



# Physiological aspect of twacha in ayurveda- a review article

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## Abstract

The main principle of Ayurveda is to maintain the health and prevent the diseases by implementation of proper diet and lifestyle regimen according to changes in external environment rather than just doing symptomatic management of the diseases. Twacha is the external covering of the body; it is also called "Spashanendriya" or Twakndriya which forms covering of the body. It plays a great role in perception of sensations like touch, pain, heat, cold etc. Twacha is a Matruja Bhava and it has a predominance of Vayu Mahabhoota in it. The organ genesis of Twacha occurs during the Paka Prakriya of Shukra and Shonita by Agni. Seven types of Twacha are formed as a result of this Paka Prakriya. Various Acharaya mentioned Different types of Twacha. The skin is the first line of defense against the environmental agent and mirror of internal pathology. The skin is developed from the surface ectoderm and its underlying mesenchyme (mesodermal cells). as skin reflects the internal environment of body, it is an important organ of our body.

**Keywords:** Twacha, Ayurveda Physiology, Skin, Modern Physiology

## ➤ Introduction

Skin is the largest organ as well as sense organ in the human body. It is called as Sparshendriya which occupies whole body and Maana (mind) as well.<sup>1</sup> It is not uniformly thick. It's thickness varies according to its site depending upon the function. The average thickness of the skin is about 1 to 2 mm. In the sole of the foot, palm of the hand and in the interscapular region, it is considerably thick, measuring about 5mm. In other areas of the body, the skin is thin. It is thinnest over eyelids and penis measuring about 0.5mm only.<sup>2,3</sup>

Twacha is the result of paka of raktadhatu. Aacharyas have mentioned different layers of skin with its function.

## Etymology

Twacha and charma<sup>4</sup>

## Definitions

The part of the body, which completely covers meda, shonita and other dhatu and gets spreading over, is called twacha<sup>5</sup>

## Origin of the skin

Skin is derived from the matruj bhava among the shadbhavas.<sup>6</sup>

## Skin layers

Our acharyas have mentioned different layers of twacha. Seven layers of skin are formed just like deposition of cream over the cooled milk.<sup>7</sup> they are as follows,

Charak	Udagdhara, asrugdhara, trutiya, Chaturthi, Panchami, Shashti.
Bhel	Udagdhara, asrugdhara, trutiya, Chaturthi, Panchami, Shashti.
Sushrut	Avbhasini, lohita, sweta, tamra, vedini, rohini, mamsdhara.
Sharangdhar	Avbhasini, lohita, sweta, tamra, vedini, rohini,sthula.
Bhavprakash	Avbhasini, lohita, sweta, tamra, vedini, rohini, sthula.
Arundatta	bhasini, lohita, sweta, tamra, vedini, rohini,sthula.

From above, acharya gangadhara clarified that third layer of charaka can be divided in two part i.e. superficial and deep layer. From this discussion we can conclude that the superficial layer and deep layer might be third (sweta) layer and fourth (tamra) layer of shusruta. Astang hrudaya advocated that skin layers are 7 but he did not mention names of layers.

## Colour of the skin:

According to acharya charak, there are prakrut and vikrut color of skin. Prakruta Varna – krushna , shyama, shyamavadata, avadata. Vaikruta varna – neela, shyava, tamra, harita, shukla.<sup>8</sup>

According to acharya Sushrut, colour varies with respect to prakriti and with the effect of mahabhutas especially tejas.<sup>9</sup>

According to acharya Vriddha Vagbhatta, varna of shukra, matura ahara – vihara, desha, kula and teja dhatu are responsible for varna of skin.<sup>10</sup>

Varna of Shukra	Matru Ahara Vihar	Dhatu	Varna of Garbha
Shukla or Grutamandabha	Kshiradi Madhuara Ahara,Udaka Vihara	Teja+Udaka+ Akasha	Gaura
Tailabha	Tiladi Vidahi Ahara	Teja+ Bhu + Vayu	Krushna
Madhwabha	Mishra Ahara	Sarvadhātu Samya	Shyama

## ❖ PHYSIOLOGY OF SKIN AS PER AYURVEDA

- Relation between twacha and dosha:

Vata Dosha	Function as gyanedriya with vata dosha <sup>11</sup>
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Vyan vayu	Secretion of sweat <sup>12</sup>
Udan vayu	color of the skin
Saman vayu	Swedavahi Srotasa
Pitta dosha	provide Prabha and tanuta and mardavata to skin. <sup>13</sup>
Bhrajaka pitta	Prakashana or Deepana i.e. imparting luster to skin. <sup>14</sup>
Kapha dosha	Ropan karma <sup>15</sup>
Tarpak kapha	Tarpan karma

- Relation between twacha and dhatus:

Rasa dhatu	Charak- twak and raktadi dhatu are bahya rogmarga. Chakrapani – twak is being ashrya of ras dhatu , charak has mentioned twak instead of ras.
Rakta dhatu	Sushruta – varna prasadan is the function of rakta.
Mamsa dhatu	Twacha is upadhatu of mamsa.

- Relation between twacha and mala:

Sweda	Maintenance of kleda, twaksnehan, romdharan.
Kesh and loma	Situated at twaka
Twakgata sneha	Mala of majjadhatu.

- Relation between twacha and srotomulam:

Mamsavaha	It is the mul srotas of twak.
Swedavaha	Mula of this srotas depend upon twak.

- Relation between twacha and panchamahabhut:

Pruthvi	Kesha and Loma
Aap	Rasa and Lasika
Tej	Kanti and Varna
Vayu	Sparsha and Samvedna
Akasha	Swead Vahini Nalika and Lomakupa

#### • Functions of Twacha:

- 1) Aavarana - Twacha covers the whole body thus protect it from various external bacteria.
- 2) Lepana - It is most important function of Mamsa Dhatu. Twacha is Upadhatu of Mamsa Dhatu.
- 3) Sparshagyan - Twacha serves as Indriya Adhishtana. It is important sense organ. No sensation can occur without a sense of touch.
- 4) Prakashan -Twacha is the site of Bhrajaka Pitta and this is responsible for Varna as Gaura and Krishna.
- 5) Pachan- Twacha is site for Bhrajak Pitta so any Lepa application on Twacha get absorbed and performs its function.
- 6) Dharana- Twacha performs its Dharana function by holding water capacity in it.

7) Mala Nirharan -The convergence of Sweda occurs through Swedavaha srotasa which opens on Twacha; hence, it is an important organ of excretion for Sweda and Mala.

8) Ushma Niyantana- Through the mechanism of perspiration it also regulates the temperature of body. So, it is an important organ for heat regulation.

#### ❖ PHYSIOLOGY OF SKIN AS PER MODERN:

Skin is the largest organ of the body. Skin covers the external surface of the body. The average thickness of the skin is about 1 to 2 mm.

#### Layers of skin:

Epidermis and Dermis

##### 1. Epidermis:

It is outer thinner layer of skin, composed of epithelial tissue.

It contains 4 cells:

cells	features	Function
Keratinocytes	tough fibrous protein	Protect the skin and underlying tissues from heat, microbes and chemicals
Melanocytes	About 8%	Produce melanin, which contribute to skin color
Langerhans cell	Arises from red bone marrow and migrate to epidermis	It gives immune response
Merkel cells	Deepest layer of epidermis	Detect touch sensation

Layers of epidermis:

- 1- Stratum corneum: outermost layer, consists of 25-30 layers of flattened dead keratinocytes which are replaced by cells from deeper layer. Contains keratin, it is effective water repellent.
- 2- Stratum lucidum: present only in the thick skin of areas such as fingertips, palms and soles. Contain keratin and thickened plasma membranes.
- 3- Stratum granulosum: 3-5 layers of flattened keratinocytes, that are undergoing apoptosis. The cells in this layer are the presence of darkly staining granules of a protein called keratohyalin.
- 4- Stratum spinosum: cells of these layer possess some spine like protoplasmic projections.by these projections, the cells are connected to one another providing strength and flexibility to the skin.
- 5- Stratum germinativum: deepest thick layer of epidermis. New cells are constantly formed by mitotic division. And newly formed cells move continuously towards the stratum corneum.

##### 2. Dermis:

It is the inner thicker layer of the skin. It is a connective tissue layer made up of collagen fibers, fibroblasts and histiocytes.

Layers of dermis:

- 1- Papillary layer: it is a superficial layer. It contains blood vessels, lymphatics and nerve fibers. It has some pigment containing cells known as chromatophores.

2- Reticular layer: it is made up of reticular and elastic fibers. These fibers are found around the hair bulbs, sweat glands and sebaceous glands. subcutaneous tissues are present below the dermis, which connects skin with internal structures of body.

- Color of skin: depends upon pigmentation of skin and hemoglobin in the blood.
- Glands of skin: sebaceous and sweat glands.
- **Functions of skin:**
  - Protective function from bacteria and toxic substances, mechanical blow, uv rays.
  - Sensory function: it has many nerve endings, which form the specialized cutaneous receptors.
  - Storage function: skin stores fat, water, chloride and sugar.
  - Synthetic function: vitamin D3 is synthesized in skin by the action of UV rays from sunlight on cholesterol
  - Regulation of body temperature: skin are playing active part in heat loss by secreting sweat.
  - Regulation of water and electrolyte balance: by excreting water and salts through sweat.
  - Excretory function: waste materials like urea, salts, fatty substances through sweat.
  - Absorptive function: absorbs fat soluble substances.
  - Secretory functions: skin secretes sweat through sweat glands and sebum through sebaceous glands.

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