

**CONCEPT OF BRAJAKA PITTA - A PHYSIOLOGICAL UNDERSTANDING****Kamath Nagaraj**Assistant, Professor, Department of Shareera Kriya, Karnataka Ayurveda Medical College,  
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**ABSTRACT**

*Dosha, Dathu, Mala* are the basis of the body. In normalcy, *Dosha* will be performing their own functions and individual *Dosha* will be having their own specific site. The *Visesha Sthana* of *Brajaka Pitta* is said to be *Twak*. The main function of *Brajaka Pitta* is *Twak Brajana* i.e responsible for complexion; it is also responsible for the absorption and processing of various medicaments applied over the skin. Melanin, hemoglobin, and carotene are three pigments that impart a wide variety of colors to skin. The amount of melanin causes the skin's color to vary from pale yellow to reddish brown to black. Carotene may be deposited in the skin after eating large amounts of carotene-rich foods that the skin actually turns orange, which is especially apparent in light skinned individuals. Pigmentation process will be under the control of hormones like ACTH, MSH. The absorption of water-soluble substances through the skin is negligible, but certain lipid-soluble materials do penetrate the skin. The functions of *Brajaka Pitta* can be related to the functions of melanin, hemoglobin, Carotene and hormones like ACTH, MSH which is responsible for the complexion of the skin. The various enzymes present in the skin which are responsible for absorption and further processing of the drugs applied over the skin can also be related to the function of *Brajaka Pitta*

**Keywords:** *Brajaka, Pitta, Shareera, Kriya, Melanin, Hormones.***INTRODUCTION**

The individual is an epitome of the universe. All the material & spiritual phenomenon of the universe are present in the individual. Similarly all those resent in the individual are also contained in the universe. <sup>[1]</sup> Originating in cosmic consciousness, this wisdom was intuitively received in the hearts of the ancient scholars. They per-

ceived that consciousness was energy manifested into the five basic principles or elements. Man is microcosm of the nature and so the five basic elements present in all matter also exists within each individual. Thus out of the womb of the five elements, all matter is born. The five basic elements exist in all matter. Water provides the classic example: - the solids of iced water are mani-

festation of the *PrithviMahabhuta* (earth principle). Latent heat in the ice (*Agni*) liquefies it, manifesting into *JalaMahabhuta* (water principle). And then eventually it turns into steam expressing the *VayuMahabhuta* (air principle) the steam disappears into *Akasha* or space.<sup>[2]</sup> *Bhuta* is that which is not born out of something, but out of which something is born. It is the material cause of substances in the world. When we say *Bhuta* we mean that subtle level of existence, whereas *Mahabhuta* refers to gross level of existence.<sup>[3]</sup> *Panchikarana* is the process through which invisible *Bhutas* combine with each other and form the visible *Mahabhutas* in such a way that all *Bhutas* are present together in each *DrishyaBhuta* in varying degrees of predominance. Thus in the physical world everything is a combination of *PanchaMahabhutas* & we cannot see them independently.<sup>[4]</sup>

*Dosha, Dathu, Mala* together form the basis of the body.<sup>[5]</sup> The balance of these entities represents the healthy state and imbalance will cause various diseases.<sup>[6]</sup> In normalcy, *Dosha* will be performing their own functions and individual *Dosha* will be having their own specific site. By mentioning the various *Sthana* of the each *Dosha* the different function performed by individual *Dosha* in different sites has been emphasized. The sub-types of *Dosha*, its location and function have also been mentioned.<sup>[7]</sup>

Regarding the *Sthana* of various *Dosha* authors have different opinion. Later authors have added some more *Sthana* of *Dosha*. For example, ears among the location of *Vata*; umbilicus, eyes and skin among the location of *Pitta*; *Kloma*, nose, tongue among the location of *Kapha*.<sup>[8]</sup>

There are five types of *Pitta* namely *Pachaka, Ranjaka, Sadhaka, Alochaka, Brajaka*. The *Visesha Sthana* of *Brajaka Pitta* is said to be *Twak*. The main function of *Bra-*

*jaka Pitta* is said to be *Twak Brajana* i.e responsible for complexion; it is also responsible for the absorption and further processing of various medicaments applied over the skin.<sup>[9]</sup>

Brief Physio- anatomical understanding of the skin with reference to pigmentation and enzymatic reactions is necessary to understand physiology of *Brajaka Pitta*.

The skin (also known as the cutaneous membrane or integument) covers the external surface of the body and is the largest organ of the body in both surface area and weight. In adults, the skin covers an area of about 2 square meters (22 square feet) and weighs 4.5–5 kg (10–11 lb), about 16% of total body weight. It ranges in thickness from 0.5 mm (0.02 in.) on the eyelids to 4.0mm (0.16 in.) on the heels. However, over most of the body it is 1–2 mm (0.04–0.08 in.) thick. Structurally, the skin consists of two main parts. The superficial, thinner portion, which is composed of epithelial tissue, is the epidermis. The deeper, thicker connective tissue portion is the dermis. Deep to the dermis, but not part of the skin, is the subcutaneous layer. Also called the hypodermis, this layer consists of areolar and adipose tissues. Fibers that extend from the dermis anchor the skin to the subcutaneous layer, which in turn attaches to underlying fascia, the connective tissue around muscles and bones.<sup>[10]</sup>

The epidermis is composed of keratinized stratified squamous epithelium. It contains four principal types of cells: keratinocytes, melanocytes, Langerhans cells, and Merkel cells. About 8% of the epidermal cells are melanocytes, which develop from the ectoderm of a developing embryo and produce the pigment melanin. Their long, slender projections extend between the keratinocytes and transfer melanin granules to them. Melanin is a yellow-red or brown-black pigment that contributes to skin color and absorbs damaging ultraviolet (UV) light. Once inside keratinocytes, the melanin granules cluster to form a protective veil over the nu-

cleus, on the side toward the skin surface. In this way, they shield the nuclear DNA from damage by UV light. Although their melanin granules effectively protect keratinocytes, melanocytes themselves are particularly susceptible to damage by UV light.<sup>[11]</sup>

Melanin, hemoglobin, and carotene are three pigments that impart a wide variety of colors to skin. The amount of melanin causes the skin's color to vary from pale yellow to reddish brown to black. The difference between the two forms of melanin, pheomelanin (yellow to red) and eumelanin (brown to black), is most apparent in the hair. Melanocytes, the melanin producing cells, are most plentiful in the epidermis of the penis, nipples of the breasts, area just around the nipples (areolae), face, and limbs. They are also present in mucous membranes.

Because the number of melanocytes is about the same in all people, differences in skin color are due mainly to the amount of pigment the melanocytes produce and transfer to keratinocytes. In some people, melanin accumulates in patches called freckles. As a person ages, age (liver) spots may develop. These flat blemishes look like freckles and range in color from light brown to black. Like freckles, age spots are accumulations of melanin. A round, flat, or raised area that represents a benign localized overgrowth of melanocytes and usually develops in childhood or adolescence is called a nevus, or a mole.<sup>[12]</sup>

Melanocytes synthesize melanin from the amino acid tyrosine in the presence of an enzyme called tyrosinase. Synthesis occurs in an organelle called a melanosome. Exposure to ultraviolet (UV) light increases the enzymatic activity within melanosomes and thus increases melanin production. Both the amount and darkness of melanin increase upon UV exposure, which gives the skin a tanned appearance and helps protect the body against further UV radiation. Melanin absorbs UV radiation, prevents damage to DNA in epidermal cells, and neutralizes free

radicals that form in the skin following damage by UV radiation. Thus, within limits, melanin serves a protective function. As you will see later, exposing the skin to a small amount of UV light is actually necessary for the skin to begin the process of vitamin D synthesis. However, repeatedly exposing the skin to a large amount of UV light may cause skin cancer. Atan is lost when the melanin-containing keratinocytes are shed from the stratum corneum.<sup>[13]</sup>

Dark-skinned individuals have large amounts of melanin in the epidermis. Consequently, the epidermis has a dark pigmentation and skin color ranges from yellow to reddish-brown to black. Light-skinned individuals have little melanin in the epidermis. Thus, the epidermis appears translucent and skin color ranges from pink to red depending on the oxygen content of the blood moving through capillaries in the dermis. The red color is due to hemoglobin, the oxygen-carrying pigment in red blood cells. Carotene is a yellow-orange pigment that gives egg yolk and carrots their color. This precursor of vitamin A, which is used to synthesize pigments needed for vision, is stored in the stratum corneum and fatty areas of the dermis and subcutaneous layer in response to excessive dietary intake. In fact, so much carotene may be deposited in the skin after eating large amounts of carotene-rich foods that the skin actually turns orange, which is especially apparent in light skinned individuals. Decreasing carotene intake eliminates the problem. The absorption of water-soluble substances through the skin is negligible, but certain lipid-soluble materials do penetrate the skin. These include fat-soluble vitamins (A, D, E, and K), certain drugs, and the gases oxygen and carbon dioxide. Toxic materials that can be absorbed through the skin include organic sol-

vents such as acetone (in some nail polish removers) and carbon tetrachloride (dry-cleaning fluid); salts of heavy metals such as lead, mercury, and arsenic; and the substances in poison ivy and poison oak. Since topical (applied to the skin) steroids, such as cortisone, are lipid-soluble, they move easily into the papillary region of the dermis.<sup>[14]</sup>

**AIMS & OBJECTIVES:** To critically analyze the *Brajaka Pitta*

**MATERIALS & METHODS:** The *BruhatTrayi* were scrutinised regarding the references for the *Guna* and *Karma* of the *Brajaka Pitta*. Later, physiologico-anatomical aspects of the skin with reference to pigmentation and absorption were studied from modern physiology books. Later, supportive correlation was done between *Ayurvedic* and modern views to build valid and reliable hypothesis regarding *Brajaka Pitta* in relation to the various anatomical and physiological aspects of the Skin.

## DISCUSSION

There are five types of *Pitta* namely *Pachaka*, *Ranjaka*, *Sadhaka*, *Alochaka*, *Brajaka*. The *ViseshaSthana* of *Brajaka Pitta* is said to be *Twak*. The main function of *Brajaka Pitta* is said to be *Twak Brajana* i.e responsible for complexion; it is also responsible for the absorption and further processing of various medicaments applied over the skin.

Melanin, hemoglobin, and carotene are three pigments that impart a wide variety of colors to skin. The amount of melanin causes the skin's color to vary from pale yellow to reddishbrown to black. Dark-skinned individuals have large amounts of melanin in the epidermis. Consequently, the epidermis has a dark pigmentation and skin color ranges from yellow to reddish-brown to black. Light-skinned individuals have little melanin in the epidermis. Thus, the epidermis appears translucent and skin color ranges from pink to red depending on the oxygen content of the blood moving through capillaries in

the dermis. The red color is due to hemoglobin, the oxygen-carrying pigment in red blood cells. Carotene is a yellow-orange pigment that gives egg yolk and carrots their color. This precursor of vitamin A, which is used to synthesize pigments needed for vision, is stored in the stratum corneum and fatty areas of the dermis and subcutaneous layer in response to excessive dietary intake. In fact, so much carotene may be deposited in the skin after eating large amounts of carotene-rich foods that the skin actually turns orange, which is especially apparent in light skinned individuals. The amount of pigmentation is under the control of few hormones like ACTH, MSH.

The absorption of water-soluble substances through the skin is negligible, but certain lipid-soluble materials do penetrate the skin. These include fat-soluble vitamins (A, D, E, and K), certain drugs, and the gases oxygen and carbon dioxide. Since topical (applied to the skin) steroids, such as cortisone, are lipid-soluble, they move easily into the papillary region of the dermis.

The functions of melanin, hemoglobin, Carotene and hormones like ACTH, MSH which is responsible for the complexion of the skin can be related to the functions of *Brajaka Pitta*. The various enzymes present in different layers of skin which are responsible for absorption and processing of the drugs can also be related to the function of *Brajaka Pitta*

## CONCLUSION

There are five types of *Pitta* namely *Pachaka*, *Ranjaka*, *Sadhaka*, *Alochaka*, *Brajaka*. The *Visesha Sthana* of *Brajaka Pitta* is said to be *Twak*. The main function of *Brajaka Pitta* is said to be *TwakBrajana* i.e responsible for complexion; it is also responsible for the absorption and further processing of various medicaments applied over the skin.

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