

## CONCEPT OF SAPTA DHATU IN RELATION TO HEALTH

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## ABSTRACT

Sapta means seven and dhatu means that which bears or supports. Ayurveda identifies seven vital tissues that provide nourishment, growth, and structure to the entire body. These tissues are called *dhatu*s which are in many ways similar to the major tissues identified by modern science. They are maintained within limit of the skin from outside and mucus membrane from inside. Each Dhatu has Updhatu or a sub unit and together they make up the body grow strong. They provide support, strength and structure to the body. Each dhatu is governed by one of the three biological humors (Doshas) Updhatu support the body and make them strong, but as they do not nurture the body tissues as Dhatus, they are called *Updhatu*. Ayurveda says that proper diet and digestion ensure excellent tissue renewal. Once food is fully digested, the building of tissues commences. The first tissue that gets strength is plasma and then sequentially other tissues are nourished. An imbalance within any tissue will, therefore, affect all subsequent tissues. Plasma is rich in digestive nutrients and actively transfers these nutrients to subsequent tissue layers. In this way, even the deepest and most complex tissues are nourished by the foods we eat. Dhatu means body constituents which build the basic structure and carry various physiological functions. They work as body tissues, stabilize and sustain body.<sup>[1]</sup> The term “*DHATU*” generally refers to the seven structural components of the body. The structural and functional integrity of body depends upon dhatu. Therefore, it is important to understand the concept of dhatu. Hence, this article will cite about dhatus and its importance.

## Seven dhatu

- Rasa dhatu: plasma and lymph
- Rakta dhatu: blood tissue
- Mamsa dhatu: muscle tissue
- Meda dhatu: adipose tissue
- Asthi dhatu: bone tissue
- Majja dhatu: bone marrow
- Shukra dhatu: reproductive fluids; semen

**KEYWORDS:** Aging, Dhatu Siddhanta, Rasayana, updhatu.

## INTRODUCTION

The word ‘dhatu’ is derived from the word root “Dha” by adding suffix “Tun”. The derivation of the word is as follows.

“**दु धात्र धारणपोषणयोः**” meaning that which sustains and nourishes.

In general, the Sanskrit word conveys the meaning of a component, constituent, elementary substance, verbal,

grammatical root or a metal. At the time of fusion of wholesome *Purush Beeja* (spermatozoa) and *Stree Beeja* (ovum) in the presence of Jeeva (soul - a life factor) fertilization takes place,<sup>[1]</sup> and a new life comes in the shape. Ayurveda believes *Garbha* (fetus) attains its maturity in mother's womb through numerous interchanges by the influence of *Pancha Mahabhuta* (five basic elements)<sup>[2]</sup> and then it differentiates into all types of specific cell lineages. Thus, a single fertilized human egg (ovum) differentiates and develops into an embryo,

and then into a fetus, after birth in an infant, a child, and finally an adult.<sup>[3]</sup> This business of cell differentiation and development persists during prenatal and postnatal life of an individual to maintain health. The cell attains differentiation and specification cell type by the response of some unspecific and undifferentiated mother cell known as stem cell. There are two types of sources of stem cells; embryonic stem (ES) cells and adult stem cells. Stem cells have attracted the attention of biologists and medical scientists for a long time. These provide materials for regenerative medicine.<sup>[4]</sup> In 1998, researches in the US found a way of harvesting stem cells, a type of primitive cells, from embryos and maintaining their growth in the laboratory, and thus started the era of stem cell researches.<sup>[5]</sup> Theory of stem cell has arrived in the current trend of life sciences. This seems to be more similar to *Dhatu Siddhanta* (theory of tissues formation and differentiation) of ancient wisdom. Normal functioning of the cell is always influenced by various factors such as stress, chemical agents, diseases and environmental hazards. Yet, the cell survives and continues the function by means of adaptation.<sup>[6]</sup> As age progresses, various changes occur at every cell level. To prevent the aging through *Rasayana* (rejuvenation) therapy is a unique approach of Ayurveda.

### Saptadhatu – The Seven Bodily Tissues

*Sapta* means seven and *dhatu* means that which bears or supports. Ayurveda identifies seven vital tissues that provide nourishment, growth, and structure to the entire body. These tissues are called dhatus which are in many ways similar to the major tissues identified by modern science. They are maintained within limit of the skin from outside and mucus membrane from inside. They provide support, strength and structure to the body. *Ojas* is the ultimate “essence” of each dhatu. The most effective way to improve the health of the dhatus is to increase ojas. Improper diet and digestion, on the other hand, will lead to ama formation in each tissue layer.

#### The Seven Dhatus & their function

##### 1. Rasa dhatu

1. Made up of water element.
2. Rasa means to move.
3. It can be compared with plasma and extra cellular fluid in the body.
4. When rasa dhatu is depleted skin becomes dry, and hard, person is dull, lean, tired, and intolerant to loud speech and noise.
5. When rasa dhatu is in excess loss of appetite, excessive salivation, nausea laziness, feeling of heaviness, coldness, cough and excess of sleep is felt.

#### Functions

It makes the person cheerful, happy and leaves the skin glowing and nourishes Rakta dhatu.

##### 2. Rakta dhatu

1. Made up of fire element.

2. It can be compared with formed elements of blood like Red Blood Cells(RBC), White Blood Cells(WBC), and Platelets etc.

#### Functions

It takes care of our complexion, nourishes Mamsa dhatu and is governed by pitta dosha. When rakta dhatu is depleted, the qualities of pitta dosha and fire diminish. A person feels cold, the skin loses its luster becoming pale or dusty gray, and coldness causes the body to hold on to heat by becoming constipated and by reducing urination and sweat. In the mind, depletion of the rakta dhatu leads to dullness, and difficulty processing and understanding new information. This often leads to confusion and misunderstandings. Person has desire for sour and cold things. When the rakta dhatu is in excess, the qualities of pitta dosha and fire increase. A person feels warmer. As heat builds up in the body, the body tries to release the heat. The body tries to release the excess heat along with the malas of the body. The frequency of bowel movements increases and the stools may become loose. The frequency of urination also increases.

##### 3. Mamsa dhatu

Made up of earth element.

#### Functions

Strengthens the body, builds good muscle tissue in neck shoulder and thigh area. Nourishes meda dhatu and is governed by kapha dosha and earth element. When mamsa dhatu is depleted then it causes debility of sense organs, emaciation of cheeks, buttocks, pain in joints. When mamsa dhatu is in excess then produces enlargement of lymph glands, tumors, increase in size of cheeks, thighs, abdomen etc.

##### 4. Meda dhatu

Made up of earth and water elements.

#### Functions

Well lubricates system, with oily and soft hair, skin and efficient eyes. Nourishes Asthi dhatu and is governed by Kapha. When medas dhatu is depleted then it leads to spleen enlargement, difficult joint movements, emaciation at abdomen, desire to consume fatty food. When medas dhatu is in excess then person gets tired, fat increases at abdomen, thighs, neck etc, and foul smell in sweat, shortness of breath etc.

##### 5. Asthi dhatu

Made up of air and space elements.

#### Functions

Supports the body. Gives good structure and stability with hard working capacity to the body. Nourishes Majja dhatu. Asthi dhatu is governed by vata dosha. When asthi dhatu is depleted then there is pricking pain in bones, falling of teeth, nail and hairs. Bones become porous, get easily fractured. Increase in asthi dhatu lead to excessive growth of bones.

Bones and teeth are developed over one another (extra bone, extra teeth).

## 6. Majja dhatu

Made up of water element.

### Functions

Imparts sharp, clear mind with good intellect and memory. Strong joints. Govern by kapha dosha. When majja dhatu is **depleted** then bones get weak, joint pain, vertigo, giddiness occur and shukra dhatu is also depleted. When majja dhatu is in **excess** then heaviness in eyes, and whole body occurs.

## 7. Shukra dhatu Functions

Has patience, enjoys life and body strength. Reproductive needs are concern. Govern by kapha dosha.

In case of shukra dhatu depletion ejaculation is delayed, bloody ejaculation occurs, pain in testicles, body is weak and thirst occurs.

When there is excess of shukra dhatu desire of excess coitus is there and stone in the shukravaha strotas may occur with pain.

S.NO.	DHATU	PRAMAN	CO-RELATION
1.	RASA	9 anjali	Plasma and lymph
2.	RAKTA	8 anjali	Blood tissue
3.	MAANS	Male – 500 Female - 520	Muscle tissue
4.	MEDA	2 anjali	Adipose tissue
5.	ASTHI	360	Bone tissue
6.	MAJJA	1 anjali	Bone marrow
7.	SHUKRA	½ anjali	Reproductive fluids; semen

### Formation and nourishment of dhatu

The dhatu are formed from first transformed food into nutrient fluid called ahara-rasa (prasada). This nutrient fluid nourishes body components in a sequential pattern. It first nourishes the rasa dhatu, then rakta, then mamsa etc. The nutrients present in the food nourish respective dhatu qualitatively and quantitatively.<sup>[7]</sup> Furthermore, during the process of metabolism, dhatus undergo a specific pathway through their own characteristic digestive enzymes termed as 'dhatvagni'. In this process, each dhatu gets converted into two parts: poshya (which nourishes itself) and poshaka (which nourishes others). The poshya fraction is responsible for dhatu's own nourishment and functions. The poshaka fraction nourishes further other dhatus. By-products (Upadhatu) and waste products (mala) are also formed in this dhatu metabolic process. Thus, each dhatu nourishes its next sequential dhatu.<sup>[8]</sup> The major functions of seven dhatus are listed as nourishment (preenana), vitalizing (jeevana), covering (lepa), moistening (snehana), supporting (dharana), filling (poorana), and reproduction (garbhoptadana) respectively.<sup>[9]</sup>

### Assessment of sara (excellent quality of dhatu)

Sara means the excellent quality of dhatu. It is highly related with the health of tissue and endurance to pathogens. The excellent quality depends upon metabolism (dhatvagni). It is one of the assessment parameters to determine strength of an individual in ten-fold examination. The individuals are categorized on the basis of predominance of a particular dhatu as twaksara, raktasara, mamsasara, medosara, asthisara, majjasara and

shukrasara.<sup>[10]</sup>

### Importance in preservation of health and prevention

Disequilibrium of dhatu is disease and their equilibrium is health. Health is termed as happiness, while disorder as unhappiness.<sup>[11]</sup> In a state of equilibrium of dhatu, diseases are prevented, tissue elements develop properly and ageing process slows down.<sup>[12]</sup>

### Importance in management of disease

- While treating the conditions like dhatukshaya or dhatuvrudhi, the principles of "samanya and vishesha" are applied. For example, the mamsa dhatu get increased predominantly with the consumption of meat, rakta by rakta, meda by fat, vasa by muscle fat, asthi by cartilage (tarunasthi), shukra by semen (shukra) and fetus (garbha) by ama garbha, like egg.<sup>[13]</sup>
- Acharya Sushruta says that dosha get stability (sthiratwa) and severity (mahatwa) when they invade the successive dhatu. It becomes difficult to manage them, when they have invaded the deeper dhatu as in case of a tree with deeper roots.<sup>[14]</sup>
- While planning the treatment of a particular disease, the stage of the disease in terms of involvement of dhatu is important. The concept of koshttha and shakha is important here. In some contexts, the term koshttha is used for rasa dhatu and shakha refers to the succeeding dhatu (rakta, mamsa etc.). Panchakarma procedures are indicated for the elimination of morbid dosha situated in shakha after bringing them back to koshttha.<sup>[15]</sup>
- Among the benefits of snehana, rejuvenation of dhatu (pratyagrathatu) is mentioned.<sup>[16]</sup>

• Among the benefits of shodhana chikitsa, strength in terms of proper formation(dhatusthiratvam)is emphasized.<sup>[17]</sup>

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