagni* and *Srotas* play an important role in the nourishment of *Dhatu* and *updhatus*. Each *updhātu* has its own *dhatvagni*. *Upadhatus* 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. *Upadhātu* of *Rakta* is *Kandra* while *Upadhātu* of *Meda* is *Sanayu*. *Snayu* is an important structural entity evolved to bear the body weight. *Upadhātu* of *Mamsa* is *Vasa*. 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 *Upadhātu* 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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