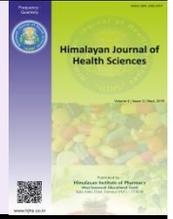


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Review Article

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Physiological Importance of *Asthi* and *Peshi Sharira*: An Ayurveda and Modern Perspective

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Abstract

Asthi and *Peshi* are terms from Ayurveda; they refer to different aspects of the human body. They refer to the skeletal system or the bone structure of body, bones are considered as *Dhatus* that make up the human body. *Asthi Sharira* is responsible for providing support and protection to the body. *Peshi Sharira* refers to the muscular system of body encompasses various types of muscles including skeletal muscles, smooth muscles and cardiac muscles, etc. These systems are responsible for the movement inside the body. Both *Asthi Sharira* and *Peshi Sharira* are essential components of body to provide support, holding capacity, basic skeleton frame, movement and rigidity to physical structure. This article narrates physiological importance of *Asthi* and *Peshi Sharira*.

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1. Introduction

Asthi and *Peshi* are terms rooted in Ayurveda, denoting distinct aspects of the human body. They respectively pertain to the skeletal system or the bone composition of the body, with bones considered as *Dhatus* constituting the human form. *Asthi Sharira* assumes the role of offering structural support and safeguarding the body, while *Peshi Sharira* encompasses the muscular system responsible for internal movement. *Asthi* and *Peshi Sharira* are integral components, ensuring support, stability, basic skeletal framework, and physical mobility, illustrating their physiological significance in the body. (1-3)

2. *Peshi Sharira*

Peshi refers to the *Mamsa Dhatu*, where muscle fibers forms elongated appearance. The *Pitta Yukta Vayu* and *Mamsa* leads to the formation of *Peshi Sharira*. Ayurveda philosopher described total 500 *Peshis* (400 in *Shakha*, 66 in *Koshtha* and 34 in *Greevapratyurdhwa*). Upper limb has 100 *Peshis* and categorized into 12 *Swaroopas*.

Peshi as vital component of the body acts like a sleeve, providing smooth contour to *Sira*, *Snayu*, *Asthi* and *Samdhi*. This wrapping function of *Peshi* contributes to the overall form and stability of the body. In the developmental process of *Peshi*, *Vata Dosha* and *Pitta Dosha* enter the *Mamsa Dhatu*. Together, they play a role in dividing the *Mamsa Dhatu* into its constituent parts, contributing to the formation and organization of *Peshi* within the body. The *Swaroopas* of *Peshis* are categorized into various shapes as depicted in **Figure 1**.

The primary functions of *Peshis* include covering and securing joints, *Siras*, bones and *Snayu*. *Peshi* provides structural support and strength to these elements. This helps to maintain the integrity and stability of the body. Bones are covered by *Mamsa* and nourished by *Siras*. The major muscular parts of body involve muscles such as Trapezius, Rhomboideus major and minor and Latissimus dorsi. Muscles of upper limb include Pectoralis major and Serratus anterior. Muscles associated with shoulder joint includes Supraspinatus, Infraspinatus, Teres major and Subscapularis, etc. (4-6)

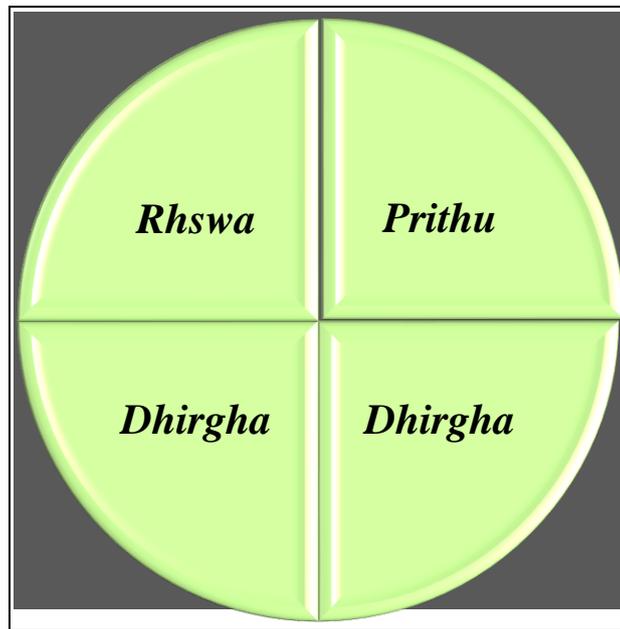


Figure 1. Shape Swaroopa of Peshis

3. Functions of Peshi

The physiological activities of *Peshi Sharira* encompass a wide range of functions for the body's movement and stability, etc. Here are some key physiological activities of *Peshi Sharira*:

- ✓ **Skeletal Muscle Contractions:** Skeletal muscles are responsible for voluntary movements such as walking, lifting objects and running, etc. These muscles contract and relax under conscious control, allowing for precise and coordinated movements.
- ✓ **Posture and stability:** Muscles in the back, abdomen and pelvis play a vital role in maintaining posture and stability. They work together to support the spine, pelvis and other skeletal structures.
- ✓ **Respiration:** The diaphragm, a skeletal muscle, is essential for breathing. When it contracts and relaxes, it creates changes in thoracic volume, facilitating inhalation and exhalation.
- ✓ **Heat Production:** Muscles generate heat as a byproduct of contraction, helping to regulate body temperature. This thermogenic activity is crucial for maintaining a stable internal environment.
- ✓ **Metabolic Regulation:** Skeletal muscles are major sites of glucose uptake and storage. They play a role in glucose metabolism and insulin sensitivity, contributing to overall metabolic health.
- ✓ **Support for Internal Organs:** Muscles surrounding internal organs, such as the heart and digestive tract provide support and facilitate organ function.
- ✓ **Movement of Fluids:** Smooth muscles in blood vessels help to regulate blood pressure and blood flow by constricting or dilating blood vessels as needed.
- ✓ **Muscle Tone:** Muscles maintain a certain level of tension even at rest, known as muscle tone. This tone

is important for posture, joint stability, and readiness to respond to movement commands.

- ✓ **Injury Recovery:** Muscles have a capacity for repair and regeneration, although not as extensive as some other tissues. Muscle tissue can rebuild and strengthen after injury or damage. (3-5)

4. Asthi Sharira:

Asthi Dhatu is representing skeletal system; it is formed within *Mamsa Dhatu* and gives structure and strength to bones. In terms of its *Panchabhautika* constitution, which refers to the composition of the five *Mahabhutas*, *Asthi Dhatu* predominantly consists of *Prithivi* and *Vayu Mahabhuta*. *Asthi Dhatu* inherits qualities like heaviness, strength; solidity and stability are due to the *Prithivi Mahabhutas*. Similarly *Vayu Mahabhuta* provides dryness, lightness, mobility and roughness to the bones.

These elemental qualities make *Asthi Dhatu* tough, dry, hard and rough, etc. These characteristics are essential for providing support and mobility to the body's framework. They also influence stability and integrity of bones, contributing to musculoskeletal functionality. The contribution of *Asthi Dhatu* to the body is significant since *Asthi* playing a foundational role in structural integrity and functionality of the skeletal system. *Asthi* plays an anchor role in supporting functions of ligaments, blood vessels and muscles, etc. This system ensures stability, mobility and integrity of physical frame of body. *Asthi Sharira*, according to Ayurveda includes bones, joints and cartilage. (7-9) The physiology of *Asthi Sharira* involves several key functions as follows:

- ✓ The skeletal system provides structural support to the body and protects vital organs. Bones are composed of minerals and collagen fibers, etc.
- ✓ Joints are crucial for mobility and flexibility. Supported by cartilage and ligaments.

- ✓ Cartilage provides smooth surface for joint movement and ligaments stabilize joints and prevent excessive movement.
- ✓ The skeletal system, along with muscles and joints, facilitates movement, plays role in mineral storage and blood cell formation in bone marrow.
- ✓ *Dehadharana* is main function of body; bones maintain body's shape and posture.
- ✓ *Majjapushti* is another physiological activity of bone in which bone marrow helps in producing blood cells. *Asthi Dhatu* supports this vital function by providing a supportive environment for bone marrow and contributing to the production of healthy blood cells.
- ✓ Bones play a supportive role for muscles by providing attachment points *via* tendons and leverage for muscle movement.
- ✓ *Asthi* serves as a connective tissue, linking various body parts and supports bodily movements and activities.
- ✓ The presence of bones imparts stability, balance and coordination to the body.
- ✓ The structure provided by bones supports muscle attachment, allowing for coordinated movement.
- ✓ Additionally, bones contribute to maintaining proper body posture, alignment and physical integrity to the body.
- ✓ *Asthi* involve in the process of nourishment, support the nervous system, and absorb minerals and other important nutrients. (9-11)

5. Conclusion

Asthi & Peshi holds great significance in Ayurveda as they considered *Dhatus* responsible for maintaining the body's structural framework and providing essential support. They are predominantly composed of *Prithivi* and *Vayu* Mahabhuta, which contribute to their mobility. These structures play crucial role in maintaining body's framework, providing support for organs and facilitating movement and flexibility.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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