

CONCEPTUAL STUDY OF EFFECT OF LIFESTYLE HABITS ON INTEGUMENTARY
SYSTEM WITH SPECIAL REFERENCE TO TWAK VIKARA (SKIN DISORDER)

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Article Received on 12/03/2024

Article Revised on 02/04/2024

Article Accepted on 22/04/2024

ABSTRACT

It's known that skin is mirror to human health. Skin is nourished from inside and diet is a factor that positive or negatively reflects on skin. It is the largest organ and is interconnected with all organs so any systemic disorder can affect the health of epidermis. Lifestyle can play a significant role in maintain healthy and glowing skin. whereas in case if anyone is suffering from any nutritional deficiency then that is also visible on the skin, as any vitamin deficiency can make skin look dull, pale, dry and can also lead to breakouts in many. So, a healthy and balanced diet consisting of right amount of fat, carbohydrates, proteins, vitamins, minerals and trace elements is very important for a healthy skin, hair, nails. According to ancient Acharyas and texts skin derived from *Mansa dhatu* and its *nourishment* depends on *Rasa* which can be vitiated due unhealthy diet and psychological factor.

KEYWORDS: *Twaka vikar*, skin, integumentary system.

INTRODUCTION

Twak (skin)

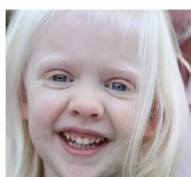
एवं प्रवृत्तस्य शुक्र शोणितस्य अभिप्रपच्यमानस्य।

क्षीरस्य एव सन्तानिकाः सप्त त्वचो भवन्ति।^[1] (सु.शा.4/4)

Acharya *Sushrut* mentioned that after the fusion of gametes (*Shukra* and *Shonit*) the formed product goes into process of transformation, metabolism and forms 7 layers of Skin (*Twacha*) as cream forms on the surface of milk when it is heated. This shows the impact of healthy gamete for the formation of healthy skin.

If there is defect in *shukra* and *shonit* = mutation in genes, causes skin disease like following- **Ichthyosis vulgaris**-inherited disease representing dry itchy thick rough with brown and grey scales.^[2]

Albinism-Inherited condition leads to light skin, hair and eyes due to less melanin production.^[3]



Albinism



Ichthyosis vulgaris

Acharya Charak says that *Twacha* derived as *Updahatu* of *mamsa*, During the formation of *Poshya* and *poshak mamsa dhatu* by the action of *mamsa dhatwagni* (metabolic fire of *Mamsa*) *Updahatu Vasa* and *Twacha* are formed.^[4]

Vagbhata described the formation of *Twacha* due to *Paka* of *Rakta Dhatu* by its *Dhatvagni* in the *foetus*. After *Paka*, it dries up to form *Twacha*, just like the deposition of cream over the surface of boiled milk.^[5]

Vruddha Vagbhata has asserted that *Rakta Dhatu* plays principle role in the manifestation of *Twacha*.^[6]

Twacha Utpatti Kala* is different according to different *Samhita

According to *Yagyavalka Smruti* *Twacha* is formed in 4th month of foetal life.

According to *Vagbhata*,^[7] it formed in 6th month of foetal life.

Charaka,^[8] opines that *Mamsa Upchaya* initiation is in 5th month of foetal life and *Varna Utpatti* at 6th month so formation of *Twacha* will be completed up to 6th month of foetal life.

As per modern medical science all layers of epidermis is formed in 4th month of intrauterine life. Process of keratization is seen at 23 weeks.

Layers of skin according to different Acharyas

Charaka	Sushrut	Ashtang Hrudaya	Ashtang Samgraha	Sharagdharma	Bhel	Bhav Prakash
Udakdhara	Avabhasini	Prathma	Avabhasini	Avabhasini	Udakdhara	Avabhasini
Asrukdhara	Lohita	Dwitiya	Lohita	Lohita	Asrukdhara	Lohita
Trutiya	Shweta	Trutiya	Shweta	Shweta	Trutiya	Shweta
Chaturtha	Tamra	Chaturthi	Tamra	Tamra	Chaturtha	Tamra
Panchma	Vedini	Panchmi	Vedini	Vedini	Panchma	Vedini
Shashti	Rohini	Shashti	Rohini	Rohini	Shashti	Stula
	Mansadhara		Mansadhara	Stula	Udakdhara	

Kesha

^[9]In Ayurveda, the origin of hair is intricately connected to the seven primary body elements or *Dhatu*s, hair on the scalp, body, and nails emerge as Mala during the process of *Dhatu Nirmana*. Ancient texts emphasize that hair attributes, including colour and quantity, are influenced by the paternal lineage which being classified as *Pitruja Bhava*.

^[10]Hair categorizes as *Parthiva Dravya* due to its qualities such as steadiness, heaviness and roughness, etc. The close connection between hair and skin is apparent, as a person's healthy skin is often accompanied by deep rooted, fine, lustrous and soft hair.

The stage of hair formation in a foetus, known as *Keshopatti Kala*, as per^[11] Charaka this stage occurs during the 7th month of gestation, while Vagbhatta suggested that it occurs at the 6th month.

The nourishment and development of hair, termed as *Kesha Poshana*, according to Acharya Charaka ingested food transforms into *Ahara Rasa*, which divides into *Sarabhaga* and *Kitta*.

The waste matter serves as the foundation for producing and nourishing various aspects, including urine, sweat and hair.

^[12]Maharshi Sushruta adds that *Kesha* derived substances from the terminal parts of *Dhamanis* attached to *Romakoopa* (hairfollicle).

Ayurveda contends that the *Teja Mahabhuta* is responsible for hair color. *Bhrajaka Pitta*, a manifestation of *Teja Mahabhuta*, combines with *Prithvi* and *Vayu Mahabhutas* to produce black hair color.

Hair color varies from person to person, dictated by their *Prakriti*; *Vata Prakriti* leads to dry and low-density hair, *Pitta Prakriti* results in yellowish hair, and *Kapha Prakriti* contributes to thick, black and curly hair.

^[13]**Prashastha kesha lakshanas**

Susnighdhta-Unctuous

Mruduta-soft

Sookshmata-slender

Naikmoolatwa-Not having single root

Asthiratwa- attached strongly to the follicle.

Alopecia

Aerate is common autoimmune disorder that leads to sudden unpredictable hair loss.

Symptom-Patchy hair loss

In spite of being autoimmune disease, practically it is treated with multivitamin medicine and ointment containing immunosuppressant drugs. which suggest that *Ahara rasa* is responsible for nourishment and development of hairs.



Nails^[14]

Vagbhata described *Utatti* of *Nakha* in sixth month of *Garbha avastha*. *Nakha* is developed by *Asthiposhak ansha* as *Mala* part of *Asthi dhatu*.

Swarup:- Charaka has described *Swarup* of *Nakhas* are *Stula*, *Sthira*, *Murta*, *Guru*, *Khar*, *kathin*.

Nakha parikshan according to Dhatu vrudhi kshaya

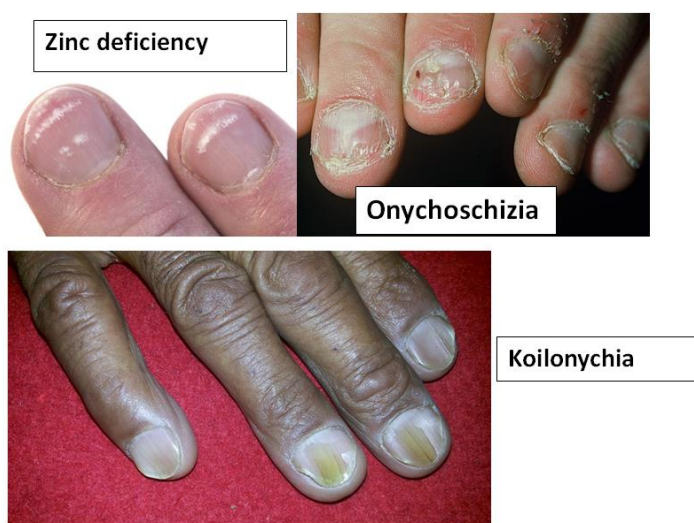
- In *Astidhatu vrudhi* increased *Nakha* (*Nakha ativrudhi*) are seen.
- In *Asthikshaya* fragile (*Asthibhangur*) nails are seen.

Nakha parikshan according to Datu sarta

- In *Raktasarta* (*Rakta varn*) red coloured nails are seen.
- In *Medasarta* *Snigdha Nakha* is seen.
- *Asthisarta* (*Brihit*) big *Nakha* is seen.

Diseases of nails

- **Onychoschizia** – brittle, thin splitting nails. May be due to iron deficiency.
- **Scattered white spot on the nails** -can signify zinc deficiency.
- **Brown colour**-Vitamin b12 deficiency.
- **White colour**-Anaemia
- **Pink, red**-Malnutrition
- **Koilonychia** - Indented nails (spoon shaped brittle nails) -Iron deficiency anaemia.

***Panchabhautikta Of Twacha^[15]***

- *Stula*, *Sthira* and *Murtimant Guna* is due to *Prithvi Mahābhuta*.
- *Mrudu*, *Snigdha Twacha* is due to *Apya Mahabhuta*.
- *Teja Mahabhuta* is responsible for *Varna* of skin.
- *Vayu Mahabhuta* is responsible for sensation of pain, temperature and pressure.
- The Pores of *Loma* and *Swedavaha Strotas* are due to *Aakash Mahabhuta*.
- *Twacha* is mainly *Parthiva* but also shows characters of other *Mahabhuta*.^[16]

Relation of integumentary system with Dosha

✓ According to *ayurveda* each and every cell of body is made up of *Panchmahabuta* and *Tridsoha*. Perhaps the site of these 3 *doshas* (*Vata*, *Pitta*, *Kpaha*) are mentioned according to the unique function they execute.^[17]

- **Site of predominance of Vata dosha**-*Pakwashay*, *Kati*, *Sakthi*, *Shotra*, *Asth*, *Sparshanendriya* (which have perception of Touch i.e *Twacha*)

All metabolic process cell cycle, cell motility, secretion & excretion of molecules even the circulation of blood all Movements and momentary function of body is due to

Vata i.e *Rasa vikshepan* (Carrying *Rasa* as nutrient to whole body) which is important for nourishing Skin.

- **Site of predominance of Pitta**- *Nabhi*, *Amashaya*, *Sweda*, *Lasika*, *rudhir*, *Rakta*, *Druk*, *Sparshan* (*Twacha*). *Bhrajak pitta* has special site of predominance i.e Skin and responsible for giving good colour, complexion, texture and luster to the skin.

- **Site of Predominance of Kapha**-*Amashaya*, *Hridaya*, *Urah*, *Shira*, *Sandhi*.

But *Tarpak Kapha* which resides in *Masthishka* (brain) nourishes *Dnyanedriyas* (organ of sensation) which includes *Twacha* – organ of perception of touch.

- **Relation of Inteumentary system with Dhatu**

Rasa is a First *Dhatu* formed after conversion of *Ahara Rasa* into *Saar Bhag* (Essential product for body). And it nourishes whole body at tissue level.

Any vitiation in *Rasa dhatu* immediately reflects on skin.

- For example- Symptoms of **Dehydration**- Lack of radiance with intense persistent tightness, itchy, white patches.

✓ ^[18]**While explaining Dhatu Sarata -Rasa sarata = Twak sarata**

- Person with *Uttam Rasa Sarata (Twak Sarata)* has following qualities-
- *Roma snigdhatata*-unctuousness or oiliness around the root of hairs and skin.
- *Roma shlakshanata*-Smoothness of body hairs and skin.
- *Shlakshna twak*-smooth skin, *mrudu twacha*- soft skin.
- *Prasanna twak* - Clean skin, *Sukshama twak*-Minuteness of skin
- *Gambhir roma*—Deep rooted hair follicles.
- *Sukumara*-Tender and delicate skin, *Prabha*- Good complexion of skin.
- *Suprasanna twak*- Pleasant attractive skin.
- This are all unique functions of rasa in healthy state- This clearly suggest that *Rasa* has great impact on whole integumentary system.

✓ ^[19]**Rakta saara person**

- *Shrimadabhrajishnu*—person having radiant glowing skin.
- *Varna Prasadana* function is performed by *Rakta Dhatu*.
- ^[20]*Vishuddha Rakta purusha- Prasanna varna* – healthy and glowing complexion of skin.

✓ *Mulasthan of Mamsavaha Strotas is Twacha and also Upadhatu of Mamsa Dhatu is Twacha function of mamsa Dhatu and Twacha is same that is to cover or lepana.*

✓ ^[21]**Meda sara purusha**- Snigdha *Kesha*-oily shining unctuous.

- ✓ *Asthi dhatu* has great importance in *kesha formation and growth* –
- ***Kesha, Nakha* – Mala of *Asthi*** (waste product of bone tissue) – According to *Charak*
- ***Kesha* – *Updhatu of majja*** (Sub tissue of bone marrow)-According to *Sharangdhara*.

• *Asthi dhatu and kesha* relation are clinically proved
 ✚ **For example**- when there is significant hair fall in patient Ayurvedic clinician gives *Asthiposhak Vati* with other medicine which have great results.

✚ Even modern practitioner also gives Vitamin D in treatment of hair fall which is helpful in formation of healthy bones and also helps to grow hairs.

^[22]**Supplements for beautiful skin-**

- **Biotin**

This vitamin helps to strengthen hairs and nails, but it also gives skin a healthy glow. Natural sources- eggs, salmon, avocados.

- **Collagen**

Protein essential for keeping the skin look youthful and plump, improves elasticity reduces wrinkles and fine lines, promotes healthy hairs and nails.

Sources-Bone broth, dark leafy greens and citrus fruit.

- **Vitamin A**

Vitamin A represents a group of fat-soluble retinoids that includes retinol, retinal, and retinyl esters. This vitamin serves many roles in the body: it is critical for vision, involved in immune function, and is necessary for cellular growth and differentiation. Vitamin A exists in the diet as preformed vitamin A (from animal sources) and as provitamin A carotenoids (sourced from plants). Both sources of vitamin A must be metabolized intracellularly to their active forms (retinal and retinoic acid).

It is important for cell turnover and skin repair.

Sources-Sweet potatoes, carrots and spinach

- **Vitamin C**

Protect skin from free radicle damage and boosts collagen Synthesis for youthful complexion.

High intake of vitamin c associated with lower risk of wrinkles and photoaging (sun damage) and protect from other environmental stressors.

Supplemental Vitamin C = beneficial for **thin** skin.

Sources-All citrus fruits, bell papers, broccoli, brussels sprouts

- **Vitamin E**

This vitamin helps to keep skin hydrated and looking plump.

Sources-Nuts, seeds, leafy green vegetables

- **Omega fatty acid**

These healthy fats reduces inflammation and keeps skin moisturized with healthy. Protect skin from free radicle damage and also help in not only growing new hair but also ensures that current growth is not hampered.

Sources-Fish, flaxseeds, chia seeds

- **Zinc**

Essential for healthy skin, as it helps to promote cell turnover and healing.

Sources-Oysters, pumpkin seeds, beans.

And this all supplements nourishes *Rasa dhatu* indeed keeping skin nourished.

If this vitamins are deficient in body it can lead to many skin conditions.

Exercise

Exercise increases blood flow which is critical for delivery of oxygen and nutrition to skin in turn promotes

collagen production and also essential for the formation of new skin cells.

- Improved Blood Flow to Nourish Cells
- Removes toxins through sweat
- Removes stress and improves overall health of body.

Effect of stress on integumentary system

गुरु शीतम् अति स्निग्धम् अति मात्रं सम्नताम्।

रस वाहीनि दुष्यन्ति चिन्त्यानां च अति चिन्तनात्॥

[23] च.वि.५/१३

As mentioned above *Rasa* formed after process of digestion nourishes skin and Vitiated *rasa* can impact health of our dermis (layer of skin).

Acharya charak explained the causes of vitiation of this *Rasa* and one of the important cause is *Ati chintanat i.e Stress*

Chronic stress affect *Rasa* and indeed hamper skin formation and nourishment.

Our brain and skin are intimately linked, and they communicate with each other. This means that when we experience chronic stress from work, relationships or current events, the skin is both a target and a source of stress hormones, which can make the skin more vulnerable to itch, inflammation, irritation, and infection as the body's largest organ.

The skin often reflects what's happening inside your body. Stress can cause increased inflammation, slow down wound healing, and negatively impact skin conditions.

Glands produce more oil when under stress, which can cause acne to worsen in people who are prone to outbreaks. Stress can also be a trigger for skin conditions like psoriasis and eczema, causing the conditions to flare-up.

Stress can have a large impact on how our skin ages. Stress hormones break down the collagen and elastin in skin and interfere with rejuvenation, which can speed up the aging process causing more fine lines and wrinkles.

The hair and its growth are also affected by stress by contributing to hair thinning and hair loss. While most stress-induced hair loss is temporary, it's important to address it quickly to prevent irreversible damage.

MATERIAL AND METHODS

- Descriptions were collected from standard *ayurvedic* literature (*samhitas*) and recent researches.
- Papers related to topic concern research papers were referred.
- References of seminars and lectures from internet are taken.

DISCUSSION

- The quality of health of skin are affected by genetics, age and more importantly lifestyle habits. Healthy lifestyle results in radiant and youthful skin but unhealthy leads to dull and damaged skin. Healthy diet, Exercise, and sufficient sleep is important for healthy skin.
- [24] Beauty sleep is not just a myth, Sleep in proper time and for proper period necessary for skin to heal itself from day damage. whole body goes through number of repairing and restoring process these processes influence elements of physical appearance including skin and hair.

[25] As mentioned in *charak vimansthan 5/14*

- Causes of Vitiation of *Rakta dhatu*-
- *Vidaahi anna paana* - foods and drinks which cause burning sensation after their consumption (corrosive foods and drinks), Spicy foods
- *Snigdha aahara* - oily foods
- *Ushna aahara* - hot foods
- *Drava aahara* - liquid foods
- *Aatapa* - exposure to sunlight
- *Anala* - exposure to fire
- Blood tissue is the second in the sequence of tissue formation. Its vitiation often leads to disorders related to skin and underlying tissues. Blood (*Rakta*) is directly related with *Pitta Dosh*.

[26] As explained in च.सू. २८/११-१३

- *Kushta* - skin diseases, leprosy
- *Visarpa* - herpes
- *Neelika* - blue colored raised eruptions on the skin of face, cyanosis, blue moles
- *Vyanga* - freckles
- *Piplu* - port wine mark
- *Tilakalaka* - black moles
- *Mashaka* - painless, hard, elevated mole
- *Dadru* - tinea, ringworm infestation
- *Charmadala* - peeling of skin
- *Shwittra* - leucoderma, vitiligo
- *Pama* - scabies, itching in groin
- *Kotha* - urticaria
- *Mandala* - red colored elevated patches over the skin
- *Indralupta* - circular patchy balding over the scalp, alopecia

- [27] If blood tissue is properly formed in terms of its quality and quantity, it helps in the formation of good quality and quantity of its next tissue i.e. muscle tissue. It circulates in healthy way all through the body providing nutrition and oxygen to all the cells, hence sustaining and supporting all life functions.
- So whenever there is infected wound or skin conditions, blood purifier are used in the treatment, because if circulating blood is not well formed it will not able to nourish tissues, skin, hair roots properly and this leads to diseases of skin and hairs as seen above

- Deficiencies of vitamin B-6, B-12, biotin, vitamin D, or vitamin E can contribute to premature greying.

✚ **Pityriasis alba** – patchy skin leaving areas of hypopigmentation.



- Vitamin deficiency in children can cause this disease. Patient is treated with multivitamin medicine and some moisturizing and steroidal cream for local application. Diet advice for this patient – leafy vegetables, papaya (2 times a week), almonds, dates.
- Chronic stress may indeed contribute to greying hair by causing DNA damage and reducing the supply of pigment-producing cells in hair follicles. Stress can also cause your hair to fall out.
- Another type of stress, known as oxidative stress, may also play a role in grey hair. Oxidative stress (when cell-damaging free radicals inhibit the body's repair processes) may affect pigment-producing cells
- People who have hypothyroidism, a condition that occurs when your thyroid gland doesn't produce enough thyroid hormones, might notice increased hair shedding and a change in hair appearance
- If anyone suddenly noticing a lot more hair in your hairbrush or on your shower floor, this could be a sign that your body has low iron stores, or anaemia.

hyperproliferation, abnormal differentiation of epidermal keratinocytes.

And the main cause of trigger of psoriasis observed in day today practices is Stress and alcohol. At the same time, a worsening of psoriasis symptoms can cause further stress. The complex relationship between stress and psoriasis can make it difficult to treat.

Chronic stress has long been associated with elevated blood levels of proinflammatory cytokines.

Proinflammatory cytokines—immune-system molecules that increase inflammation causing psoriasis.

Studies of skin samples show elevated cytokine levels in psoriatic plaques compared to healthy skin tissue. There is also a connection between blood levels of cytokine and the severity of a psoriasis flare-up.

Symptoms of psoriasis are caused by a cytokine storm that prompts an over-production of new skin cells.

For example-Psoriasis

^[28]Normally new skin is formed after 28 days in humans but in Psoriasis this process is fastened due to abnormal



CONCLUSION

Skin is largest organ of body and it is nourished by all (*Dhatus*) tissue of the body which indeed made with metabolic process on food.

Glowing and healthy skin is sign of good quality *Rakta* and *Rasa dhātu* while healthy hairs is a sign of good quality of *Asthi dhātu*. And nourishment of all dhatus occurs in *Dhātu Parinaman kala* (metabolic process), *Rasa* nourishes *Rakta*, *Rakta* nourishes *Mansa* and process goes further. *Dhatus* get nourished by *Ahara rasa*, which indeed concludes that development of skin & hairs depend on *Ahar* (diet).

Exercise and sleep cycle have impact on overall health of person, during sleep our body repairs and regenerate cells, lack of sleep decreases collagen production which leads to wrinkles and sagging skin. Exercise helps to regulate production of hormone also regulates blood flow to scalp, which is necessary for health of hairs.

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