

## A REVIEW ARTICLE ON ASTHI DHATU

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**ABSTRACT**

Ayurveda considers Dosha, Dhatu and Mala as basic constituents of Sharir. Asthi is a vital Dhatu of body. Asthi protects organs of body from external shock, maintain posture of the body, provides strength and stability, supports Majja Dhatu, imparts compactness of body. Each Dhatu has an Upadhatu, that works together to strengthen the body. In this article we are trying to collect the all general information of Asthi Dhatu defined in different texts from its formation to nutrition, number, nature, distribution, character, its importance in the journey of life and effects on body when it deviates from its normal character or number like Asthi Kshaya and Asthi Vriddhi. Some other factors which are related to Asthi Dhatu are also included like Asthidhara Kala and Asthivaha Srotas.

**KEYWORDS:** Asthi Dhatu, Asthi Kshaya, Asthidhara Kala, Asthivaha Srotas, Asthi Vriddhi.**INTRODUCTION**

Asthi dhatu denotes the bones and cartilage. 'Stha' means to stand, which is a function of the skeletal system. Asthi or bone is which gives structure and stability to the body it is also protecting the internal organs and is nourishing the nervous tissue. It is derived from earth and wind element. According to Ayurveda, the Sarira (body), Manas (mind), and Prana (life force) are all supported by tissues known as dhatu. Asthi Dhatu refers primarily to bones, but also to the formation of teeth, hair and nails. It is the densest dhatu, providing internal support, shape and structure to the body.

**Concept of Asthi Dhatu**

Generally bones are considered as Asthi. There are two types of Dhatu, i.e. Sthayi and Poshaka Dhatu. Asthi or bone can be considered as Sthayi Dhatu and not the whole Asthi Dhatu. Asthi Dhatu is also in liquid form called as Poshaka Asthi that flows through the Asthivaha Srotas and nourishes the Sthayi Asthi Dhatu.<sup>3</sup> According

to recent advances, the osseous tissue can be taken as the Sthayi Asthi Dhatu and the nutrients that are responsible for the nourishment of the bone tissue such as calcium, phosphorus, magnesium etc can be considered as the Poshaka Asthi Dhatu.

**Origin of Asthi Dhatu**

When we eat food then its converted to ahar ras i.e ras dhatu. once there is formation of ras remaining gets converted in rakta, once there is formation of rakta remaining gets converted in mamsa, once there is formation of mamsa remaining gets converted into meda, once there is formation of meda remaining gets converted in asthi dhatu and then majja dhatu and shukra dhatu. Asthi Dhatu is formed by Meda Dhatu in the sequence of Dhatu Nirman.<sup>5</sup> Meda Dhatu becomes Khar (hard/rough) with the combination of Prithvi and Vayu Mahabhoot and its own Dhatwagni. That Khar part is called as Asthi.

1.	Panchbhautikatva Of Asthi	Prithvi And Vayu
2.	Updhatu Of Asthi	Dant
3.	Mala Of Asthi	Kesh, Loma Kesh Loma Nakha
4.	Karma Of Asthi	Deh Dharan, Majja Pushti
5.	Guna Of Asthi	Guru, Khara, Kathin, Sthula, Sthira Murtimada

Asthi Sankhya:

Number of bones are variant in Brihatrayee.

S.N	Name Of Samhita	No. Of bones	Shakha	Madhya Sharir	Kossth
1.	Carak Samhita <sup>12</sup>	360	128	140	92
2.	Shushrut Samhita <sup>13</sup>	300	120	117	63
3.	Astang Hridaya <sup>14</sup>	360	140	120	100

Distribution of Asthi in body:

Following the principal of “Sharire ShushrutShreshthah” distribution of Asthi is given in the table below according to Sushrut Samhita.

Shakha- 120	Madhya Sharir-117	Urdhava Jatrugata-63
3 in each Padanguli =15	Shroni-5	Griva-9
Padatala, Padakurcha, Gulpha =10	Parshva-36 (total 72) Prishtha-30	Dant-32 Talu-1
Parshni=1	Uras-8	Hanu-2
Jangha=2	Amsa Phalak-2	Nasa-3
Janu=1	Total=117	Kanthanadi-4
Uru=1		Siras-6 Ganda, Karna, Sankha- 1 in each(total-6)
Total= 30 in each Shakha		Total-63

Types of Asthi: 16

Asthi Prakara Acharya Sushruta explained 5 types of Asthi i.e. Kapala, Ruchaka, Taruna, Valaya and Nalaka.<sup>[15]</sup>

1. Kapala- These are flat in nature. Literally, it is potential bonewhich covers and defends brain. This kind of Asthi present at Janu, Ganda, Shira, Nitamba, Talu, Amsa, Shankha.
2. Ruchaka- Dashanas are viewed as the Ruchakasthi.
3. Taruna- These are Mridu Asthi i.e. which does not get Ghanata is regarded as Taruna Asthi. Asthiexistingat Ghrana, Karna, Ghriva, Akshikosha are instance for Taruna Asthi.
4. Valyasthi-bones which are curved in shape andwhich are present over Parshwa, Prushta, Uras are considered as Valayasthi.
5. Nalakasthi- These are the long bones which existat Hastanguli, Padanguli, Padatala, Kurcha, Bahu, Asthi, Jangha.

#### Asthi Kshaya and Vriddhi of Asthi Dhatu

A fraction of the Kayagni that is present in Amashaya is also present in the Dhatu. Their growth and development result in the Dhatu's growth and development. The subsequent Dhatu of the same situation is created by the prior Dhatu, which is either enhanced or lessened.<sup>17</sup> For a summary, Asthi Vyaya (bone resorption) overwhelms Asthi Utpatti (bone production), which results in Asthikhaya (osteoporosis), when the anabolic function of Asthi Dhatwagni becomes Manda and the catabolic function becomes Tikshna.

#### Asthidhara Kala

The fifth kala, Purishadhara Kala, exits in the large intestine, or Pakvashaya. In terms of functionality, it separates waste products or Kitta components in the

colon. Poshaka Vayu, which is created in Pakvashaya (as Anna Mala), feeds the body's Poshya Vayu. Asthi and Pakvashaya are the two primary locations for Vata Dosha, as is well known. All Vata sites are therefore impacted by Vata and Purisha development, especially Asthi Dhatu. Consequently, Asthidhara Kala is another name for Purishadhara Kala.

#### Asthivaha Srotas

Susruta explains the evolution of the Asthivaha Srotas in his description of the Medodhara Kala, despite the fact that it has not been separately detailed. According to Susrutha, Medodhara Kala can be found in the Udar (abdomen), Anuasthi (short bones), and Majja in Mahat Asthi (long bones). The description of 20 Asthivaha Srota is found in Charaka and Vagbhatta, but it is absent from Susruta's book. Medo Dhatu, Jaghana, and Asthi Sandhi are members of the Asthivaha Sroto Moola. Asthivaha Srotas Dusti can be brought on by excessive activity, excessive stretching, trauma, or Vata Dosha Pradhan Aahar and Vihar.<sup>[22]</sup> These include disorders of the hair, nails, and beard, as well as Adhyaasthi, Abhidanta, Dantabhedha, Dantshoola, Asthibhedha, Asthishoola, and Asthi Vivaranta.

#### Ashraya Ashrayi Bhava of Asthi

Asthi (bones) is where Vata resides; Rakta (blood) and Sweda (sweat) are where Pitta resides; and the remaining Dhatus (tissues) and Mala (waste products) are where Kapha resides. Pitta and Kapha both have tissues and waste products that increase in direct proportion to their respective Pitta and Kapha levels. For instance, perspiration and blood will increase if Pitta does. Decrease is also subject to the same rule.

However, the relationship between Vata and Asthi is just the opposite: if Vata grows, Asthi decreases, and vice versa.

They are connected in the opposite way. Given that Asraya and Asrayi receive similar nutrients, this relationship aids in understanding both the Hetu (cause) and Chikitsa (therapy) of a Vyadhi (illness). The Ahara, Vihara or Aushadha that increase or decrease the Dosha will increase or decrease the corresponding Asraya (Dhatu and Mala). As we have said above, however, the above mentioned rule is not applicable to AsthiDhatu and Vata Dosha.

### Asthisaar Purusha

Asthisaar Purusha has prominent ankles, knees, elbows, clavicles, chin, head, nails and teeth. Such persons are very enthusiastic, active and enduring. They also have strong and firm body and live well.

### DISCUSSION

Similar to how the toy is composed of straws and threads and adhered to wet clay from the outside, the body's Snayu (ligaments) are linked to its Asthi (bones). Ligaments are protected by Mamsa (muscles), which receive continual nutrition from Dhamani and Sira (vessels), before Twacha (skin) covers the entire body. This shows that Snayu, Mamsa, Dhamani, and Sira efficiently assist Asthi in her intended role as the body's anchor.

### CONCLUSION

Susruta says that "Asthi is substance which destroys at last when body perishes" yet in modern science it is simply defined as hard connective tissue and distinguished by the existence of Haversian system aiding in its nutrition. As a result, there is a significant disparity between the enumeration, types, and functions as indicated by the definition. According to the Astanga Samgraha, "Shareeram dharayenthe dhatvahascha sarvada" means that Dhatu and Ahara are the only two sources of nourishment for the human body. The Ashti Dhatu is the Sapta Dhatu that has been given the highest duty of Shareera Dharana (bodily support). The vital organs are shielded and given structure by asthi dhatu. Without Asthi Dhatu, a person would be an indistinct blob of matter.

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