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Asthi Sankhya in Ayurveda and Modern Skeletal Enumeration: A Comparative Review.

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Abstract: *The concept of Asthi Sankhya (enumeration of bones) is an important aspect of Ayurvedic anatomy described under Sharira Rachana. Classical Ayurvedic texts provide a systematic description of bones, their number, classification, and functions in maintaining structural integrity of the body. According to Ayurvedic literature, the human body contains 360 bones, whereas modern anatomical science describes 206 bones in the adult human skeleton. This difference arises due to variations in classification criteria, inclusion of teeth and cartilaginous structures in Ayurvedic counting, and differences in developmental interpretation. Classical treatises such as Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya provide detailed descriptions of skeletal structures and their enumeration. The present study aims to review the concept of Asthi Sankhya in Ayurveda and compare it with modern skeletal enumeration to understand similarities, differences, and conceptual perspectives between the two systems.*

Keywords: Asthi Sankhya, Asthi Dhatu, Sharira Rachana, Ayurveda anatomy, skeletal system

I. INTRODUCTION

The understanding of human anatomy has been an essential component of medical sciences since ancient times. In Ayurveda, anatomical knowledge is described under the branch of Sharira Rachana, which explains the structural components of the body including *Dhatu, Srotas, Asthi,* and *Sandhi*. Among these structures, Asthi (bones) form the basic framework of the body and provide support, protection, and stability.[1]

The skeletal system plays an important role in maintaining posture, facilitating movement, and protecting vital organs. In Ayurvedic physiology, bones are considered the structural manifestation of Asthi Dhatu, which is one among the Sapta Dhatus responsible for maintaining bodily integrity.[2]

Classical Ayurvedic scholars described the number of bones in the human body as 360, a concept known as Asthi Sankhya.[3] This enumeration is mentioned in several classical texts including *Charaka Samhita, Sushruta Samhita,* and *Ashtanga Hridaya*.[4–6] In contrast, modern anatomical science describes 206 bones in the adult human skeleton, based on morphological and developmental studies.[7]

The difference between these two enumerations has attracted the attention of scholars and researchers studying classical anatomy. The variation primarily arises due to differences in classification systems, inclusion of teeth and cartilaginous structures in Ayurvedic counting, and differences in the interpretation of developmental stages of bones. Therefore, a comparative understanding of Asthi Sankhya in Ayurveda and modern skeletal enumeration is essential for better interpretation of classical anatomical descriptions and their relevance in contemporary medical science.[8]

II. MATERIALS AND METHODS

The present study is a narrative literature review based on classical Ayurvedic texts and modern anatomical references.

Sources of Data

The primary data for this study were collected from classical Ayurvedic texts including:

Charaka Samhita[9]

Sushruta Samhita[10]

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Ashtanga Hridaya[11]
Modern anatomical information was obtained from standard anatomy textbooks and historical literature on Indian medical science.[12]

Method of Study
Relevant references regarding Asthi Sankhya, classification of bones, and descriptions of skeletal structures were carefully reviewed from the classical texts.[13–15] The information obtained from these texts was then compared with the skeletal enumeration described in modern anatomy.[16]

Inclusion Criteria
Classical Ayurvedic descriptions of bones and their number
Modern anatomical descriptions of the skeletal system
Scholarly interpretations related to comparative anatomy

Method of Analysis
The collected information was analyzed descriptively and presented in a comparative manner to highlight similarities and differences between Ayurvedic and modern anatomical perspectives.

Concept of Asthi in Ayurveda
In Ayurvedic physiology, **Asthi Dhatu** represents the structural tissue responsible for maintaining the firmness and stability of the body. It is formed during the process of **Dhatu Parinama**, where each Dhatu is sequentially formed from the previous one.[17]
Asthi provides the structural support required for body movement and protects vital organs. It also acts as the seat of **Majja Dhatu**, which occupies the internal cavities of bones.[18]

Functions of Asthi
The major functions attributed to Asthi include:

- Providing structural support to the body
- Protecting vital organs
- Facilitating attachment of muscles and ligaments
- Maintaining posture and body shape
- Serving as the site for Majja Dhatu[19]

Asthi Sankhya in Classical Ayurvedic Texts
Charaka Samhita
Charaka describes the total number of bones in the human body as 360.[20]

त्रीणि सषष्टीनि शतान्यस्थ्नां सह [21]

This indicates that the total number of bones along with teeth and related structures is counted as 360.

Sushruta Samhita
Sushruta Samhita provides a detailed description of bones in Sharira Sthana and states that the human body contains 360 bones.[22]

"त्रिशतानि षष्टिश्च अस्थीनि मनुष्यदेहे।" [23]

Sushruta also classified bones into five categories based on their morphology:
Kapala – flat bones
Ruchaka – teeth

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Taruna – cartilaginous bones
Valaya – circular bones
Nalak – long bones[24]

Ashtanga Hridaya

Ashtanga Hridaya follows the same classical tradition and mentions that the number of bones in the human body is 360.[25]

Modern Skeletal Enumeration

Modern anatomical science describes the human skeletal system as consisting of 206 bones in the adult body.[26] The skeletal system is divided into two major components.

Axial Skeleton (80 bones)

Skull – 22 bones
Vertebral column – 26 bones
Ribs – 24 bones
Sternum – 1 bone
Auditory ossicles – 6 bones[27]

Appendicular Skeleton (126 bones)

Pectoral girdle – 4 bones
Upper limbs – 60 bones
Pelvic girdle – 2 bones
Lower limbs – 60 bones[28]

Comparative Analysis

Parameter	Ayurveda	Modern Anatomy
Total number of bones	360	206
Teeth included	Yes	No
Cartilage included	Yes	No
Bone processes counted separately	Sometimes	No
Basis of classification	Functional and structural	Morphological and developmental

III. DISCUSSION

The classical Ayurvedic concept of Asthi Sankhya reflects the anatomical understanding of ancient scholars who attempted to describe the structural framework of the human body based on observation and functional interpretation.[29] The inclusion of teeth and cartilaginous structures in the enumeration of bones contributed to the higher number described in Ayurvedic texts.[30]

Another important factor responsible for this difference is the developmental aspect of the human skeleton. Modern anatomical studies reveal that the human skeleton contains approximately 270 bones at birth, many of which fuse during growth and development to form 206 bones in adulthood.[31]

Ayurvedic scholars also adopted a functional classification approach, where structures contributing to support and firmness were considered part of the skeletal framework. Teeth were included under Ruchaka Asthi, and cartilaginous structures were included under Taruna Asthi.[32] This indicates that the classical concept of bones was broader than the modern anatomical definition.

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Furthermore, classical texts emphasized the physiological role of Asthi Dhatu rather than focusing solely on morphological structure.[33] This holistic approach reflects the integration of anatomy with physiology in Ayurvedic science.

Thus, the difference between Ayurvedic and modern skeletal enumeration represents two distinct conceptual frameworks, each developed within its own scientific tradition.

IV. CONCLUSION

The concept of Asthi Sankhya in Ayurveda provides valuable insight into the classical understanding of the skeletal system. Ayurvedic texts describe 360 bones, whereas modern anatomical science recognizes 206 bones in the adult skeleton. The variation arises mainly due to differences in classification methods, inclusion of teeth and cartilaginous structures, and developmental interpretation.

A comparative analysis of Ayurvedic and modern anatomical descriptions enhances the understanding of classical medical knowledge and supports the integration of traditional concepts with contemporary scientific perspectives.

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