

**“SINGLE ARM CLINICAL STUDY TO EVALUATE  
EFFICACY OF BRIHATYADI TAIL NASYA ALONG  
WITH KSHIRPRIYAL FACE CREAM TOPICAL  
APPLICATION IN MUKH VALI WITH SPECIAL  
REFERANCE TO FACIAL WRINKLES”**

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WRINKLES”**

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## INTRODUCTION

*Ayurveda* defines "*Dirghayu*" or longevity as having a perfect balance of the body, mind, and soul. Without this balance, a person cannot experience the true benefit of longevity, which is a state of ongoing happiness and peace. One has to be in excellent health to pursue and realise these fundamental life objectives.<sup>[1]</sup> *Vaya* has been methodically categorised by *Ayurveda* into three main categories: *Baala*, *Madhyama*, and *Vruddha*. Geriatrics have been given attention, and *Ayurveda* has made distinctive contributions to the treatment of *Jara vyadhi*. *Jara* is correctly positioned among the *Acharyas*.<sup>[2]</sup>

*Twacha* is measured as *updhatu* of *mamsadhatu*<sup>[3]</sup>, *Twacha* is one among the five *gyanendriyas*<sup>[4]</sup>, It is a base of *sparshanendriya*. *Twacha* has several views and counterviews regarding *twachauttapati*, *twachastara* and concomitant skin disorders. Skin, the largest organ of human body<sup>[5]</sup>, *Twachapareeksha* is also explained among eight tools of *Ashtavidha pareeksha*.<sup>[6]</sup> *Charaka* describes that there is a causative factor for the manifestation of a being but there is no cause for the cessation of this manifestation, since death following birth is a state of natural flow.<sup>[7,8]</sup>

*Jeevitam* which represents the act of keeping alive and *Anubandha* that denotes transmigration of the body<sup>[9,10]</sup> In addition, *Parinama* (cellular transformation), *Sharira vriddhikara bhavas* (genotypic and phenotypic characteristics) and *Garbahinivrittikara bhava* (pregnancy-induced fetal development and changes) also affect an individual's aging process.<sup>[11,12,13]</sup> Although these changes are natural (*Kalaja Vriddhavastha*-natural aging), they are not pleasant.<sup>[14,15]</sup> Making incorrect choices that promote unhealthy transformation of the body and mind (*Parinama*), all trigger the disease process resulting in mental and physical suffering.<sup>[16]</sup> Mental and physical ill-health weakens *dhatu-samyak* (homeostasis), resulting in *Akalaja vriddhavastha* (pathological aging).<sup>[17]</sup>

Skin aging is a complex biological process influenced by combination of endogenous or intrinsic (genetics, cellular metabolism, hormone and metabolic processes) and exogenous or extrinsic (chronic light exposure, pollution, ionizing radiation, chemicals, toxins) factors<sup>[18]</sup> These factors lead together to cumulative structural and physiological alterations and progressive changes in each skin layer as well as changes in skin appearance, especially, on the sun-exposed skin areas.<sup>[19-29]</sup> In contrast

to thin and atrophic, finely wrinkled and dry intrinsically aged skin, premature photoaged skin typically shows a thickened epidermis, mottled discoloration, deep wrinkles, laxity, dullness and roughness.<sup>[30-36]</sup> Gradual loss of skin elasticity leads to the phenomenon of sagging.<sup>[37]</sup> Slowing of the epidermal turnover rate and cell cycle lengthening coincides with a slower wound healing and less effective desquamation in older adults. This fact is important when aesthetic procedures are scheduled.<sup>[38]</sup>

The severity of wrinkle formation in an individual depends on Prakruti, Sarata of Dhatu, type of food consumed and exposure to environmental factors such as UV-B sun rays, dust, etc. In Pitta Prakruti dominant person, there is natural *Shithilyatva* in their Dhatu due to Drava Guna and therefore, formation of wrinkles take place much earlier than people of *Kapha* dominant and *Vata* dominant Prakruti. Excessive consumption of food substances dominant in *Kshara* (caustic/ sharp) and *Lavana Rasa* (salty) cause *Shaithilya* in *Mamsa* and other *Dhatu* of body and lead to the formation of wrinkles at early stage of life. *vali* It is a *Rasapradoshaja Vikara* *Acharya Sushruta* said in *Sushruta Chikitsa adhaya 40 Snehan Nasya* used as *jarahar* and *urdhvajatrugat vikara nashna*, *Brihatyadi taila nasya* contains *Bruhadyadi* and *Jivaniya gana* which has *rasayana (Jara nashan)* effect and Face cream mainly acts on skin by hydrating and nourishing the skin, hence I have chosen this subject for the study as

“A SINGLE ARM CLINICAL STUDY TO EVALUATE EFFICACY OF BRIHATYADI TAILA NASYA ALONG WITH KSHIRPRIYAL FACE CREAM TOPICAL APPLICATION IN MUKHA VALI WITH SPECIAL REFFERANCE TO FACIAL WRINKLES.”

### Need of study

Aging is a universal process that presumably begin with the origin of life. It's important to find out skin geriatric signs across different skin types. Limited data is available on Indian skin changes throughout ageing. Wrinkle is a morphological change with no structural changes at the histological position. The elastic towel network deteriorates during its pathogenesis. As a result, skin loses its plainness and the capacity to return to its former shape. and tone- declared skin geriatric enterprises. The mortal skin loses its antioxidation capability with age, by exposure to the girding terrain for a considerable period of time. Hence use of products, which enhance

antioxidation, should be taken into consideration. Indeed, brief exposure to UV radiation increases the exertion of enzymes that break down the proteins collagen and elastin filaments that give structural support for the skin, therefore pretreatment of skin with creams containing active constituents that can reduce the activation of these enzymes is recommended.

“नासा हि शिरसो द्वारम् तेन तद् व्याप्या हन्ति तान् ॥अ.ह.सू २०/१”

Nose is one among the Panchadnyanendriya, whose functions aren't only limited to olfaction and respiration but also considered as a pathway for medicine administration. So the medicine administered through nose as *Nasya* reaches to the brain and eliminates the morbid *Doshas* responsible for producing the complaint. *Nasya* is one of the *Panchakarma* mentioned in *Ayurveda*. This *navan nasya* remedy cleanses and opens the channels of the head, thereby perfecting the process of oxygenation (*Prana*), which has a direct influence on the functioning of brain. medicine administered through nose substantially acts on olfactory receptors present in superior concha. *Navan nasya* remedy is salutary if done on a regular base. It keeps the eyes, nose and observance healthy & it also prevents the early aging. Lipid answerable substances have lesser affinity for unresistant immersion through cell wall of nasal mucosa. Cilia of olfactory cells and body of olfactory cells contain large lipid accoutrements, that is why lipid answerable substance causes pronounced stimulation of olfactory cells. Non-polar hydrophobic motes verbose through lipid subcaste of tube membrane in and out of cells. Similar patch includes oxygen, carbon dioxide, nitrogen feasts, adipose acids, steroids and fat answerable vitamins. It's route of immersion of some nutrients and excretion of waste by body cells which are lipid answerable. Thus using *Brihatyadi Tail Nasya* along with *Kshirpriyal* Face cream topically will be suitable to reduce wrinkles.

Unlike the modern medicine approach of seeking pills and supplements or replacing body parts to extend the health span of the individual, *Ayurveda* relies on a comprehensive program that includes dietary, lifestyle, behavioural and psychological intervention for extension of health span. The rationale for such a broad therapeutic intervention is to restore the normal balance and functioning of all the systems simultaneously at the level of the body, mind and emotions.

## **AIMS AND OBJECTIVES**

### **Aims**

To Study the efficacy of *Brihatyadi Taila Nasya* along with *Kshirpriyal* Face Cream topical Application in the management of Mukha Vali w.s.r. Facial Wrinkles.

### **Objectives**

#### **Primary Objective**

To Study the efficacy of *Brihatyadi Taila Nasya* along with *Kshirpriyal* Face Cream topical Application in the management of *Mukha Vali* w.s.r. Facial Wrinkles within 60 days with help of dermascope.

#### **Secondary Objectives**

1. To study the literature review of *Mukha Vali* according to *Ayurveda*.
2. To study the probable mode of action of *Brihatyadi Taila Nasya* along with *Kshirpriyal* Face Cream in *Mukha Vali*.
3. To study the effect of *Brihatyadi Taila Nasya* and *Kshirpriyal* Face Cream in *Mukha Vali*.
4. To study the information about Wrinkles according to modern science.

## **HYPOTHESIS**

### **1) Null Hypothesis**

There is no effect of *Brihatyadi taila Nasya* along with *Kshirpriyal* Face cream topical Application in the management of *Mukha Vali* w.s.r. Facial Wrinkles.

### **2) Alternative Hypothesis**

There is significant effect of *Brihatyadi Taila Nasya* along with *Kshirpriyal* Face cream topical Application in the management of *Mukha Vali* w.s.r. Facial Wrinkles.



## REVIEW OF LITERATURE

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## **HISTORICAL REVIEW OF DISEASE**

### **Vedic Period**

The earliest knowledge of *Ayurveda* is derived from the *veda*, that is from *Atharvaveda* and *Rugveda*. The Knowledge of *charma roga* or *twaka roga* finds its place in vedic age. But There is not any clear description regarding *vali* is available in *Veda, Upanishad*.

### **Samhita Period**

There is not any detail description available in *Charaka Samhita, sushrut Samhita, Bhela samhita, Harita Samhita* and *Kashyapa Samhita*. They does not mention the disease *vali*. But it has been mentioned at many places as symptom.

### **B. Twak Sharira**

Concept of *Tvaka*

The word *tvaka* is derived from root of “*tvaka sanvarane*”. It means covering of the body.

It means that skin covers the *shadanga sharira* (head, neck upper and lower limbs, chest and abdomen).

Formation of *Tvaka*

According to Acharya *Sushruta*, the growth of skin is due to *paka* of *shukra* and *shonita* which ultimately results in the formation of different 7 layer of the skin. (Su.sha.4/4)

According to Acharya *Charaka*, the six layer of skin are developing from the *mamsa dhatu*. (Ch.chi.15/16-17)

According to Acharya *Vagabhata*, the skin is developed from the *rakta* after the *paka* of *Rakta* by its *Dhatwagni*.

*Acharya Charaka* described *Tvaka* as a *Matruja bhava*, which is one of the six Bhavas essential in the development of Fetus.

Layers of skin

*Ayurveda* describes seven distinct layers of the skin, each with its own structure and function. The skin as a whole is able to effectively perform its overall functions when all the layers are healthy and balanced. There are some different opinions regarding the number of the layers among the ancient *Acharyas*.

*Acharya sushruta*

According to *Acharya Sushruta*, in *Ayurveda* the skin has seven distinct layers, each with its own Specific name, structure, function and diseases. (Su.Sha.4/4)

**Table No 1: Layers of skin details.**

Sr. No.	Layers	Thickness	Diseases
1	<i>Avabhasini</i>	1/18 of a <i>vrihi</i>	1) <i>Sidhma</i> 2) <i>Padmakantaka</i>
2	<i>Lohita</i>	1/16 of <i>vrihi</i>	1) <i>Tilakalaka</i> 2) <i>Nyacha</i> 3) <i>Vyanga</i>
3	<i>Shveta</i>	1/12 of <i>vrihi</i>	1) <i>Charmadala</i> 2) <i>Ajagalli</i> 3) <i>Mashaka</i>
4	<i>Tamra</i>	1/8 of <i>vrihi</i>	1) <i>Kilasa</i>
5	<i>Vedini</i>	1/5 of a <i>vrihi</i>	1) <i>Kushtha</i> 2) <i>Visarpa</i>
6	<i>Rohini</i>	1 <i>vrihi</i>	1) <i>Granthi</i> 2) <i>Apachi</i> 3) <i>Shlipada</i>
7	<i>Mansadhara</i>	2 <i>vrihi</i>	1) <i>Bhagandara</i> 2) <i>Vidradhi</i> 3) <i>Arsha</i>

*Acharya charaka*

*Acharya charaka* has described six layer of *tvaka* but only first 2 layers are named and rest of the four layers counted as producing diseases. (Ch.sha.7/4)

**Table No. 2: Layers of skin acc. To *charaka Acharya*.**

Sr. No	Layers	Diseases
1	<i>Udakdhara</i>	
2	<i>Asrigdhara</i>	
3	<i>Trutiya</i>	a) <i>Sidhma</i> b) <i>Shvitra</i>
4	<i>Chaturthi</i>	a) <i>Dadru</i> b) <i>Kushtha</i>
5	<i>Panchami</i>	a) <i>Alaji</i> b) <i>Vidradhi</i>
6	<i>Shashthi</i>	After abrasion - unconsciousness and darkness <i>Arunshika</i> .

*Tvak Panchabhoutikatva-*

*Tvak* is made up of five proto-elements that is

Skin and hair are made up of Parthiva' elements.

Lymphatic and serum (watery substance) are *Apya* in nature.

The natural colour of skin and its lustre is due to '*Tejasa*' element.

The normal function of skin i.e. reception of sensory stimulus is attributed to the element '*Vayu*'.

Hair follicles, the ducts of sweat glands and their opening are '*Akashiya*'.

#### *Tvak Sarata*

Individuals having the excellence of *Tvak* (*rasa dhatu*) are characterized by smooth, soft, clear, fine, less numerous deep rooted and tender hairs and lustrous skin. (Ch.Vi.8/103)

#### Relation between *Dushya* and *Tvacha*

***Vata Dosha:*** *Tvacha* is the *adhithan* (site) of *sparshanendriya* and *vata* governs this *indriya*.

***Prana Vayu:*** *Indriyadharan:* maintains the sense organ. (Ch.Su.17/12)

***Udan Vayu:*** *Tvak Varna:* maintains the colour of skin. (A.H.Su.12/5)

***Vyana Vayu:*** Circulates through *rasa dhatu* occupying whole body. (Su.Ni.1/17)

***Saman Vayu:*** Circulates through *swedovaha strotasa* which open on *tvacha*. (Ch.Chi.28/8)

***Apana Vayu:*** Though there is no direct relation between *apana vayu* and skin (*tvak*) but in diseases like *kushtha*, *apana vayu* is taken into consideration.

#### *Pitta dosha*

***Bhrajaka Pitta:*** Performs the function of *chayaprakashana* and *tvakbhrajana*. The drugs used in *abhyanga*, *Parisheka* and *lepa* are get digested by *bharajaka pitta*. (Su.Su.21/10)

***Ranjaka Pitta:*** This is not directly related to the skin. This is the creator of *raktadhatu* and it is responsible for colour and immunity of skin. (A.H.Su.12/13)

#### *Kapha dosha*

***Tarpaka kapha:*** By *tarapana* (nourishment) of *Indriya*, maintain the unctuousness of skin. (A.H.Su.12/17)

#### Relation between *dushya* and *Tvacha*

***Rasa:*** In *sarata Parikshana*, *rasasarta* is explained as *tvak sarata*. (Ch.Vi.8/103)

**Rakta:** *Varna* and *sparshajnana* are two important functions of *rakta dhatu*. (Su.Su.15/7)

**Mamsa:** *Tvacha* is *upadhatu* of *mamsa*. Also, it is *mulasthan* of *mamsavaha strotasa*. (Ch.Chi.15/17)

**Meda:** *Snigdha twak* is one of the sign of *medasarata*. (Ch.Vi.8/106)

**Majja:** *Mriduta* and *snigdhatata* are signs of *majjasarata*. (Ch.Vi.8/8)

**Shukra:** It is related with *prabha* and *kanti* of skin. *Bharajishnuta*, *prasanna Varna* are the signs of *shukrasarata*. (Ch.Vi.8/9)

Relation between *Mala* & *Twak*:

*Aahar Pachanat sarkitta vibhajana* occurs, *Sara bhag* is the *rasa* while *kitta bhag* is the *mala* it consist of

**Purish:** *Ghan bhag* of part of *mala* which is thrown out through *guda*.

**Mutra:** *Drava bhag* of *mala* which helps in *kleda vahana* outside the body through *mutrashaya*.

**Sweda:** *Dravbhag* of *mala* which is thrown outside the body through skin.

Relation between *purish* and *twak*

*Purisha* is the *Ghana* part of *mala* thrown through *guda*. In child, as the anal sphinters are not properly developed there is frequently *malatyag*. Due to improper hygiene, this *purish* gets attached to the skin around anal region. This causes *sthanik rakta*, *kapha-pitta dushti*.

Relation between *mutra* and *twak*

The *Drava bhag* of *mala* is called *mutra*. This is thrown through *mutrashaya* outside the body. *Kleda* is thrown via *mutra*. In unhygienic condition if *mutra* is not properly cleaned then it causes *sanchaya* of *kleda* around perianal region. This causes *kandu* around perianal region by *sthanik kapha dushti*.

Relation between *Sweda* and *Twak*

From the above shloka *pitta* is a *sthan* of *sweda* hence *sweda* is *ushna* in nature. If *pitta dushti* occurs, *sweda pravritti* of child increases. This causes increasing *ushna* *guna* of *sweda*. In unhygienic conditions if *sweda* is not timely cleaned properly, causes *daha* around perianal region.

*Sweda* is the *mala* of *meda dhatu* this *drava mala* helps in *kleda vahan* outside the body through the skin. If *sweda* is not properly cleaned timely this causes *kleda sanchay* around perianal region and causes *kandu*.

### C. Modern Review of Skin

The skin covers the outside surface of the body and is the biggest organ of the body in both surface zone and weight.

The skin has up to seven layers of ectodermal tissue and watches the fundamental muscles, bones, tendons and inner organs. In spite of the fact that about all human skin is secured with hair follicles, it can show up smooth. There are two common sorts of skin, shaggy and glabrous skin (smooth).

The descriptive word cutaneous actually implies "of the skin" (from Latin *cutis*, skin) since it interfacing with the environment. Skin plays an critical insusceptibility part in ensuring the body against pathogens and intemperate water misfortune. Its other capacities are cover, temperature control, sensation, union of vitamin D, and the security of vitamin B coasts. Seriously harmed skin will attempt to recuperate by shaping scar tissue. Typically regularly stained and pigmented.

#### Improvement

The epidermis and its members (hairs, nails, sebaceous and sweat organs) are created from the ectoderm. The corium or genuine skin is of mesodermal beginning. Almost the fifth week of fetal advancement the epidermis comprises of two layers of cells. The subcutaneous fat shows up around the forward month and the papillae of the genuine skin around the six month. A proceed desquamation of epidermis taken put amid fetal life and this desquamation of epidermis blended with sebaceous emission, to make *vernix caseosa*. With which the skin is spread amid the final three months of fetal life.

Nails are shaped at the third month and start to extend from epidermis around the 6th months. The hair shows up between the third and fourth months within the shape of strong down developments of the more profound layer of the epidermis. The cells of the strong down developments experience modification to make the hair, whereas the fringe cells are held to create the lining cells of the hair follicle. Approximately the

fifth month of the fetal hairs shows up to begin with on the head and after that on the other parts; they drop birth and grant put to lasting hairs.

The cellular structure of the sudoriferous and sebaceous organs are shaped from ectoderm where as the connective tissue and blood vessels are inferred from the mesoderm. All the sweat organs are completely shaped at birth. They start to create as early as the fourth month.

### **Skin colour**

Human skin appears tall skin colour assortment from the darkest brown to the lightest pinkish-white tints. Human skin appears higher variety in colour than any other single mammalian species and is the result of characteristic selection. Skin pigmentation in people advanced to basically direct the sum of bright radiation (UVR) entering the skin, controlling its biochemical impacts.

The real skin colour of distinctive people is influenced by numerous substances, in spite of the fact that the single most critical substance deciding human skin colour is the shade melanin. Melanin is delivered inside the skin in cells called melanocytes and it is the most determinant of the skin colour of darker-skinned people. The skin colour of individuals with light skin is decided basically by the bluish-white connective tissue beneath the dermis and by the hemoglobin circulating within the veins of the dermis. The ruddy colour underlying the skin gets to be more unmistakable, particularly within the confront, when, as result of physical work out or the incitement of the anxious framework (anger, fear), arterioles widen. There are at slightest five diverse colors that decide the colour of the skin. These colors are display at distinctive levels and places.

#### Melanin

It is brown in colour and show in the basal layer of the epidermis.

#### Melanoid

It takes after melanin but is show diffusely all through the epidermis.

#### Carotene

This color is yellow to orange in colour. It is display within the stratum corneum and fat cells of dermis and shallow belt.



Hemoglobin (too spelled hemoglobin)

It is found in blood and isn't a shade of the skin but creates a purple colour

Oxyhaemoglobin

It is additionally found in blood and isn't a color of the skin. It develops a ruddy colour.

Capacities of Skins:

Skin is the biggest organ of the body, both in terms of volume and weight. The complete external surface of the body but for the cornea is secured by skin. Its capacities are:

Thermoregulation

The skin contributes to thermoregulation in two ways by freeing sweat at its surface and by altering the stream of blood within the dermis. In reaction to tall natural temperature or warm delivered by work out, sweat generation from eccrine sweat organs increments. The vanishing of sweat from the skin surface makes a difference lower body temperature. In expansion, blood vessels within the dermis of skin expand subsequently more blood streams through the dermis. Which increments the sum of warm misfortune from the body in reaction to moo natural temperature, production of sweat from eccrine sweat organs is diminished which makes a difference moderate warm, too the blood vessels in dermis of skin choke which diminishes blood flow through the skin and decreases warm misfortune from body.

Protective Interface:

The keratinized epidermis acts as an successful barrier against a assortment of insuperable. These may be:

Mechanical -Because the skin is intense and the subcutaneous fat gives a cushioning impact against limit injury.

Chemical-Because it is impermeable to harmful water solvent substances.

Organic- Dryness, acidic pH and protective normal flora ward off contaminations.

**Sensitive Interface**

The sensation of touch, torment, temperature etc. are basic for assurance against threat. The sensation of touch is additionally utilized between people to precise feelings. Facial skin reacts to feelings exceptionally quick.

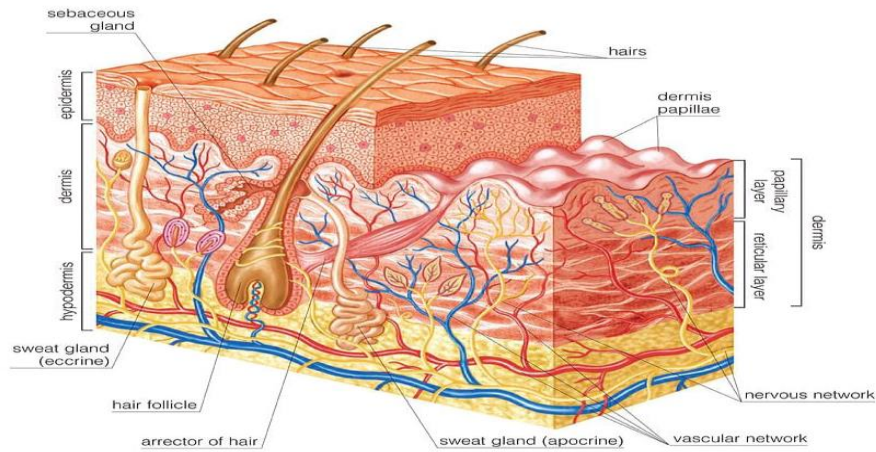
Excretion and assimilation

The skin regularly encompasses a little part in excretion, the end of substances from the body and assimilation, the entry of fabric from the outside environment into body cells. In spite of the nearly waterproof nature of the stratum corneum almost 400 ml of water vanishes through it day by day. A inactive individual loses an extra 200 ml per day as sweat; a physically dynamic individual misfortunes much more. Other than expelling water and warm from the body, sweat too is the vehicle for excretion of little amounts of salts, carbon dioxide and two natural particles that result from the breakdown of proteins- smelling salts and urea.

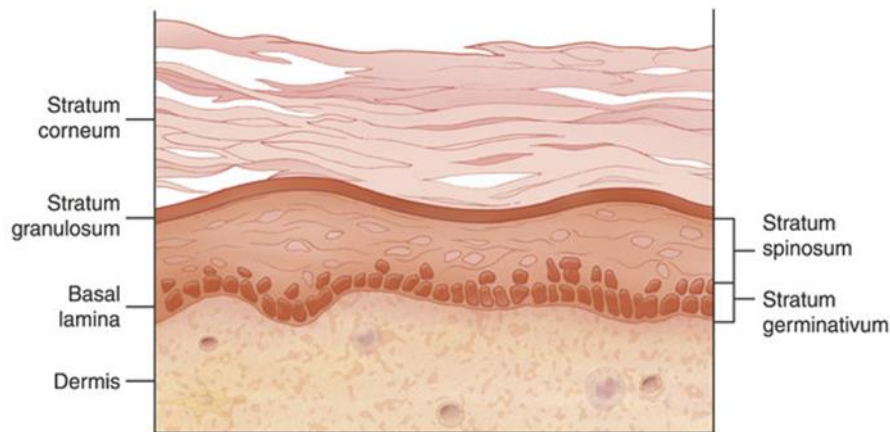
The retention of water-soluble substances through the skin is irrelevant but certain lipid –soluble materials do penetrate the skin. These incorporate fat-soluble vitamins (A, D, E, K), certain drugs, and the gasses (oxygen and carbon dioxide). Toxic materials that can be ingested through the skin include natural solvents such as acetone (in a few nail clean removers) and carbon tetrachloride (dry-cleaning fluid); salts of overwhelming metals such as lead, mercury, and arsenic and the substances in harm ivy and poison oak. Since topical (connected to the skin) steroids such as cortisone, are lipid-soluble. They move effectively into the papillary locale of the dermis. Here they apply their anti-inflammatory properties by repressing histamine generation by pole cells.

### **Other Metabolic Capacities**

Within the nearness of daylight, skin fabricates vitamin D from cholesterol. Subcutaneous fat acts as a store house of vitality within the form of fat. Fat cells actively participate within the energetic fat digestion system.



**Fig. No. 1: Shows anatomy of skin.**



**Fig. No 2: Shows layers of skin.**

### Structure

Basically the skin comprises of two vital parts. The external more slender parcel which is composed of epitheliumis called epidermis. The epidermis is associated to the internal thicker connective tissue portion called the dermis. Underneath the dermis may be a subcutaneous layer of tissues. This layer moreover called the shallow sash comprises of areolar and fat tissues. Filaments from the dermis expand down into the shallow belt and grapple the skin to the subcutaneous layer. The shallow belt, inturna is immovably connected to fundamental tissues and organs.

### Epidermis

The epidermis is composed of keratinized stratified squamous epithelium. It contains four vital sorts of cells; keratinocytes, melanocytes, Langerhans cell, and Merkel cells. Almost 90% of epidermal cells are keratinocytes which are orchestrated in four

or five layers and deliver the protein keratin. Around 8% of the epidermal cells are melanocytes which create from the ectoderm of a creating fetus and create the color melanin. Langerhans cells emerge from ruddy bone marrow and move to the epidermis they take part in resistant reactions mounted against organisms that attack the skin. Merkel cell are the slightest various of the epidermal cells.

In most locale of the body, the epidermis has four strata or layers – stratum Basale, stratum spinosum, stratum granulosum and a lean stratum corneum this is often called lean skin. Where exposure to grinding is most noteworthy, such as within the fingertips, palms, and soles, the the epidermis has five layers - stratum Basale, stratum spinosum, stratum granulosum, stratum lucidum and a thick stratum corneum usually called thick skin.

### **Stratum Basale**

This single layer of columnar cells is competent of proceeded cell division. As these cells increase, they push up towards the surface. Their core deteriorate and the cells kick the bucket. Inevitably the cells are shed within the beat layer of the epidermis.

### **Stratum Spinosum**

This layer of epidermis 8 to 10 lines of polygonal (numerous - sided) cells that fit closely together. The surfaces of these cells may expect a thorny appearance when arranged for magnifying instrument examination (Spinosum - thorny).

The stratum Basale and stratum spinosum are some of the time collectively alluded to as the stratum germinativum to show the layers where unused cells are developed.

### **Stratum granulosum**

This third layer of the epidermis comprises of two or three lines of straightened cells that contain hazily recoloring granules of a substance called keratohyalin. This compound is included within the first step of keratin formation. Keratin could be a water sealing protein found within the best layer of the epidermis.

### **Stratum lucidum**

This layer is very articulated within the thick skin of the palms and soles. It comprises of three to four columns of clear, level, dead cells contain beads of a translucent

substance called eleidin. Eleidin is formed-keratin-hyaline and is in the long run changed to keratin.

### **Stratum Corneum**

This layer comprises of 25 to 30 columns of level, dead cells containing keratin. These are persistently shed and supplanted. The stratum corneum serves an successful obstruction against light and warm waves, microbes and numerous chemicals.

### **Dermis**

The dermis is the layer of skin underneath the epidermis that comprises of epithelial tissue and pads the body from stretch and strain. The dermis is firmly associated to the epidermis by a storm cellar layer. It moreover harbours numerous nerve endings that give the sense of touch and warm. It contains the hair follicles, sweat organs, sebaceous organs, apocrine organs, lymphatic vessels and blood vessels. The blood vessels within the dermis give food and squander expulsion from its own cells as well as from the Stratum Basale of the epidermis. The dermis is structurally isolated into two zones: a shallow area adjacent to the epidermis, called the papillary locale and a profound thicker zone known as the reticular locale.

### **Papillary region**

The papillary locale is composed of free areolar connective tissue. It is named for its finger like projections called papillae that expand toward the epidermis.

### **Reticular locale**

The reticular region lies profound within the papillary locale and is more often than not much thicker. It is composed of thick unpredictable connective tissue and gets its title from the thick concentration of collagenous, flexible and reticular filaments that weave all through it. These protein strands donate the dermis ,its properties of quality, extensibility and versatility.

## **D. Disease Review**

### **Definition**

Wrinkles are unmistakable wrinkles or folds within the skin. Wrinkles less than 1 mm in width and profundity are characterized as fine wrinkles. Wrinkles that are 1 mm or more in width and profundity are characterized as coarse wrinkles.

Numerous variables influence the advancement of wrinkles, counting:

- Sun introduction
- Smoking
- Drying out
- A few medicines
- Environmental and hereditary variables

Exposure to bright (UV) light from sunbathing, tanning booths, and outdoor sports increments the development of wrinkles.

UV light breaks down the collagen and elastin strands in the skin. These filaments frame the connective tissue that underpins the skin. As this layer breaks down, the skin gets to be weaker and less adaptable. The skin begins to hang, and wrinkles show up.

Darker skin contains more melanin and ensures from numerous hurtful impacts of UV radiation.

Individuals who work in daylight have a higher chance of early wrinkles. Wearing dress that cover the skin, such as caps or long sleeves, may delay the advancement of wrinkles.

Customary smoking quickens the maturing prepare of skin since it decreases the blood supply to the skin. Liquor dehydrates the skin, and dry skin is more likely to create wrinkles.

### **Causes for maturing wrinkles**

Advancement of facial wrinkles could be a kind of fibrosis of the skin. Mis repair-accumulation maturing hypothesis proposes that wrinkles create from off base repairs of harmed versatile filaments and collagen fibres. Repeated expansions and compressions of the skin cause rehashed wounds of extracellular strands in derma. During the repairing process, some of the broken elastic fibres and collagen strands are not regenerated and restored but supplanted by modified strands. When an elastic fibre is broken in an amplified state, it may be supplanted by a "long" collagen fibre. Collection of "long" collagen strands makes portion of the skin looser and stiffer, and as a result, a enormous overlap of skin shows up. When a "long" collagen is broken in

a compressed state, it may be replaced by a "brief" collagen fibre. The "shorter" collagen fibre will confine the expansion of "longer" strands, and make the "long" filaments in a collapsing state for all time. A little overlap, to be specific a lasting wrinkle, at that point shows up.

### Mechanism of aging

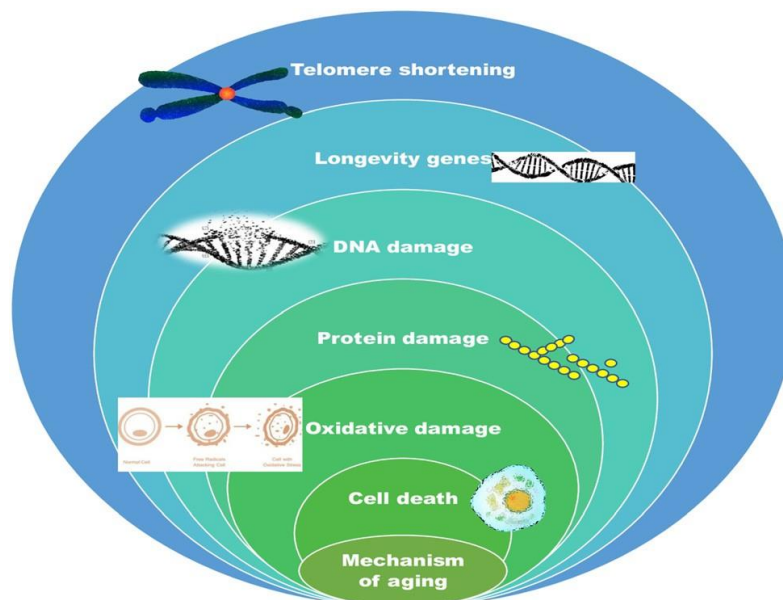


Figure 1: Different mechanisms of aging.

### Oxidative harm

There are different hypotheses and components related to the maturing handle (Figure 1) one of which is the free radical hypothesis. Concurring to this hypothesis, maturing can be caused by intemperate receptive oxygen species which leads to oxidative harm. There are different outside and inner variables that are mindful for the generation of responsive oxygen species (ROS) and responsive nitrogen species (RNS). For neutralization of responsive oxygen species, there's a arrange of exogenous and endogenous cancer prevention agents but still, a few ROS/RNS can elude this cautious instrument. These free radicals have the capacity to hurt the body's solid cells, which might result in *maladies*, disarranges, or cell harm. Free radicals are dependable for maturing and infections viz. cancer, heart disease, Parkinson's *malady*, conjointly influence the brain and resistant framework. Oxidative harm by ROS/RNS causes cell brokenness and physiological harm leads to aging (Figure 2). From this perception, we will conclude that cancer prevention agents are competent of abating the maturing prepare since they can effectively rummage ROS/RNS and limit the

oxidative harm. Antioxidant proteins can be utilized to treat numerous disarranges, such as diabetes, cancer, maturing, atherosclerosis, heart disappointment, and neurological clutters. To help the body in diminishing oxidative harm, antioxidant supplements and suppers may be utilized. Nearly all handled nourishment contains manufactured cancer prevention agents such as BHT and BHA which are shaped by the utilize of chemical cancer prevention agents. Engineered cancer prevention agents incorporate different classes viz. nitroxides, salens, turn traps, Mn-porphyrin superoxide dismutase, GPX mimetics, etc. Due to modern understanding concerning the potential harmfulness of manufactured cancer prevention agents as well as client inclinations for common nourishment added substances, the intrigued in utilizing normal antioxidants to settle suppers that contain lipids has essentially expanded. Propyl gallate and tert-butyl-hydroquinone are the cancer prevention agents that are utilized most regularly, which are connected to liver dam- age and cancer-causing operator in lab creatures. Subsequently, it is alluring to make and utilize more powerful cancer prevention agents. Universally, conventional medicine is being re-evaluated due to its less side effects. Plants can serve as a source of novel atoms with antioxidant action since they make an antioxidant effect to combat the oxidative harm brought on by chemicals, daylight, and receptive oxygen species.

### **Inflammation**

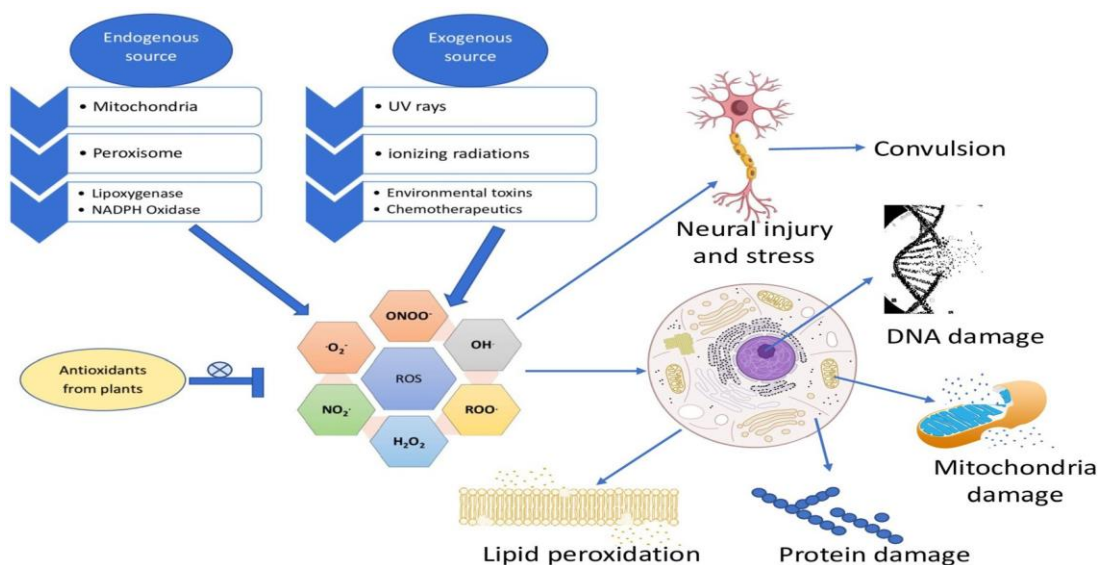
The safe framework employments inflammation as a resistance component against outside gatecrashes. But when it gets to be constant, a number of issues may arise and lead to various illnesses, counting Alzheimer's infection, cancer, and heart *malady*. This happens since the body assaults its possess cells. Various considers appear that elderly individuals have weaker pro-inflammatory status as compared to more youthful individuals which causes inveterate inflammation. maturing is the term alluding to the low-grade inflammatory condition amid the method of maturing. Inflammation is an important component of defence intervened by macrophages and monocytes that offer assistance within the pulverization of microbial pathogens conjointly repair the injured tissue. In any case, the inflammatory reaction gets to be chronic, varying basically within the case of age-related maladies and maturing. Within the tissues of more seasoned people and rodents the level of quality expression



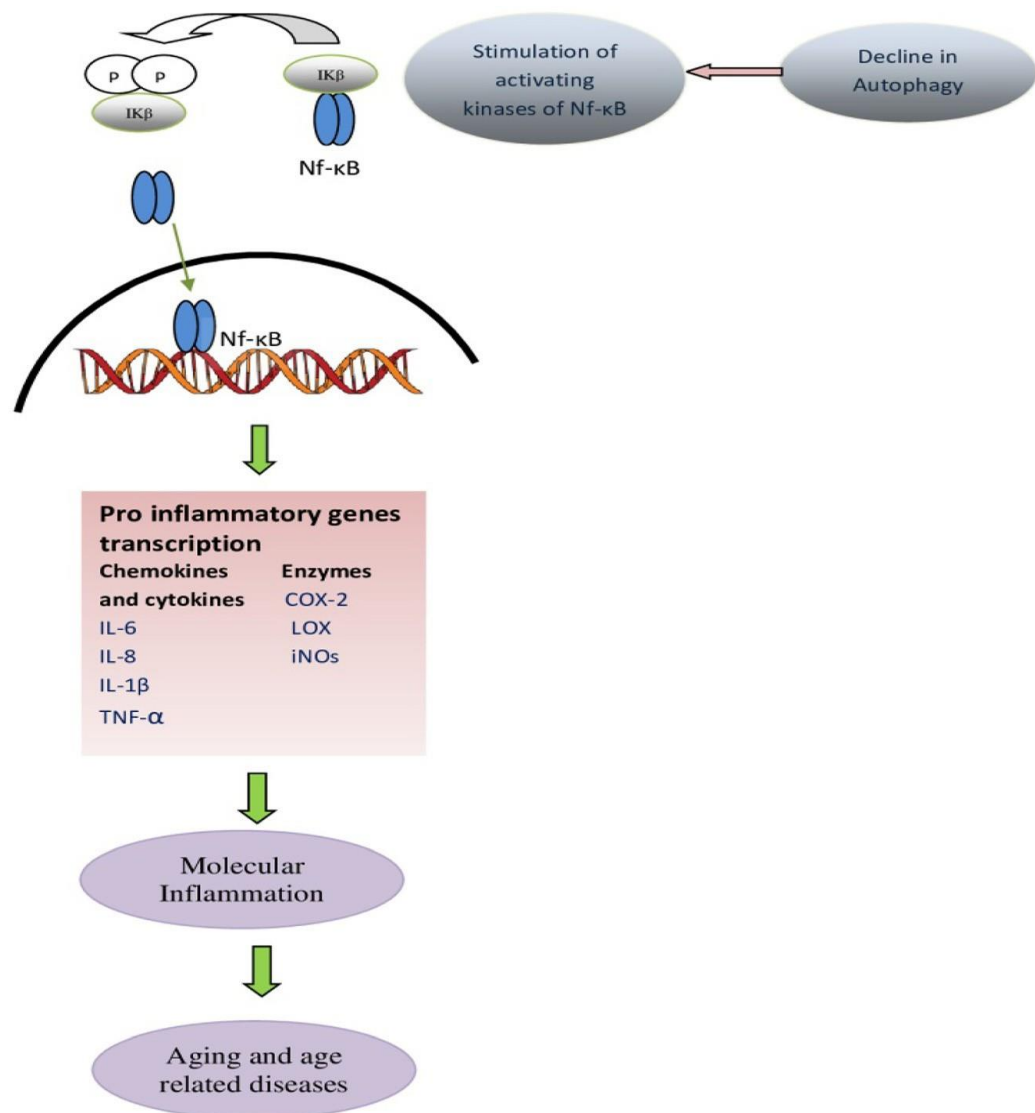
related to inflammatory and safe reaction is considerably higher. Upregulation of NF- $\kappa$ B signalling and tall level of serum of IL-6 and TNF- $\alpha$  have also been detailed in a few age-related thinks about (Figure 3).

### Telomere shortening

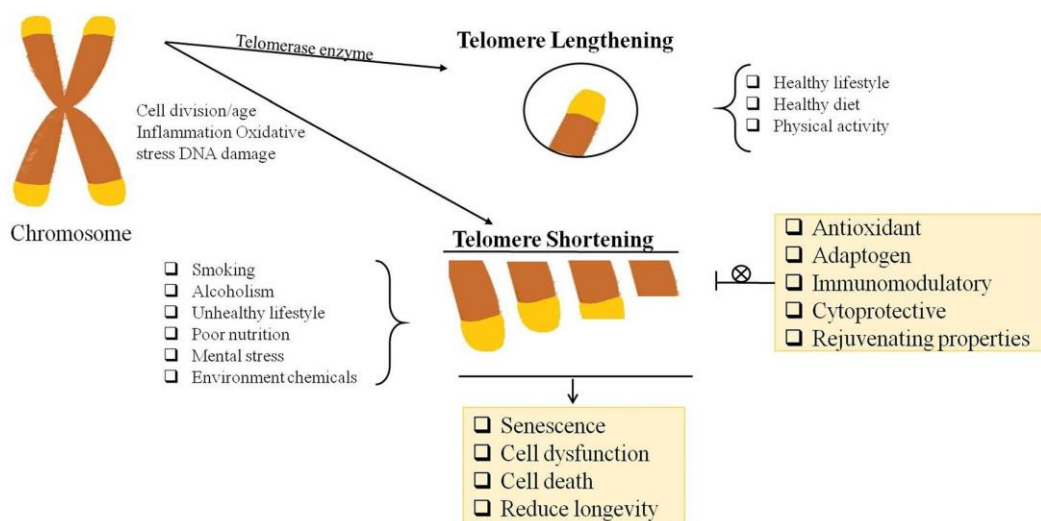
As we age, our bodies steadily lose their physiological work, which disables cellular astuteness and eventually makes us more vulnerable to sickness and passing. The maturing handle leads to different afflictions like cancer, diabetes, cardiovascular *malady*, and neurological conditions. Maturing is caused by a number of components, most outstandingly the ceaseless shortening of telomeres that leads to maturing. The telomeres continuously abbreviate with each DNA replication, in the long run getting to be seriously brief. The basic protein telomerase is included in ensuring and repairing the closes of chromosomes (telomeres). The telomerase action rate is influenced by a person's propensities as well as natural variables which can abbreviate or protract life (Figure 4). Be that as it may, human cells exhibit exceptionally moo levels of telomerase activity, which quickens the maturing prepare by causing the shortening of telomere. There are two primary causes of telomere shortening that are exogenous and endogenous Telomere shortening can be cured by different conventional pharmaceutical inferred from Ayurvedic herbs.



**Figure 2: Schematic presentation of sources that generate ROS and effect of ROS on different cellular components leads to aging.**



**Figure 3: Schematic presentation of the molecular mechanism of inflammation through activation of Nf-κB signaling during aging.**



**Figure 4: Telomerase induced aging.**

### **DNA harm**

DNA harm can quicken the maturing prepare by affecting translation, flagging apoptosis or cellular senescence, telomere shortening and transformations. Telomere shortening eventually leads to telomere breakdown (chromosome uncapping) and the enactment of DNA harm checkpoints, coming about in a lasting cell cycle stop and replicative senescence. The atomic cause of maturing is still hazy. DNA has the capacity to repair harm brought on by inner components like surrenders in replication prepare as well as outside variables like Ultra Violet radiation and genotoxic solutions in species with different life spans. DNA is harmed due to different variables like transformation and replication stops. This harm anticipates the movement of the cell cycle and actuates flagging pathways that have an affect on the cell through cellular senescence, passing, or repair. The absconds in qualities cause the amassing of unrepaired DNA and chromosomal harm.

### **Protein harm**

Proteins are the essential component of physiological and cellular forms and the physical and chemical properties of proteins administer their action. The protein arrangement has an affect on natural action, steadiness, half-life, protein collapsing, and last shape. Ponders on protein generation, quality control, and debasement pathways clearly propose that keeping up proteostasis is pivotal for great wellbeing and life span. The particular movement of numerous chemicals is diminished by metal catalysed oxidation, amino corrosive buildup oxidation, and changes brought on by lipid oxidation items. These forms too affect the warm solidness of proteins and raise their carbonyl substance.

### **Cell passing**

The two strategies included in cell passing are necrotic cell passing instruments and energy-dependent modified cell passing apoptosis forms. The body can keep up apoptosis framework balance by effectively “suicide” of harmed cells. Apoptosis happens when the cell isn't able to repair its harmed DNA and may contribute to maladies and maturing handle. Apoptosis is vital for mending of wounds, but it moderated down with age and habitually happens in affiliation with neighbourhood inflammation. The relationship between apoptosis and maturing can be seen within the central apprehensive system, where neuronal apoptosis rises with age.

Comparative to this, declining apoptotic guards causes an increment in cancer rates with maturing.

### **Life span of qualities**

It was appeared that specific qualities display in a variety of creatures contribute to deciding the whole lifetime potential. In reality, the nearness of these qualities causes the union of items that utilize a assortment of ways to oversee the life of the species, expanding metabolic capacity, controlling stretch, resistance, and qualities that quicken maturing are hushed. According to a few considers, it has been watched that the SIR2 quality upgrades the life span of nematodes as well as yeasts. Skin maturing is caused by an increment in chemical action. These chemicals are elastases, collagenases, and tyrosinase. The cause of outside components which are dependable for maturing like drawn out introduction to contaminants or radiation. aging is thought to be built up and controlled by a number of acquired qualities concurrently.

### **Administration of wrinkles in advanced science**

Retinols. This can be a item made from vitamin A compounds. It is weaker than a retinoid, which is in numerous items that require a medicine. Illustrations are The Conventional Retinol 0.5% in Squalane and Crave Reemerging Retinol Serum. Retinols and retinoids are not secure to utilize whereas pregnant.

Vitamin C (ascorbic corrosive). Vitamin C doesn't offer assistance much on its claim but when added to a wrinkle serum and utilized routinely, it decreases harm from the sun and contamination and decreases skin discoloration. Vitamin C makes a difference your skin deliver collagen as well.

Cases of vitamin C serums are Crave Vitamin C Confront Serum and La Roche-Posay Vitamin C Anti-Aging Serum. Search for the fixing L-ascorbic corrosive. Store your vitamin C product absent from discuss and daylight to create it final longer.

Niacinamide This substance is related to vitamin B-3 (niacin). It's utilized in serums, covers, moisturizers and wrinkle creams. It may diminish signs of maturing and skin discoloration. And it can have a calming impact on the skin, making your skin more able to advantage from other fixings in your cream. Apply it two times a day.

**Bakuchiol** This substance is gentler than retinol and is secure to utilize whereas pregnant. It's utilized in serums and moisturizers. It reduces signs of maturing and skin discoloration. Bakuchiol is from the ayurveda medication convention. Apply it two times a day.

**Tranexamic corrosive.** This substance is inferred from the amino corrosive lysine. It brightens the skin and decreases discoloration and melasma. Apply it two times a day, with a sunscreen. Illustrations are La Roche-Posay Glycolic B5 10% Unadulterated Glycolic Corrosive Serum and Paula's Choice Clinic Discoloration Repair Serum.

**Azelaic corrosive.** This may be a tender substance that works well when combined with other fixings in your wrinkle serum or moisturizer. And it's safe to utilize whereas pregnant. Azelaic corrosive is an antibacterial and skin-lightening operator. Apply it up to two times a day. Illustrations incorporate The Conventional Azelaic Corrosive Serum and The Inkey List Azelaic Corrosive Serum.

Topical tretinoin makes strides fine wrinkles compared with fake treatment cream in individuals with mellow to direct photodamage, but its impact on coarse wrinkles is vague.

- Topical tretinoin may cause tingling, burning, erythema, and skin peeling.
- Isotretinoin cream makes strides fine and coarse wrinkles compared with vehicle cream in individuals with mellow to severe photodamage, but causes serious aggravation of the confront in 5%–10% of individuals.
- We do not know whether tazarotene is more effective than tretinoin at making strides fine and coarse wrinkles in people with direct photodamage, as ponders have given uncertain comes about. It can cause burning of the skin.

### **Dermabrasion**

Dermabrasion may be a surgical method that includes the controlled wearing away, or scraped area, of the upper layers of skin with a quickly pivoting device. Dermabrasion points to evacuate fine wrinkles, moles, tattoos, skin break out scars, and other sorts of scar. This procedure may cause scabbing, swelling, and changes in skin colour. These side effects by and large blur after 2 weeks, but a few signs may stay for a few months. A individual will not achieve their craved comes about quickly and may not see any enhancements for a few months. Microdermabrasion may be a less obtrusive

method. It includes splashing microcrystals of aluminium oxide over the surface of the skin. A few specialists utilize a handheld gadget with fine precious stone precious stones and a capable vacuum to expel the particles as they brush it over the skin. This type of treatment points to grant a fresher and smoother appearance to the skin and diminish the appearance of lines and wrinkles, broadened pores, coarse skin, and sun damage. The comes about are as it were brief, and individuals may require rehashed medications. Non-ablative lasers, radiofrequency (RF) gadgets, and heat light sources don't harm the epidermis. Laser and light source treatment medicines annihilate the external layer of the skin to diminish wrinkles. Radiofrequency (RF) treatments heat the fundamental dermis and fortify the advancement of unused collagen strands. This fixes skin and diminishes wrinkles.

### **Botox**

Botulinum toxin sort A, or Botox, pieces the chemical signals that cause muscles to contract. Specialists utilize it to treat a few restorative conditions. A corrective professional will use it to decrease wrinkles by infusing little dosages of Botox into focused on muscles. In case the muscles cannot fix, the skin flattens, giving a less wrinkled and smoother appearance. Botox can diminish the lines on the forehead, the frown lines between the eyes, and “crow's feet” around the corners of the eyes. According to the American Society of Plastic Specialists, an individual will see comes about after some days to a week. The changes more often than not final for 3–4 months, so many individuals get rehash infusions.

### **Chemical peels**

A chemical peel includes applying a chemical arrangement to the specified areas, causing the dead skin to shed and in the long run peel off. The recovered skin tends to be smoother than the ancient skin. People can purchase a few sorts of chemical peels without a therapeutic license. However, it's best to consult a medical healthcare proficient for the treatment.

### **Facelift**

A facelift, or a rhytidectomy, could be a sort of corrective surgery that points to make individuals see more energetic. It more often than not includes evacuating a few facial skin and fat, with or without fixing the basic tissues. A ponder in Plastic and Reconstructive Surgery proposes that a few components of a facelift ought to final for

about 5 and a half a long time Trusted Source, but it may lose a few impact around the neck. Mending times may be long, and the individual will encounter bruising and swelling for a number of weeks after surgery.

### **Fillers**

Delicate tissue fillers incorporate collagen, hyaluronic corrosive, or fat. A restorative proficient will infuse fillers into more profound confront wrinkles, plumping and smoothing them out to grant the skin more volume. People may in some cases encounter swelling and bruising within the influenced regions for a brief period. As with Botox treatment, these treatments are brief, and individuals may require normal injections. The comes about depend on a few components, counting where the wrinkles are and their profundity.

### **Ayurvedic Perspective of Aging**

Aging is known as “*Jara*” defined as that which has come old by the act of wearing out “*jiryati iti jara*”. It's synonym as “*vardhakya*” meaning adding age. *Ayurveda* divides mortal life into — nonage (up to the age 16 times); youth and middle age(from 16 to 60 times (*charaka*) or 70 times (*sushruta*) and exhibits precipitously the traits of growth (*vivardhamana*, 16 – 20 times of age), youth (*youvana*, 20 – 30 times), maturity (*sampoornata*, 30 – 40 times), deterioration (*parihani*, 40 times onwards) which gradationally sets in over to 60 times); old age, wherein after 60 – 70 times the body rudiments, sense organs, strength, and so forth. begin to decay. While describing aging, *Ayurveda* takes in consideration *Prana* (life energy that performs respiration, oxygenation and rotation). It governs two other subtle substance *ojas* and *tejas*. *Ojas* (the substance of the seven *dhatu*s or fleshly apkins) is responsible for the bus-vulnerable system and internal intelligence, it's necessary for life. Displaced *ojas* creates the kapha- related diseases and dropped *ojas* creates *vata*- related responses. *Tejas* (the substance of a veritably subtle fire or energy) governs metabolism through the enzyme system. Agni (central fire or energy source in the body) promotes digestion, immersion and assimilation of food. *Tejas* is necessary for the nutritional and metamorphosis of each *dhatu*. Exacerbated *tejas*, burns down *ojas* reducing impunity and overstimulating pranic exertion. Exacerbated prana produces degenerative diseases in the *dhatu*s. Lack of *tejas* results in over product of unhealthy towel and obstructs the inflow of pranic energy. Just as it's essential to maintain

balance amongst the *tridosha* — *vata*, *pitta*, *kapha* principles of stir, metabolism, structure, independently, the *dhatu*s and the three *malas* (fleshly wastes); it's also important for life that *prana*, *ojas* and *tejas* remain in balance. The *tridosha* play a veritably important part in the conservation of cellular health and life. *Kapha* maintains life on the cellular position. *Pitta* governs digestion and nutrition. *Vata*, which is nearly related to pranic life energy, governs all life functions. Proper diet, exercise and life can produce a balance among these three subtle essentialities, icing long life Wrinkles are nominated as *Vali* in *Ayurveda*. They're one of the cardinal signs of ageing. Wrinkles are defined as compression or shrinking (*Samkocha*) together of skin. Body factors involved in the conformation of wrinkles are as follows

1. *Rasa Dhatu*- Acharya *Sushruta* has stated that early conformation of wrinkles is due to the vitiation of *Rasa Dhatu*.
2. *Mamsa Dhatu*- *Mamsa Dhatu* exhibits the trait of *Sthitisthapakatva*. The term “*Sthitisthapakatva*” means when some form of force is applied to stretch or move a substance, it returns to its original state after removing that force. Along with *Mamsa*, this property is also seen in skin as *Mamsadhatu* is nearly related to skin. Muscle subcaste beneath skin loses its property of *Sthitisthapakatva*. This is also nominated as *Shaithilya* and can do due to multiple reasons.
3. *Vata Dosha*- Aggravation of *Vata Dosha* is responsible for the *Samkocha* in several body corridor. In old age, there's dominance of *Vata Dosha* which is primarily responsible for *Samkocha* and conformation of wrinkles. The inflexibility of wrinkle conformation in an individual depends on *Prakruti*, *Sarata* of *Dhatu*, type of food consumed and exposure to environmental factors similar as UV- B sun shafts, dust, etc. In *Pitta Prakruti* dominant person, there's natural *Shithilatva* in their *Dhatu* due to *Drava Guna* and air thus, conformation of wrinkles take place much earlier than people of *Kapha* dominant and *Vata* dominant *Prakruti*. inordinate consumption of food substances dominant in *Kshara* (acidulous/ sharp) and *Lavana Rasa* (salty) cause *Shaithilya* in *Mamsa* and other *Dhatu* of body and lead to the conformation of wrinkles at early stage of life According to *Ayurveda*, a number of factors determine skin health and youngness, and these include proper humidity balance (*Kapha* in balance), effective functioning of the metabolic mechanisms that coordinate all the colorful chemical and hormonal responses of the skin (*Pitta* in balance), and effective rotation of blood and nutrients to the different layers of the skin (*Vata* in balance). The health of the following three types of body towel are especially reflected in the skin nutritive fluid (*Rasa*), blood (*Rakta*) and muscle (*Mamsa*). To be effective, an



antiaging operation has to give support to all of these areas. Antiaging treatment includes two types of curatives *Urjaskara* (promotive) and *Vyadhihara* (restorative). For *vata* skin to stay immature skin care products that can nourish and desiccate the skin should be used else it may be susceptible to wrinkles and unseasonable aging. Warm oil painting tone- massage and all natural moisturizers may help. For pitta skin good sunscreens for protection from the sun, good facial skin canvases should be used daily. Tanning treatments and curatives that expose delicate sensitive skin for extended ages of time to brume/ heat should be avoided. For kapha skin a diurnal warm oil painting massage and sanctification of skin with gentle exfoliant should be done. revivification remedy *Ayurveda* describes several processes to address control and forestallment of aging. *Pancha Karma* is one of the popular revivification and detoxification process that consists of three stages including *Purva Karma* (pretreatment), *Pradhana Karma* (primary treatment) and *Paschat Karma* (post treatment). *Snehana* (oleation) and *Swedana* (udation) are the two *Purva Karma* procedures. The four *Pradhan Karma* include *Vamana* (medical emesis), *Virechana* (purgation), *Nasya* (nasal administration), *Basti* (enema). Academy of study from *Sushruta* also considers *Raktamokshana* (bloodletting) as one of the *Pancha Karma*. *Paschat Karma* (posttreatment) substantially deals with *Ahar*(diet) rules, *Vihar* (exercise) and use of health- promoting *Rasayana* and other drugs. There have been many studies indicating physiological benefits to *Panchakarma*. *Ayurveda* describes colorful rejuvenates curatives with help of special class of medicinal medications called *Rasayana* that are believed to rebuild the body, mind, help degeneration and defer aging or rather reverse the aging process. Charaka has described two styles of revivification, the first system — intramural (*kutipravesika*) needed the subject to remain inside a chamber in insulation and alternate system which was less rigorous and was carried out in open air — extramural (*vatatapika*). The intramural system is suitable for healthy, tone- controlled, wise, strong and rich persons whereas extramural system is judicious for others. In intramural system, a special cabin is constructed on an auspicious land facing east or north, it's safe and supplied with all the necessary papers for treatment and the procedure is started on an auspicious day. In extramural remedy, it's principally the use of colourful medicinal factory phrasings. According to *Ayurveda*, the practice of yoga, which is a disciplined wisdom of life, is a veritably important, natural, preventative measure to insure good health.

अश्रद्धा चारुचिश्वास्यवैरस्यमरसज्ञता।  
हृल्लासो गौरवं तन्द्रा साङ्गमर्दो ज्वरस्तमः [१]॥९॥  
पाण्डुत्वं स्रोतसां रोधः क्लैब्यं सादः कृशाङ्गता।  
नाशोऽग्नेरयथाकालं **वल्यः** पलितानि च॥१०॥  
रसप्रदोषजा रोगा !! च.सु २८/१०

लवणो रसः पाचनः क्लेदनो दीपनश्च्यावनश्छेदनो भेदनस्तीक्ष्णः सरो विकास्यधःसंस्पवकाशकरो  
[१]

वातहरः स्तम्भबन्धसङ्घातविधमनः सर्वरसप्रत्यनीकभूतः, आस्यमास्रावयति, कफं विष्यन्दयति,  
मार्गान् विशोधयति, सर्वशरीरावयवान् मृदूकरोति, रोचयत्याहारम्, आहारयोगी, नात्यर्थं गुरुः  
स्निग्ध उष्णश्वास एवङ्गुणोऽप्येक एवात्यर्थमुपयुज्यमानः पित्तं कोपयति, रक्तं वर्धयति, तर्षयति,  
मूर्च्छयति [२],

तापयति, दारयति, कुष्णाति मांसानि, प्रगालयति कुष्ठानि, विषं वर्धयति, शोफान् स्फोटयति,  
दन्तांश्च्यावयति, पुंस्त्वमुपहन्ति, इन्द्रियाण्युपरुणद्धि, वलिपलितखालित्यमापादयति, अपि च  
लोहितपित्ताम्लपित्तविसर्पवातरक्तविचर्चिकेन्द्रलुप्तप्रभृतीन्विकारानुपजनयति (३)।४३।  
चरकसंहितासूत्रस्थानम् - २६ आत्रेयभद्रकाप्यीयोऽध्यायः

## REGARDING RASAVAHA STROTASA

### *Rasa*

*Rasa* implies 'movement', as per this definition any fluid component in body which streams may be treated as *Rasa* counting *Rakta* and lymph etc. The processed nourishment at long last contributed to *Rasa-Dhatu* which performs numerous crucial capacities of body. *Rasa* is *Jala Mahabhoota* transcendent and having *Tanu*, *Swachchha* and *Snigdha* properties it voyages through *Dhamanis*.

### *Rasa Savhana*

Vyana Vayu having capacity to move fluid rapidly, this Vyana Vayu causes circulation of *rasa* in whole body.

*Srotas* are channels or micropores which basically perform capacities of transportation, *ayurveda* depicted numerous sorts of *Srotas* and *Rasa vaha srotas* are one of them. There are seven *srotas* (out of 13) which related with tissues (*dhatu*s) and *Rasa vaha srotas* comes to begin with in this category as takes after:

*Srotas* related to *dhatu*s

1. *Rasa vaha srotas*:

Carrying plasma and lymph

2. *Rakta vaha srotas*:

Carrying blood cells and hemoglobin

3. *Mamsa vaha srotas*:

Carrying muscle supplements and squanders

4. *Meda vaha srotas*:

Providing to different fat tissues of body

5. *Asthi vaha srotas*:

Supplements to the bones

6. *Majja vaha srotas*:

Providing the bone marrow and nerves

7. *Sukra vaha srota*:

Carrying the sperm and ova and their supplements as said over it was clearly shown that *Rasa*

*Vaha srotas* considered as one of the critical circulatory frame work of body transporting supplements to the *dhatu*. *Ayurveda* too depicts concept of *Rasadhatu* as antecedent of *Raktdhatu* since blood circulation depends upon add up to level of liquid in blood stream. The *Mulasthanas* of *Rasavaha Srotas* is *Dhamani* and *Hridaya* as said underneath.

*Rasavaha srotas*

*Mula*:

Heart and incredible vessels.

*Marga*:

Venous and lymphatic frameworks.

*Mukha*:

Arteriole, venous intersection in capillaries.

*Rasavaha Srotas* are considered as primary *Srotas* since they supply supplements to all body parts, they moreover donate *Poshana* to *Rasa Dhatu* and *Rakta Dhatu*. *Yakrit* and *Hrdaya* contributes essentially towards *Ahara Rasa Poshanta* through this *Srotas* since nourishment to begin with goes to *Yakrit* at that point through the circulatory

framework of *Hrdiya* it'll circulate to all body parts. Subsequently the concept of *Rasavaha Srotas* in *Ayurveda* may be connected with present day capacities of heart, lungs and liver. *Rasa vaha srotasa* circulates *Rasa* counting lymphatic framework and plasma, this handle offers food to other *dhatu*s. *Rasavaha srotas* perform crucial working of body related to circulatory handle and physiological unsettling influences to their working may leads a few obsessive sign as specified underneath. The *rasa vaha srotasa* started primarily from *hrudaya* and associated to all over the body through *Dhamanis*. These *dhamanis* circulated *rasa* all over the body utilizing pumping of *hrudaya*.

### Physiological Significance of *Rasa Vaha Srotas*

- *Paushaka Dhatu* are transported to the *Sthayi Dhatu* through *Srotas*.
- *Dhatu-Vaha Srotas* is particular to *Sthayi Dhatu* to which they transport nourishment.
- *Srotas* carries *Bhava Padarth* from one put to another put.
- It transports materials and driving forces moreover.
- Makes a difference within the assimilation of fats and minerals through lymph and utilizing weight of blood.
- It served as put of change of *Ahararasa* to *Rasadhatu*.
- It offers pathways for transporting *Rasadhatu* within the body.
- The appropriate working of this *Srotas* offers fabulousness of *Twak* characterized by *Snigdha*, *Shlakshna*, *Mrudu*, *Prasanna*, *Sukshma*, *Alpa*, *Gambhira* and *Sukumara* appearance.
- The physiological commonality of *Rasavaha srotas* offers joy, control, satisfaction, judgment skills and life span.
- *Rasavaha srotas* carry supplement and other vital fabric which serve imperative part in ordinary physiological working of tissue.
- The indoor regulator of body kept up by suitable circulatory handle of *Rasavaha srotas*.
- The absorption and assimilation of *ahara* take places with the assistance of biochemical handle of *Rasa* which transport through *Rasavaha srotas*.
- *Rasavaha srotas* contributed towards resistant reaction of body.
- The mending and protective instrument of body act at the site of damage with the assistance of *Rasavaha srotas*.

*Rasavaha strotas dushti hetu* (etiological components)

Master ahara - intemperate admissions of overwhelming eat less like cheese, fastfood, Chinese, pastry shop items.

*Sheeta ahara* –excessive admissions of cold nourishment or items.

*Atisnigdham* –eating as well sleek, unctuous nourishment, it increment viscosity in blood making hindrance in *strotas* and hampering circulation.

Samashan –taking wholesome and unwholesome eat less together.

Manasika *hetu- chinta* (stress/worry) leads to *rasavaha strotodushti* causing cardiac *maladies*, hypertension etc. and eventually hampers mental and physical wellbeing.

*Rasavaha strotas dushti lakshana* (side effects)

Taking after *maladies* are caused by vitiation of *rasa dhatu*

*Ashraddha* – reluctance for any sort of nourishment.

*Aruchi* – anorexia or uninterested in count calories.

*Aasyavairasya* – dysgeusia

*Arasadnyata* – ageusia or misfortune of taste

*Hrilaso* – queasiness Gaurav –feeling of heaviness

Tandra- tiredness *Saangamarda*

*jwara tama-* fever with body ache and swooning Pandu- weakness *Strotasaam rodha-* obstruction of channels of circulation

*Klaibya* – impotency *Saada- asthenia*

*Krishangata* – starvation

*Nashoagneya* – diminish control of absorption

*Vali* and *paalitya* – untimely appearance of wrinkles and dark hairs.

*Chikitsa* (administration of *rasavaha strotodushti*)

*Acharya Charak* specified the treatment for vitiated *rasa dhatu*, causing infections as- For all the remedy of *maladies* caused by vitiation of *rasa dhatu*, one ought to take response to fasting of all sort. As *rasavaha strotas* are channels which carry *rasa dhatu*. Consequently, the *dushti* of *rasa dhatu* eventually implies *dushti* of *rasavaha strotas*. As *rasadhatu* is to begin with *dhatu* and *rasavaha strotas* is channel which carry it, so *dushti* of *rasa dhatu* leads to vitiation of other six *dhatu* and their *strotasas*. Consequently, it is exceptionally vital to treat *rasavaha strotas dushti* to dodge *rasa dushti* and eventually encourage *dhatu dushti* and *strotas dushti*. *Acharya Charak* clarifies the connection of *dhatu* and *strotas* .vitiation of *strotasas* causes vitiation of *dhatu*. So the treatment for vitiated *dhatu* is pertinent for the vitiated

strotasas too. *Rasavaha strotodushti* is for the most part caused by *agnimandya* and *ama* consequently *langhan* is to begin with line of treatment. *Langhan – langhan* is to begin with treatment among shat *upakrama*. The reason is to form the body light by calming greatness.

### **E. Drug Review**

#### ***Nasya Karma-Samhita Kala***

In all the *samhitas Nasya Karma* has been described especially in *Charak Samhita*, *Sushruta Samhita*, *Ashtanga Sangraha*, *Ashtanga Hridaya*, *Sharangadhara Samhita*.

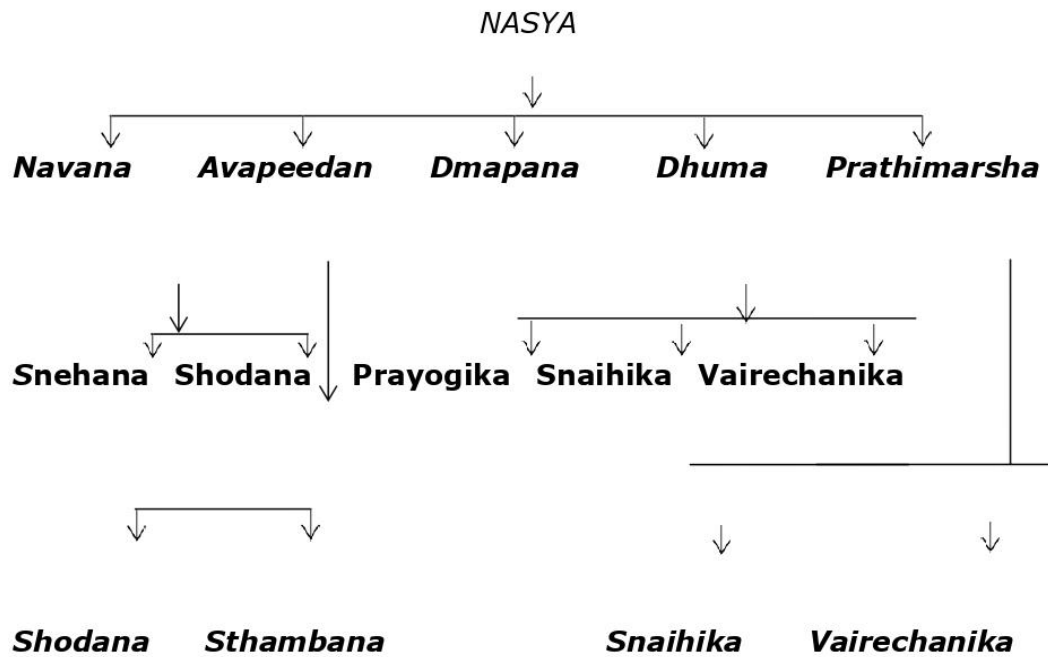
#### **Definition of *Nasya*<sup>[39]</sup>**

According to *sushruta – Sushruta* has specified the word *Shirovirechana* to describe a particular variety of *Nasyakarma*.

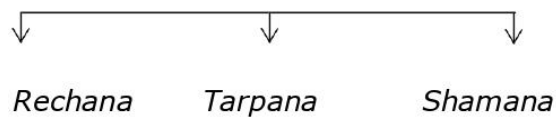
*Navana Karma* and *Nastha karma* means the measures that are beneficial to nose or region of the nose.

*Nasya* and *Navana* denote the site or route of administration of medicine. *Nasya Karma Charaka* has used the term “*Nastah Pracchardana*” for *Nasya*.

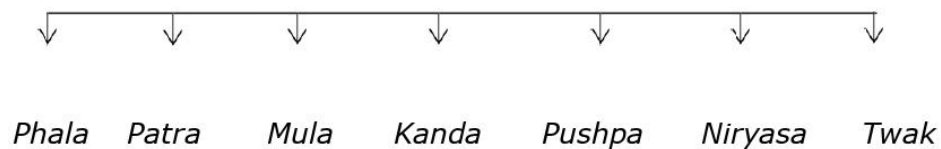
**CHARAKA'S CLASSIFICATION OF NASYAKARMA<sup>[40]</sup>**



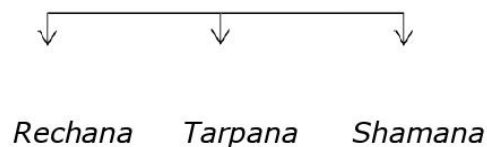
According to the mode of action of *Nasya Karma*



According to various parts of the drugs utilized in *Nasya Karma*



According to action of *Nasya karma*



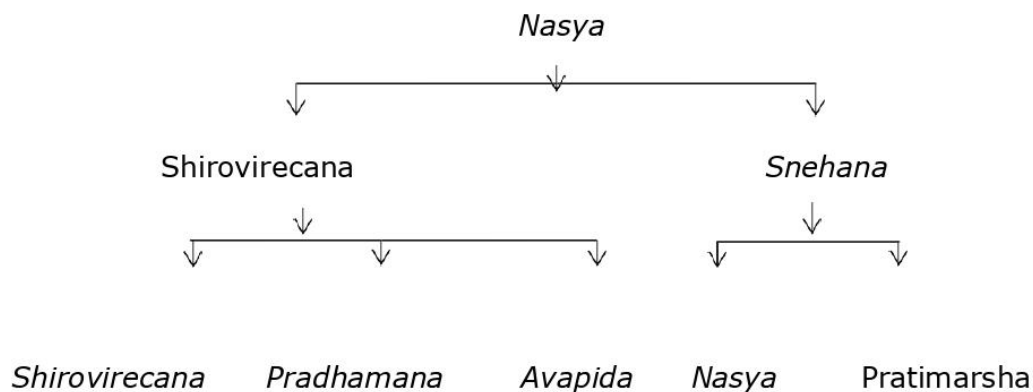
According to various parts of the drugs utilized in *Nasya* therapy



### SUSHRUTA'S CLASSIFICATION OF NASYAKARMA<sup>[41]</sup>

According to *Sushruta*, *Nasya* is of 2 types viz. *Shirovirechana* and *Snehana*.

These are further classified into 5 groups viz.



### VAGBHATA'S CLASSIFICATION OF NASYAKARMA<sup>[42]</sup>

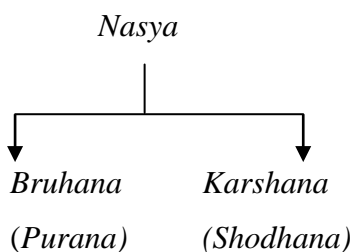
*Ashtanga Sangraha* has classified *Nasya* mainly into 3 varieties based on its effect viz. *Virechana*, *Brimhana* and *Shamana*. *Snehana* or *Brimhana Nasya* is further subdivided into two types on the basis of dose i.e., *Marsha* and *Pratimarsha*.

*Avapida Nasya* can be administered for both *Virechana* and *Shamana* purpose, whereas *Pradhamana Nasya* is employed only for *Shirovirechana*.

*Ashtanga Hridayakarta* has mainly classified *Nasya* into 3 types viz. *Virechana*, *Brimhana* and *Shamana*.

### KASHYAPA'S CLASSIFICATION OF NASYAKARMA<sup>[43]</sup>

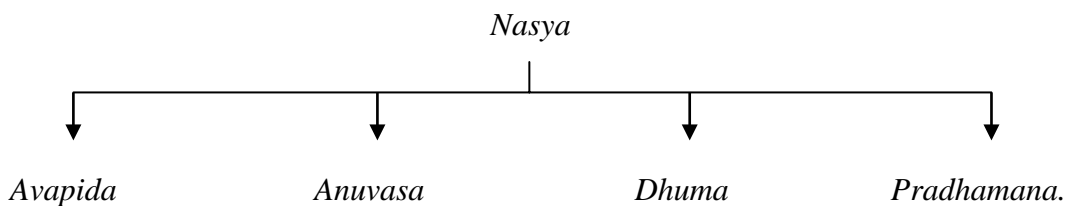
According to *Kashyapa Samhita*, *Nasya* is classified into two groups, viz. *Bruhana* and *Karshana* which are also known as *Purana* and *Shodhana Nasya* respectively.



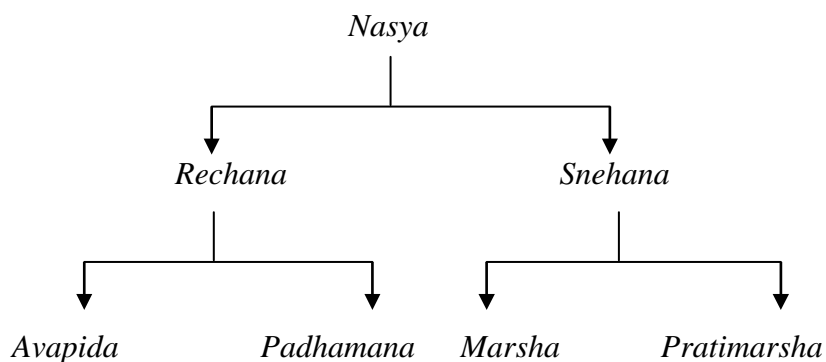


### **BHELA'S CLASSIFICATION OF NASYAKARMA [44]**

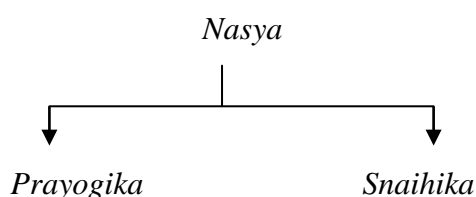
*Bhela* classifies *NasyaKarma* into 4 types, viz., &



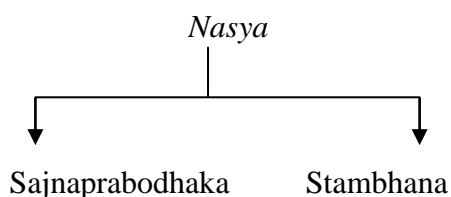
### **SHARANGADHARA'S CLASSIFICATION OF NASYAKARMA [45]**



### **BHOJA'S CLASSIFICATION OF NASYAKARMA [46]**



### **VIDEHA'S CLASSIFICATION OF NASYAKARMA [47]**



### **Classification of *Nasya Karma* according to Preparation**

Classification of *Nasya* by *Charaka* into *Navana*, *Avapida*, *Dhmapana*, *Dhuma* and *Pratimarsha* while by *Sushruta* into *Nasya*, *Shirovirecana*, *Pratimarsha*, *Avapida* and *Pradhamana* seems to be based on the type of preparation used or the way in which it is administered.

*Marsha* and *prathimarsha* explained by *vagbhata* was mainly on the basis of difference in the dose to be instilled into the nostrils.

Taking the *Charaka's* classification as the basis, all the above mention types of *Nasya* are being described here separately.

### NAVANA NASYA<sup>[48]</sup>

Navana is one of the well applicable therapies of *Nasyakarma*.

Method-

*Navana* is administered by instilling the drops of a medicated *Taila* or *Ghrita* into the nostril most of the time the medicines will be in the form of *Sneha*.

TYPES - Depending upon the therapeutic action, it is further classified into

2 types a) *Snehana Navana*

b) *Shodhana Navana*

***Snehana Navana***: - ***Snehana nasya*** suggests, it is employed to bring about *Snehana* effect. It provides strength to all the *Dhatus* and is used as *Dhatuposhaka*.

**Drug** –*Sarpi, Taila, Vasa & Majja* processed either singly or in combination with appropriate drugs. Generally, *Sneha* should be processed in *Vatapittahara Dravyas*.

**Dose** – The following is the dosage schedule for *Sneha Nasya*.

**Types** – According to *Vagbhata*, *Sneha Nasya* is further classified into 2 types based on dose:

i) *Marsha* ii) *Pratimarsha*

Indications –

*Vatika Shirahshula, Keshapata, Dantapata, Shmashrupata, Karnashula, Karnakshweda, Timira, Nasaroga, Mukhashosha, Avabahuka, Akalaja Valita, Akalaja Palita, Darunaprabodha* and *Vatapittaja Mukharoga*.

*Shodhana Navana Sushruta's Shirovirechana* type refers to *Shodhana* type of *Navana Nasya*.

**Drug** – In this type of *Nasya*, oil prepared by *Shirovirecana Dravya's* like *Pippali, Shigru* etc. can be selected.

**Dose** – The general dosage schedule for *Shodhana Nasya* is

*Hina Matra* – 4 *Bindu* in each nostril. *Madhyama Matra* – 6 *Bindu* in each nostril. *Uttama Matra* – 8 *Bindu* in each nostril.

**Indications**– *Aruchi, Shirogaurava, Shula, Pinasa, Ardhavabhedaka, Krimi, Pratishyaya, Apasmara, Gandhajnananasha, Urdhvajatrugata Kappharaga's*

Navana *Nasya* is *vasant ritu* in healthy persons.

Season *Nasya* given at -

<i>Shita Kala</i> : Noon
<i>Sharad and Vasanta</i> :Morning
<i>Grishma Ritu</i> :Evening
<i>Varsha Ritu</i> :Only when sun is visible

**Navana *Nasya dosha and kala* - *Kaphaj Roga* : fore noon**

*Pittaja Roga* : Noon

*Vataja Roga* : After Noon.

### **AVAPIDA NASYA<sup>[49]</sup>**

Definition:

The word Avapida implies to extricate juice of clears out or glue (*kalka*) of required medication.

It is one such assortment of *Nasyakarma* which is commonly utilized in crisis conditions.

Concurring to *Sushruta*, it is considered as the *Vikalpa* of *Shirovirechana*.

Strategy:

Solutions required for *nasya* are beat into a glue shape and after that are squeezed to extract the juice. This can be dropped into the nostrils. this prepare of regulating the medications is known as *Avapida nasya*.

This sort of *Nasya* may too be given with *Kalka* (glue) etc.

It may moreover be instilled by dipping the Pichu into the *Shruta* or *Shrutashita*, *Swarasa* of the desired drug.

In spite of the fact that *Sushruta* prescribes it as it were for *Shirovirechana*, *Sharkara* and *Ikshurasa* have been prescribed for *Stambhana* within the illness like *Raktapitta*.

Sorts – Concurring to *Charaka*, it is basically of 2 sorts

*Shodhana Avapida Nasya*

*Stambhana Avapida Nasya*

Drugs

For *Shodhana nasya Kalka* of *Tikshna dravyas* like *Saindhava*, *Pippali* etc. have been specified.

For *Shodhana nasya* Kalka of *Tikshna dravyas* like *Saindhava*, *Pippali* etc. have been said as *Avapida Nasya* and for *Stambhana* reason *Stambhana* drugs have been mentioned<sup>[50]</sup>

Sign:

In *Krusha*, *Durbala*, *Bhiru* at that point *Shrutha* or *Kalaka* has got to be utilized in like manner.

It is additionally shown in *Sanyasa*, *Murcha*, *Vishabhighata*, *Moha*, *Apatantraka*, *Mada*, *Apasmara*, *Kama*, *Atichinta*, *Krodha*, *Bhaya*, *Manasaroga*.

*Sharangdhara* has told the *Avapida Nasya* for the patients enduring from *Galaroga*, *Vishamajwara*, *Manovikara* and *Krimi*.

*Sangnaprabodhaka* and *Shodhana* & verities of *Avapida Nasya* are demonstrated in *Abhishyanna* (*MedaKaphabhivyapta Shiras*), *Sarpadashta Visanjna* (misfortune of awareness due to snake-bite), *Vishabhighata*, *Sanyasa*, *Murcha*, *Moha*, *Apatantraka*, *Mada*, *Apasmara*, *Bhranti*, *Chinta*, *Krodha*, *Bhaya*, etc. and other *Manasa Rogas* like *Mudachetas*, *Vyakulachetas*.

*Stambhana Avapida* is demonstrated in *Nasagata Raktapitta*, *Krusha*, *Durbala*, *Bheeru*, *Sukumara*, *Yoshita (Stri)*. (Su.Chi.40/44)

### **DHAMPAN NASYA<sup>[51]</sup>**

*Dhmapana* or *Pradhamana* could be a particular *Shodhana Nasya*.

Definition

Here the *Nasya* is ingraining with *churna* particularly for *Shirovirechana*.

*Dhmapana* may be a word said by Charaka and *Pradhamana* is been depicted by *Sushruta*.

Definition

The strategy in which the fine powder of therapeutic drugs is blown into the nostrils is known as *Dhmapana Nasya*. It cleanses the *Dehasrotas* by killing the dreary *dosha*.

Strategy –1. *Nadi* strategy

Here agreeing to reference expressed the fine powder of drugs is blown into the nostrils with the offer assistance of *Naadi Yantra*, which is six *anguli* in length. The fine powder of drugs is taken at one conclusion and discuss is blown from the other conclusion, so that the medication enters into the nostrils.

2nd method –By Videha

Here the fine home grown powder is wrapped in a *pottali* made of a lean cloth and is kept at the opening of the nostrils and is made to breathe in by the persistent.

Dosage:

Concurring to Videha the dosage of *Dhmapana Nasya* is three *Muchuti* (3 squeeze).

Signs:

It is demonstrated in patients beset with *Krumi*, *Visha*, *Manasa Roga* like *Unmada*, *Apasmara*, etc. *Sangnyanasha* and in other conditions showing with grave *doshik* vitiation.

### ***DHUMA NASYA***<sup>[52]</sup>

Definition:

It is characterized as cured vapor taken through nostrils and killed through verbal depression.

*Dhuma Nasya* are of the taking after sorts:

*Prayogika*.

*Vairechanika*

*Snaihika*.

Instrument:

required for the *dhuma nasya*

A uncommon *Dhumanadi* (smoking pipe) has been specified by *charaka* to breathe in smoke. Its length ought to be of 24 *Angula* and breadth of measuring one's own finger. This estimation is for *Virechana* type. 32 *Angula* is the length specified for *Snaihika Dhuma* where as 36 *Angula* length for *Prayogika Dhuma* is been specified.

Strategy of organization:

Understanding is inquired to the breathe in the smoke that is radiated out from burning the herbs. While breathing in in one nostril, the other nostril is closed with a finger. The smoke is at that point made to elude through the mouth.

Sedate:

All the *Gandha dravyas* can be utilized. But, *Kushta* and *Tagara* ought to never be utilized.

Signs – Is indicated in *Shiroroga*, *Nasaroga*, *Akshiroga*.

### **MARSHA & PRATIMARSHA NASYA<sup>[53]</sup>**

Both *Marsha* and *Pratimarsha* sort of *Nasya* comprises of presenting the oil through the nostrils. And it is stated that the *prathimarsha* assortment of *nasya* is portrayed as the foremost convenient form of *Nasya* because it does not lead to any discomfort or complications.

Definition- The method where within the sedated *Sneha* is dropped into the nostrils in a indicated dose is called as *Marsha- Pratimarsha Nasya*.

### **PRATIMARSHA NASYA<sup>[54]</sup>**

Definition- Cured *Sneha* when managed into the nostrils in a small and particular dosage is known as *Pratimarsha Nasya*. It is portrayed as the foremost convenient form of *Nasya* because it does not have any complications.

Sorts – It is of 2 types viz.,

*Snehana*

*Virechana*

Method – The index finger is plunged in the required *sneha* and after that the *sneha* is ingraining into the nostrils, making beyond any doubt that it does not reach the *kanta pradesha* i.e the amount ought to be least.

### **INDICATON<sup>[55]</sup>**

Indeed a healthy individual can use this for advancing the quality & stability to *Indriyas* & organs within the head.

Measurements – 2 Bindu in each nostril is the dose mentioned by *Sharangadhara*, *Vagbhata*.

It can be managed in any season, indeed within the season which is not reasonable for the *nasya karma* like *varsha* and *durdina*.

## CONTRAINDICATION<sup>[56]</sup>

It is contraindicated in *dusta prathishyaya, bahudosha, durbala shrotra, udirna doshas*.

It is contraindicated in such individual since as the *sneha matra* is deficiently to kill *doshas* or may aggravate the *dosha* which is as of now vitiated.

*Pratimarsha* can be given in

Any age

Any season

Indeed in not appropriate time & season

*Varsha* and *Durdina, Bala, Vriddha*

*Bhiru, Sukumara, Powerless patients, Kshatakshama, Trishna Pidita, Mukhashosha*

*Valita* and *Palita*

*Pratimarsha Pranidana Kaala* –*Sharangadhara & Sushruta* and have portrayed fourteen appropriate times for the organization of *Pratimarsha Nasya*, while *Vagbhata* has specified fifteen such *Kala*. *Sushruta & Vagbhata* have even enumerated the benefits of *Pratimarsha* performed in each *Kala*.

## MARSHA NASYA<sup>[57]</sup>

The as it were distinction between *Pratimarsha &*

*Marsha* is the measurement.

*Pratimarsha nasya* is managed in lesser dose when compared with *Marsha*, 6-10 drops of *sneha* is ingraining to each nostril, this is known as *marsha nasya*.

Measurements – *Vagbhata & Sharangadhara* have specified distinctive dose design:

According to *Vagbhata*

*Hina Matra* – 6 *Bindu* in each nostril.

*Madhyama Matra* – 8 *Bindu* in each nostril.

*Uttama Matra* – 10 *Bindu* in each nostril.

Agreeing to *Sharangadhara*

*Hina Matra* – 1 *Shaana* (8 *Bindu*)

*Madhyama Matra* – 4 *Shaana* (32 *Bindu*)

*Uttama Matra* – 8 *Shaana* (64 *Bindu*).

*Nasya Karma Ayogya* by Charaka, Sushruta and Vagbhata.

*Bhuktabhakta, Ajirni, Peeta Sneha, Peet Madya, Peet Jala, Snehadi patukmah, Snatah Shirah, Snatukmah, Kshudharta, Shramarta, Matta, Murcchita, Shastradandahrita, Vyavamklant, Panaklanta, Nawajwara Pidita, Shokabhitapta, Virikta, Anuvasita, Garbhini, Navapratishtyayatha, Apararpita, Peetadravah, Trishartha, Krudha, Bala, Vrudha, Vegavrodhit, Raktastravit, Sutika, Shvasapidita, Kasapidita.*

### **Complication<sup>[58]</sup>**

In case *nasya karma* is performed In *Ajirna* or *Bhuktabhakta* then there will be hindrance to the *Urdhvavaha srotas* leading to *Kasa, Shwasa, Chardi* and *Pratishyaya*.

On the off chance that *nasya karma* is performed after expending *Sneha, Madhya,* and *Toya* at that point it leads to *Nasastrava, Akshiupadeha, Timira,* and *Shiroroga*.

In case *nasya karma* is performed after *Snana* or in case *Snana* done after *Nasyakarma* leads to *Pratishyaya*.

On the off chance that *nasya karma* is performed in *Kshudhita Vataprakopa* takes put.

On the off chance that *nasya karma* is performed to a *Trushni* it encourages aggravates the *Trushna* driving to *Mukhashosha*.

In case *nasya karma* is performed In *Shramita, Mattha, Murchita* leads to *Lakshana's* as found in the *Niruha Basti Vyapath*. The pain increases on the off chance that *Nasya* is done to a individual who has the got beaten by the *Shastra* and *Danda*. In case *nasya karma* is performed to a understanding who is weariness due to *Vyavaya, Vyayama* and *Madhyapana*. may lead to torment within the *shira, skhanda* and *netra*.

In case *nasya karma* is performed to a individual with *Navajwara, Shoka,* it leads to disturbance of the *Ushma* leading to *Timira* and there is further increment in the *Jwara*.

In case *nasya karma* is performed to a individual who has experienced *Virechana* leads to *Indriyaupaghata* and for *Anuvasita* leads to *Kaphaprakopa, Shirogurutha, Kandu, Krimi*.

If *nasya karma* is performed in *Garbhini* leads to *Garbha Sthambha,* driving to *Kuni, Pakshahata*.

In *Navapratishtyaya* leads to *Vikruthi* in *Srotas*.

In *Akala* and *Durdina* due to *Shita Dosha* it leads to *Putinasya*



and *Shiroroga*.

### **NASYA PRANIDANA YOGYA KALA<sup>[59]</sup>**

By and large, *Nasya* should be given in *Pravrut, Sharad, Vasanta ritu*. By giving manufactured conditions of the above-mentioned seasons *Nasya* can be given in any season in crisis. For example, in summer, *Nasya* can be given in cold places and in cold seasons it can be given in hot places.

### **NASYA KARMA COURSE<sup>[60]</sup>**

Concurring to *Ashtanga Sangraha* *Nasya* should be given for 3 days, 5 days, 7 days, 8 days or till the *samyak nasya lakshana* is achieved.

Charak has not told particular length of the *nasya karma* but recommended to grant concurring to the seriousness of the disease.

*Nasya* can be managed on alternate days, once in 2 days for seven sittings or twenty – one sitting. Two sittings may moreover be drained a day. Agreeing to *Bhela* he has mentioned not to perform *nasya karma* more than nine days because it leads to *satmya* to the body. *Nasyakarma* may be given for seven successive days. In condition like *vata dosha* in *shira, Manyasthamba, Swarabhramsha* etc *nasya karma* may be done twice a day.

Measurements in *Nasya Karma*:

Acharya Charaka has not specified prescribed the precise dose of *nasya* the dosage of *Nasya* medicate depends upon the assortment of the treatment and sedate utilized for it. *Sushruta* and *Vagbhata* have explained the dose in shape of Bindus (drops). Here one Bindu implies the drop that's shaped after plunging the two phalanges of *Pradeshini* (record finger) in oil.

**Table No.3: Dose of *Nasya*.**

No.	Type of <i>Nasya</i>	<i>Hrasva Matra</i>	<i>Madhyama Matra</i>	<i>Uttam Matra</i>
1	<i>Shamana Nasya</i>	8 drops	16 drops	32 drops
2	<i>Shodhana Nasya</i>	4 drops	6 drops	8 drops
3	<i>Marsha Nasya</i>	6 drops	8 drops	10 drops
4	<i>Avapida Nasya</i>	2 drops	2 drops	2 drops
5	<i>Pratimarsha Nasya</i>	2 drops	2 drops	2 drops

## ADMINISTRATION OF NASYA

The method of *Nasya karma* may be classified beneath taking after headings:

*Purva karma* (Pre-measures).

*Pradhana karma* (Chief degree).

*Pashchata karma* (Post-measures).

### 1. *Purva Karma* (Pre-measure)-

It is prudent that all materials, drugs and hardware like serviette, cotton essential for *Nasya karma* are collected in adequate amount earlier to *Nasya karma*.

A extraordinary room “*Nasya Bhavana*” free from climatic impacts like coordinate blow of discuss and tidy, etc. and lit fittingly ought to be chosen. The taking after articles ought to be kept within the room:

*Nasya Asana*:

It ought to be put in *Nasya* room.

It comprises of a chair for sitting reason bed for lying reason.

*Nasya Aushadhi*- Drugs required for the acceptance and administration of *shirovirechana* should be collected within the frame of *Shunthyadi taila* etc in adequate amount.

*Nasya Yantra*:

It ought to be collected agreeing to the sorts of

*Nasya* such as:

A dropper or *Pichu* - For *Snehana*, *Avapida*, *Marsha*, *Pratimarsha*

*Shadangula Nadi* - For *Pradhmana Nasya*.

*Dhuma Yantra* - For *Dhuma Nasya*.

Determination of The Quiet:

The quiet ought to be chosen concurring to the signs and contra-indications of *Nasya* portrayed in classics.

Arrangement of The Understanding:

To plan the quiet for the *Nasya karma* taking after matter ought to be considered concurring to Acharya *Sushruta*. Persistent ought to have passed his characteristic inclinations like pee and stool. He ought to have completed his schedule exercises.

Light breakfast earlier (1 hour) to *Nasya karma* is prompted.

Presently the quiet is exhorted to lie down comfortably loose on a bed in recumbent position, hands and legs extended straight. His body is draped up to the neck. Eyes are secured with a cloth to dodge any spilling of medication.

*Mrudu Abhyanga* is done on scalp, brow, confront and neck.

*Mrudu Swedana* within the shape of *Tapasweda* utilizing cloth dipped in hot water for is done after *Abhyanga* over *Lalata, Mukha, Nasa, Manya, Griva* and *Kantha* locale.

*Pradhana Karma*:

*Sushruta*<sup>[61]</sup> *Vagbhat*<sup>[62]</sup> *Charaka*<sup>[63]</sup> and has clarified the method *Nasyakarma* as take after:

Position of the Quiet:

Persistent is exhorted to lie down in a comfortable prostrate position on *Nasya* table.

Shira or the head is made to be “*Pralambita*” (brought down /hanging down) and foot conclusion is somewhat raised.

Head ought to not one or the other be unreasonably flexed nor amplified.

Organization of medication:<sup>[64]</sup>

After covering of eyes with a clean cloth, the tip of quiet nose ought to be drawn upward by the clear out thumb of the *Vaidya*. At the same time with the right-hand *Vaidya* ought to instil tepid pharmaceutical within the both nostrils. Then again, with the assistance of legitimate instrument like *picchu*, dropper, *shadangula nadi* etc. Agreeing the sort of *nasya*.

The medicate ought to be in a appropriate amount i.e it ought to not one or the other be less nor more within the dosage. It ought to be Tepid. The patients ought to stay relaxed at the time of organization of *nasya* and he ought to avoid speech, outrage, wheezing, chuckling and shaking his head.

Significance of recumbent position in *nasya* :

Significance of recumbent position has been demonstrated in numerous thinks about It is vital to keep the creatures in a recumbent position in arrange to extend the chance for the medicate to reach the olfactory locale or the upper portion of the nasal depression where is coordinate get to to the brain. In people, the olfactory locale covers almost 10% of the nasal depression with constrained get to.

Significance of head brought down position and *poorva karma*

1. Bringing down of the head, height of lower limits and fomentation of confront - are the strategies appear to have an affect on blood circulation to the head.

2. As the efferent vasodilator nerves are spread out on the shallow surface of the face which after incitement at surface of the confront, by fomentation may the expanded blood stream to the brain, i.e. momentary hyperaemia.
3. It has been roughly calculated as 22% of total dilatation of cerebral capillaries caused by the facial efferent incitement, will lead to 150% of blood influx.
4. It is additionally conceivable that the drop of arterial weight due to vasodilation may experience with Cushing's response. In which, when the proportion between the C.S.F. weight & cerebral blood vessel weight has reduced, the expanded C.S.F. weight tends to compress the courses within the brain causing a transitory ischemia within the brain.
5. Due to this, the stimulated 'ischemic response' will along these lines raise the blood vessel weight (Cushing). This act persuades more of 'Slush' made in intracranial space, likely constraining more transfusion of liquids into the brain tissue.

Quick measures after organization of *Nasya Mardana* (Massage) ought to be done over palms, soles, shoulders, ears. At that point the quiet ought to be told to draw the pharmaceutical to the throat and spit it out on either side (right & cleared out side on to Spitting pot kept on either side).

Perception of the Understanding – for *Samyak, Ayoga, Atiyoga Lakshana* and *Vyapads*. Appropriate treatment ought to be received in the event that any *Ayoga, Atiyoga & Vyapads* are taken note.

### **PASHCHAT KARMA**

*Sushruta*<sup>[65]</sup>, *Charaka, Ashtanga Hrudaya* and *Sharangdhara* has advised for the taking after regimen. Patient in lying position is asked to number up to 100 *matra* i.e. roughly 2 minutes. At that point this regimen ought to be taken after. *Snehana, Swedana, Dhumapana, Gandusha, Ahara, Parihar Vishay*.

### **Parihar Vishaya–**

*Mrudu Abhyanga* and *Swedana* over *Gala, Kapola, Mardana* over bear, feet and hands is done.

*Dhumpana*<sup>[66]</sup>

Inhalation of smoke for the helpful purposes is known as *dhumapana*. The kapha *dosha* that is accumulated within the head is best cleared by *Dhumpana*. This is done as *Paschat karma* after *vamana* and *nasya karma*.

**Strategy**

Two to three puffs are to be taken through the mouth and breathed out through mouth itself and never breathed out through the nose.

As *purvakarma snehana* and *swedana* are regulating earlier to *nasya karma*. by these *doshas vilayana* happens within the *srotas* and it makes a difference for simple expulsion of *doshas*. In most of the time indeed after the organization of *nasya karma* there may be chance of accumulation of some amount of *doshas* within the *srotas*. That held kapha *dosha* cannot be come out by *nasya dravya* and gets collected their itself and further leads to distinctive illnesses. Thus to evacuate this, *dhumapana* is managed. This will clear the *srotas* and ousts the remaining *doshas*.

*Gandusha*<sup>[67]</sup>

Procedure of holding the oil or decoction within the verbal depression for certain time period is known as *gandusha*.

Classification:

*Snigdha gandusha*

*Shamana gandusha*

*Shodhana gandusha*

*Ropana gandusha*

After *dhumapana*, *Ushna jala gandusha* has been explained.

This evacuates the *kapha* display in the verbal depression.

*Ahara - Hita Ahara, Anabhishtyandi Ahara, Laghu & Ushna Ahara.*

*Parihara Vishaya* one ought to maintain a strategic distance from presentation to *Raja, Dhuma, Atapa, Shirasnana, Atiyana, Krodha* and remain in a put which is destitute of coordinate blow of wind.

*Samyak Yoga of nasya karma:*

*Urahoshiroolaghuta, Shirolaghuta, Netralaghuta, Strotovishuddhi, Swaravishuddhi, Vaktavishuddhi, Indriyacchta-prasada, Netrateja Vriddhi, Chitta prasada, Vikarprasaman, Shuddha swapn, Medha, Bala.*

### **Ayoga**

*Ayoga of Nasya karma* will be seen on the off chance that *Nasya* isn't given in legitimate way or on the off chance that the dosage is less. *Shirogurava, Galopalepa* and *Nishthivana Kandu, Upadeha, Guruta, Srotasam Kaphastrava, Upadeha, Rukshata, Nasashosha, Akshahosha, Shirosunyata, Vitiation of Vata, dryness in Indriya* and no help within the side effects of the infections dryness in mouth and nose are the indications of *Ayoga of Nasyakarma*.

### **Atiyoga**

*Shirogurava, Shira Shunyata, Shira Vedana, Netra Vedana, Shankavedana, Suchitodavat pida, Indriya Vibhrama, Mastulungagama, Snehapurna Strotas, Karnatalu upadeha, Vata Vriddhi, Kandu, Praseka, Pinasa, Aruchi, Deha daurbalya, Unmada, Pitta vriddhi, Hridaya shula, Suryavarta roga, Atrupti.*

**Table No.4: Management of Ayoga and Atiyoga.**<sup>[68,69]</sup>

<b>NASYA/CHIKITSA</b>	<b>AYOGA CHIKITSA</b>	<b>ATIYOGA CHIKITSA</b>
<b>SHIROVIRECHANA</b>	According to Charaka, after <i>Snehana &amp; Swedana</i> , <i>Teekshnanasya</i> should be administered again. According to <i>Sushruta Vagbhata, Kashyapa, Sharangadhara &amp; Bhavamishra.</i>	According to Charaka, <i>Mrudu &amp; Drava Tarpana</i> should be given. According to <i>Sushruta, Vagbhata, Kashyapa, Sharangadhara, &amp; Bhavamishra, Vataghna Chikita</i> should be adopted.
<b>SNEHANASYA</b>	According to <i>Sushruta, Nasya</i> should be administered again.	According to <i>Sushruta-Ruksha Upachara</i> should be adopted. According to <i>Sharangadhara and Bhavamishra- Ruksha &amp; Anabhishtyandi Ahara</i> is advised.

## **BENEFITS OF NASYAKARMA**

It cures the maladies of the *urdwajatru*.

Evacuates the clouding or bluntness of the *indriyas*.

Gives sweet smell to the mouth & quality of the jaws, teeth, bones, head, neck, arms & chest.

It secures against the assault of *Vali, Palitya, Vyanga*.

It feeds & fortifies *Griva, Asya, Skanda Vaksha* and all *indriyas*.

Practicing *Nasyakarma* at the correct time will keep his sense organs whole.

He does not endure from untimely greying of hair & facial hair.

It diminishes hair fall.

It cures the *maladies* like *Ardita, Shirahshula, Hanugraha, Manyastambha, Peenasa, Ardhavabhedaka, Shirahkampa*.

It fortifies vessels, joints, tendons & ligaments of head the confront will gotten to be cheerful and progresses *swara*.

Sense organs will be reinforced.

Checks the illness of *Urdhvajatrugata* of the body.

It may conceivable that *Nasya aushadhi* through neurological pathway works as discernment of scent is gotten through olfactory pathway and hence controlling different apprehensive and endocrinal illnesses. This truth can too be upheld by sign of *Nasya* in disease like *Pakshaghata, Avabahuka, Manyastambha, Ardita, Sangyanash, Murchha, Galganda, Aruchi*, sleep disarranges etc.

Time length after *nasya karma* Dharana kala for *nasya* is specified as 100 matra *kala* Charlton and colleagues detailed that nasal drops have higher testimony within the olfactory locale compared to nasal showers in the event that managed to the understanding in a prostrate position, and when defined with mucoadhesive operators it is able to decrease the time in which the detailing is cleared from the region. The longest mean home time within the olfactory locale accomplished within the ponder was almost 14 min, compared to 1.3 min for control arrangement without any mucoadhesive operators.

- Gozes et al. had appeared with turned around stage- HPLC that (3)H-labeled Rest comes to the brain unaltered after 30 min from administration and by the 60-diminutive stamp it comes to its greatest concentration within the brain cortex.

### **SIGNIFICANCE OF TAILA FOR NASYA**

*Nasya* drugs managed by utilizing all conceivable media like fluid media (*Aavapeeda*), strong particles (*Pradhamana*), vaporous media (*Dhooma*). But most favored medium for the superior activity is oil media.

- The bodily fluid is able to trap various atoms and convey them to the throat where after they are gulped into the GI tract. Subsequently, drugs must pass through this bodily fluid layer to reach the surface of the epithelium and be retained. Higher thickness of the bodily fluid causes lower clearance rate, but may moreover in a perfect world permit larger percentages of measurements of drugs to enter the bodily fluid and reach their planning target.

### **IMPORTANCE OF KALA IN NASYA**

Cup cells discharge mucin to form the bodily fluid layer along with a few of the nasal glands, which is turned over at shifting rates (Merkus et al., 1998) depending on the environment such as mugginess and temperature, but too depending on different circadian variables. Basal cells are the key cells within the nasal depth being able to create into all the other sorts, when required.

### **MODE OF ACTION OF NASYA KARMA**

The clear depiction with respect to the mode of activity of the *Nasya karma* isn't accessible in Ayurvedic classics. Concurring to Charaka Nasa is the door way of Shira. The sedate managed through nose as *Nasya* comes to the brain & disposes of as it were the horrible *Doshas* capable for creating the *malady*.

#### **In Ashtanga Sangraha**

*Nasa* being the door to *Shira*.

The sedate managed through nostrils.

Comes to *Shringataka* (*Sira Marma* by *Nasa strotas*).

Spreads within the *murdha* (brain) taking *marma* of Netra (eye),

*Shrotra* (ear), *Kantha* (throat), *Shiramukhas* (opening of the vessels, etc.).

Scratches the dismal *Doshas* in supra clavicular locale removes them from *Uttamanga* (AS. San 29/2).



*Sushruta* has clarified *shringataka Marma* as a *Sira Marma* shaped by the union of *siras* (blood vessels) providing to nose, ear, eye & tongue. He further points out that harm to this *marma* will be instantly deadly (Su. Sha. 6/27).

Indu in his commentary on *Astanga Sangraha* has opined *shringhataka* as the inner side of centre portion of the head i.e. *Siraso Antarmadhyam*. Beneath the complications of *Nasya karma* *Sushruta* famous that the over the top eliminative. *Mastulunga* (cerebro spinal liquid) to flow out of the nose (Su.Ch. 40/40).

In *Sushruta*, *Astanga Hridaya*, *Bhavaprakasha*, etc point by point portrayals are not found almost the mode of activity of *Nasya karma*. Concurring to all unmistakable Acharyas Nasa is said to be the portal of Shira. It does not cruel that any channel interfaces straightforwardly to the brain but they may be associated through blood vessels or through anxious framework (olfactory nerve, etc.)

It is an tentatively demonstrated reality that –

Wherever any sort of disturbance takes put in any portion of body.

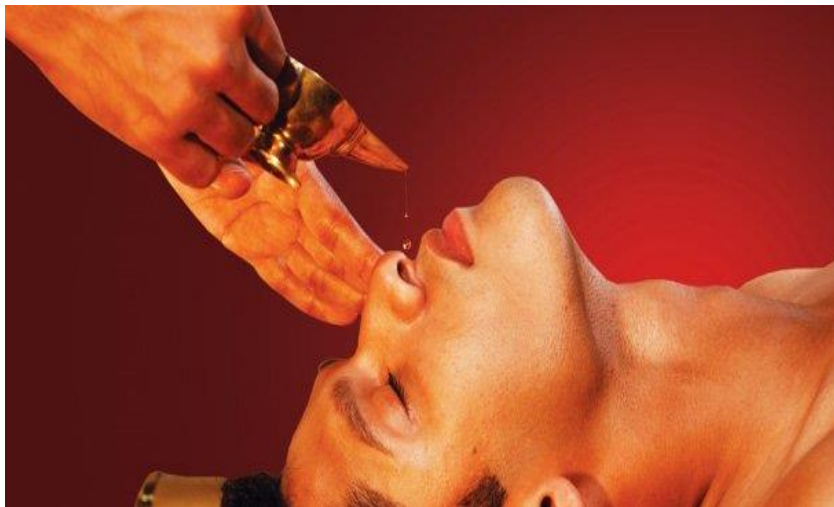
The nearby blood circulation is continuously expanded.

This is the result of common defensive work of the body.

When incitement of *Doshas* takes put in Shira due to aggravating impact of managed drug resulting increment of the blood circulation of brain.

So additional gathered dismal *Doshas* are removed out from small blood vessels.

Ultimately these horrible *Doshas* are tossed out as nasal release, tear & salivation.



**Fig. No 5: Nasya Karma.**

## MODERN POINT OF VIEW

There's no such coordinate Pharmacodynamic contemplations between nose & no such cranial organs.

More over blood, brain barrier could be a strict security framework that human brain has.

Within the case of paranasal sinusitis certain operators utilized as decongestants.

Since very a time front pituitary hormones nasal splash is in hone with advanced therapeutic framework.

Nasal organizations or luteinising hormone (Fink G. et al 1973) & calcitonin (Potiroli E.A. et al 1983) are found to be similarly successful as intravenous implantations in keeping up blood concentrations.

Intranasal gonadotropin hormone discharging hormone has been remedially prescribed in fortifying luteinising hormone discharge in cryptorchid boys (undescended testis) (Raifer J. et al 1985).

Kumar Anand (1979) has endeavoured prophylactic sedate organization per nasal route & opined that the course is useful than orderly organization.

Diminishment within the gland activity & lessening is sperm prolactin was moreover famous.

On the premise of the prior perceptions, we will state that the strategies, stances & conducts clarified for *Nasya karma* are of imperative significance in medicate retention & transportation.

## LEPA KALPANA

"आलेप आ उपक्रमः एष सर्वशोफानां ।"(सु.सू.१८/३)

*Panchavidh Kashay Kalpana* are detailed for the administration of medication.

Kalka is among the five Kalpana. *Lepa* is the *upakalpana* of *kalka*, specifically for external use.

*Nikruti*:-

The process of applying medicinal drug externally on the entire body or a specific part of the body is referred to as *lepa*.

Synonyms:-

"देह प्रलेपनार्थं तत लेप् इति उच्यते बुधेः ।"

"आलेपस्य च नामानि लिप्तो लेपश् लेपनम्" ।(शां.सं.उं.ख. ११/१)

*Alepan* (Topical Application) also known as *lipta*, *lepa*, *lepan*.

Definition & standard Mode of Preparation:-

"द्रव्यमार्द्रं शिलापिषुं शुष्कं वा सद्रवं तनु ।

देह प्रलेपनार्थं तल्लेप इत्युच्यते बुधैः ॥(द्र.गु.वि.यादवजी)

Medicines in the form of a paste used for external application are called *lepa*. The drugs are made into a fine powder form. Before use on the body, they are mixed with a liquid or other medium specified in each preparation and made into a soft paste. Water, cow's milk, cow's urine, oil & ghee are some of the media used for mixing.

If the medicinal drug is in a dry state, it is made into *kalka* form. This *kalka* is used for external application and is known as *lepa kalpana*.

Pharmaceutically, *lepa kalpana* is a type of *kalka kalpana*, while in clinical practice, *lepa kalpana* is solely for external application.

When using *Sneha*, the *praman* of *Sneha* is described as:-

**Table no 5: Praman of Sneha according to dosha.**

<i>Dosha</i>	<i>Sneha Dravya Quantity</i>
Vataj Vyadhi	1/4 part
Pittaj Vyadhi	1/6 part
Kaphaj Vyadhi	1/8 part

### **Significance of *Lepa kalpana***

- In *sushrut samhita* in setting of *vrana* and *shopha* treatment *alepa* is given prime significance.

Whereas clarifying the viability of *lepa* it is said that by pouring water over a burning house how the fire is get halted instantly, same way by application of *lepa* incited *dosha* of *vrana* will get die down. *Lepa* having activity like *shodhan*, *utsadan*, *ropan* etc

### **Sorts of *lepa***

- Diverse researchers of *Ayurveda* have specified diverse sorts of *lepa* on the premise of sedate utilized for planning, mode of organization and its utilization.

Concurring to Acharya *Sushruta*, *lepa* is of three assortments.

स त्रिविधः प्रलेपः

प्रदेहः आलेप्स्व ।"सु.सू.१८/६

*Pralepa:*

- "प्रलेपः शीतस्तनुरविशोषी विशोषी चः ।" (सु.सू.१८/६)

*Pralepa* could be a *tanu* frame of *lepa*, having *sheet virya* which ought to be connected in its characteristic frame and application ought to be lean layered.

It is for the most part utilized in *piitaj* and *raktapradoshaj vyadhi*.

*Pralepa* shows a cooling and alleviating activity by ethicalness of sheet *veerya*.

*Pradeha:*

- प्रदेहस्तूष्णः शीतो वा बहुलोऽबहुरविशोषी च । (सु.सू.१८/६)

*Pradeha* is frame of *lepa* having *ushna veerya* which ought to be connected in warm frame and application is thick

*Alepa:*

- मध्यमो ऽत्रालेपः ।" (सु.सू.१८/६)

*Alepa* is halfway arrange between *pralepa* and *pradeha* that it is not one or the other hot nor cold and not one or the other nor lean. Concurring to *Asthang Samgraha lepa* are of ten sorts. 1) *Snaihik* 2) *Nirvapana* 3) *Prasadana* 4) *Stambhan* 5) *Vilayan* 6) *Pachan* 7) *Pidan* 8) *Shodhan* 9) *Shoshan* 10) *Savarnikaran* Acharya *sharangadhara's* concept with respect to *lepa kalpana* on the premise of sedate utilized for arrangement of *lepa* and their activity. Acharya *sharangadhara* has classified *lepa Kalpana* like shrewd.

दोषघ्नो विषहाः वण्यो मुखलेपस्त्रिधा मतः ॥" (शा.सं.उ.ख.११/१२).

*Lepa Kalapana* is of there Assortments:

- 1. *Doshagnha Lepa* 2. *Vishagnha Lepa* 3. *Varnya Lepa* On the Premise of nature of *lepa* and its thickness etc. Acharya *Sharangadhara* has again classified *lepa kalpana* moreover

"शीतस्तनुर्विशोषी च प्रलेप ।"

आर्दा घनस्तथोष्णः स्यात्प्रदेहः श्लेष्मवातहा (शा.सं.उ.ख. ११/७१)

*Lepa* is of two sorts *Pralepa* and *Pradeha*. *Pralepa* is that which is connected cold, lean and which dries rapidly while *pradeha* is connected warm, thick and stay sodden for long time.

"नाति शीतो नात्युष्णो नातितनुनांतिबहलः स्यात् । शोफानां सामान्यः प्रधानतमस्चोपक्रमः तनुलोपान्नोष्माणमन्तः । प्रवेश्यति सुखाया च भवति ॥" (सु.चि.१७/७)

Whereas applying *Lepa* it ought to not one or the other be as well cold as well hot, not one or the other be as well watery nor as well strong.

*Lepan Vidhi:*

- Mode of Application of *Lepa*:

- So numerous *samhita* has depicted uncommon strategies for application of *lepa*

तत्र प्रतिलोमलिंपेत्रानुलोमम प्रतिलोमे हि सम्यगोषधमवतिष्ठेऽनुप्रविशती रोमकूपान  
स्वेदवाहिमिभ्व सिरामुखेविर्य प्राप्नोत ।"(सु.सू.१८/४)

Numerous *Samhita* has pulled in our considerations towards the strategy of application.

"तन्त्र प्रतिलोमलिंपेत....."(शा.सं.उ.११/७३)

This is often the single & most vital run the show given by *Acharya Sushruta*. It is exhorted by *Acharya Sushruta* and *Sharangadhara* that the application of *lepa* must be against the heading of *rom kupa* (i.e. hair). This way of application is valuable as the dravya of *lepa* can reach at the base of *romkupa* and can enter in *swedawahi strotas* and *siramukha*, which is vital for its activities. This miniature perception is provided by which unavoidably implies that the dynamic fixing of the *lepa* comes to the influenced portion and exerts its activity.

Rules of Application of *Lepa*:

- Thickness of *Lepa* :

"तस्य प्रमाणं माहिषार्दचर्मोत्सेधमुपदिशति ॥"(सु.सू.१८/१२)

Whereas clarifying the width of *lepa* *Sushruta* told that the thickness of *lepa* ought to be comparable to cleaned skin of buffalo. *Sharangadhara* depicted width of *lepa* concurring to sort and clarify it in *anguli praman*.

दोषघ्नो विषघ्न वयों मुखलेपास्त्रिधा मतः त्रिप्रमाणश्चतुर्भागाऽर्धा गुलोनत्रतः ॥(शा.सं.उ.११/१२)

These thickness are given for the purpose of redress activity of diverse sort of *lepa*.

Length of *Lepa*:

न च शुष्यमाणमुपेक्षेत "अन्यत्र पीडयितव्यात शुष्को हयापार्थको रुक्कश्च ।"(सु.सू.१८/४)

Term of connected *lepa* is up to its halfway drying. The *lepa* should continuously be evacuated some time recently it gotten to be completely dry.

As the *lepa* gotten to be dry, it appears no positive activity on the opposite it cause torment to that specific location. So because it gets to be functionless, *lepa* gradually removed using tepid water. There's as it were one condition where the *lepa* is

permitted to dry totally is that when 'Pidan Karma' is anticipated particularly on Vranshoth. This pidan activity on *pakwa vranshoph* makes a difference to remove out the *puya* and outside fabric.

"पूयगर्भानणुद्धारान व्रणान मर्भगतानापि यथोक्तेः पीडनद्रव्येः

समन्तात् परिपीडयेत् ॥"(सु.चि.४६/४७)

Something else in other illness it should be evacuated some time recently gotten to be completely dry because it causes throbbing torment, burning sensation, sucking torment, discoloration and such other complications. Rules of Application.

"न रात्रौ लेपनं दद्यात् दृष्ट्वा पतितं तथा। न च पर्यषितं शुष्यमाणं' नेवावधारयेत् ॥ शुष्यमाणुपेक्षेत प्रदेह पीडनं प्रति।

ना चापि मुखमालिम्पेत तेन दोषः प्रसिच्यते ॥"(चक्र.सं.४४/११)

1. *Lepa* ought to never be connected at night.
2. Once connected *lepa* ought to not be reused because it ended up ineffectual.
3. *Lepa* ought to be arranged new extra time since stale *lepa* does not have the strength of new *lepa*.
4. Dried *lepa* never be utilized for application.
5. Whereas applying on *dustavrana*, it is essential to uncover the *vranomukh* for waste of *puya*.
6. Maintain a strategic distance from twofold coat application of *lepa* since the double coating serves no reason as the moment coat of *lepa* does not reach the root of hair to start activity. Too twofold coating may cause torment, burning sensation and thus may overstate the illness since of raised temperature.
7. At the final and most imperative run the show is that the *lepa* ought to continuously be connected against the course of rom kupa (i.e hairs)
8. After application of *lepa* a unfaltering position is required.
9. Most of the *lepa* may apply with the assistance of *snigdha dravya* as per prerequisite.
10. Affectability test may be connected for *ushna veerya lepa*.

Activity of *lepa*:-

यत्पुनर्बहिः स्पर्श माश्रित्याभ्यंगस्वेदप्रदेह परिषेको च्मर्नादयेरामयान प्रमाष्टित्दबहिः परिमार्जनम  
॥"(च.सू.११/५५

Concurring to Charak *Lepa Kalpana* comes beneath the subject *bahiparimarjana chikitsa*, which suggests the strategy of treatment in which medication is applied externally. *Paripakwa virya* of the *lepa* is retained within the skin through *romkupa* and is circulated through the body by means of channel of *tiryak dhamani*. Then it acts on the *doshas*, *dhatu's*, *strotasa* and organs of the body. Activity of *lepa* is on the skin and skin is the location of *bhrajaka pitta*. *Bharajaka pitta* is responsible for the *pachana* of *lepa*. Hence it moved forward *Varna*, *Charya* and *prabha*. Employments of *Lepa*:

आलेपः आदयः उपक्रमः एष सर्व शोफानां, सामान्य प्रधानतमश्च तत्र प्रतिरोगं वक्ष्यामः  
॥"(सु.सू.१८/३)

Concurring to *Sushrut Samhita*:

- *Lepa* is exceptionally to begin with treatment of all sorts of *vranshoth*. The application of *lepa* is shown with the starting of *Vranshoth*. Distinctive *dravya* are used for diverse *dosha* and distinctive *avastha* of *Vranshoph*.

"अविद्धेषु शोफेषु हितमालेपनं भवेत् ।

यथास्वं दोषशमनं दाहकन्दुरुजापहमं ॥"(सु.सू.१८/१)

*Alepa* is basically shown on *avidhagha shopha*. 1. By application of *lepa* on *awavastha* of *vranshotha*, it decreases torment, swelling and maintain a strategic distance from the transmission of *vranshotha* in its pending arrange. *Lepa* cools the burning sensation. It stops tingling sensation. It stops throbbing, sucking torment. 2. Application of *lepa* in *pachhyamanavastha* that diminishes torment and helps to ended up *pakwa* rapidly as the torment discharge in *pakwavastha*.

3. In *pakwavastha*, *lepa* is utilized for *pidan*, *bhedan* and for *puya – nirharan*. Activity of *lepa* on *vrana* is *shodhan*, *ropan* and *vaikrutapaham*.

त्वक्प्रसादनमेवाग्रयं मांसरक्तप्रसादनम दाहप्रशमानं श्रेष्ठं तोदकण्डु विनाशनम ॥"(सु.सु.१८/९)

It acts as *twak prasadhan* and *mansa- rakta parsadhan*. *Lepas* are utilized to improve the complexion and to remove the poisonous impact. Since of this impact numerous *varnya lepa* are portrayed in Samhita.

मर्मदेशेषु ये रोगा गुहोष्वापि तथा त्रुणाम संशोधनाय तेषा हि कुर्यादालेपनं भिषक्  
॥"(सु.सू.१८/१०)

The *lepa* can moreover utilized in *marmasthana* like *guda* and *basti* moreover individuals who are not fit for *shodhan* like *balak lepa* can utilized. In hyper pigmentation and hypo pigmentation *lepa* like *shweta* or *rakta chandan* is perfect intervention. “

"तन्त्र रक्तपित्तप्रसादकुदालेपः प्रदेहो वातश्लेष्मप्रशमनः संशोधनो रोपणः शोफवेदनापहश्  
तस्योपयोग रक्षताक्षतेषु ॥"(सु.सू.१८/७)

Diverse *dravya* of *lepa* acts on distinctive *dosha* moreover *lepa* is utilized for *sandhankaram*, *shodhan*, *ropan* and for lessening torment due to swelling. *Lepa* is utilized in *veesarpa*, *vidradhi* and other *malady*. Application of *lepa* anticipates recurrence and mend the scar, *vaivarnya* etc.

Various new measurements shape of *lepa kalpana* are listed below

### 1. Treatment

There are two strategies for giving the fixings into the treatment base i.e. trituration and combination. In trituration strategy the finely subdivided insoluble medicaments are evenly disseminated by crushing with a little sum of the base taken after by weakening. In combination strategy, the fixings are softened together in slipping arrange of their softening point and mixed to attain homogeneity. A ponder was attempted for changing over Tiladi *Lepa* into ointment shape. The treatment was arranged by trituration strategy utilizing fine powder of the fixings together with nectar and white petroleum jam as base. This treatment shape encouraged a longer rack life.

### 2. Cream

Creams are gooey semisolid treatment like arrangements. They may be oil-in-water sort (watery creams) or water-in-oil type (sleek creams). Creams can be effortlessly



removed from skin and clothing since they contain water solvent bases and consequently are more helpful to utilize.

### **3. *Lepa guti***

Home grown lepa choorna jam its strength up to one month in case kept in an hermetically sealed container. Moreover there's a plausibility of weakening of powder on the off chance that the powder is uncovered to the moisture conditions. To overcome this issue *Lepa choorna* is altered into *varti (Lepa guti)*. *Vartis* were made by crushing the fine powders of the drugs with the fluid to make a soft paste. Then it is made into strong, circular moulded sticks of almost 3 cm in length and dried in shade. *Vartis* can be protected for one year in case kept in hermetically sealed Container. Thus it is having the points of interest of long rack life, transportability, settled dosage form and worldwide acknowledgment.

### **4. Gel**

Gels are semisolid arrangement expecting for the application of skin or mucous film. It is composed of two interpenetrating frameworks in which colloidal particles (Gelator or heroic) are consistently dispersed all through a scattering medium shaping a three-dimensional lattice known as the Gel. The polymer in gel acts as back bone of gel lattice which gives gel its basic quality, expanded adherence to the surface where connected and diminished saturation of the bigger particles consequently making the maintenance conceivable.

Points of interest of gel

Gels are simple to define and is an exquisite nongreasy definition and can be utilized as controlled release definition. Gels have great adherence property and they are biodegradable and biocompatible. Maintenance time of gels are higher than the other dose shapes. It forms a defensive layer on the location of application. It is simple to wash after application. They provide excellent spreadability and cooling impact due to dissolvable dissipation.

### **5. Herbal sheet veil**

Sheet veil is one of the most recent and most up to date patterns which is well known in Asia.

Compared with another frame of the veil, sheet veil has Occlusive Dressing Treatment (ODT) mechanism that contains a great retention and entrance profile, the efficient and hygienic (expendable) bundling, and does not have to be cleaned after utilization. Arrangement of Sheet cover are made by including home grown extricates in different concentrations to the quintessence base. Assessment of Sheet cover arrangement incorporates homogeneity test, thickness test, pH test, Stability test, Disturbance test, and anti-aging impact using the skin analyser gadget.

### **Benefits of sheet cover**

Sheet veils are made up of pre-cut cover textures drenched with serum that contains dynamic fixings, replying particular skin concerns. Sheet covers are simple to utilize, fair got to open the sachet, unfurl the veil and put it on the skin. Sheet covers can be effectively carried everywhere. It can be used in planes, as skin endures amid voyaging. The treatment takes only 10-15 minutes once a week, so it isn't time devouring. Patients can choose the mask according to their skin condition, environment, climate, or health condition.

Transdermal drug absorption can significantly alter the drug kinetics. Transdermal drug delivery has an advantage over other types of medication delivery such as oral, intravenous, intramuscular etc, Because it provides a controlled release of the medication into the patient, it enables a steady blood level profile resulting in reduced systemic side effects. Transdermal drug absorption depends on various factors such as site of application, thickness and integrity of the stratum corneum epidermidis, size of the molecule, permeability of the membrane of the transdermal drug delivery system, state of skin hydration, pH of the drug [moderate pH value (typically above isoelectric point  $pI \sim 4$ ) is more suitable for topical delivery]. drug metabolism by skin flora, lipid solubility, depot of the drug in skin, alteration of the blood flow in the skin by additives and body temperature, skin thickness and amount of blood flow in the skin, age of the consumer etc. *Lepa* preparations are applied to skin to prevent the metabolism of drugs in the liver and to increase the bioavailability of the drugs and also to provide the effect of herbs directly on the site of action. There are different types of *lepa* explained in *Ayurveda* for treating various diseases. Because of the difficulties for applying *lepa* and also because of its less stability it is always good to

find new dosage form. In this study an attempt was made to discuss the benefits of face cream and its dosage forms and site of action.

### **Ointment Modern point of view**

Treatments are semisolid frameworks which as a rule carry on as viscoelastic materials when shear stretch is connected. They by and large contain medicaments and are planning to be connected remotely to the body or to the mucous layer. Non-medicated treatments commonly alluded to as treatment bases implied for the arrangement of sedated treatments or utilized as such for emollient or greasing up impacts. In medicine hone, different other terms are too utilized as such for emollient utilized to assign a few variety i.e. creams, glues, cerates.<sup>[70,71]</sup> Numerous medicaments implied for topical application to intaglio or broken skin or to mucous films, have been displayed within the shape of semisolid consistency differently assigned as treatment, creams, salves, glues etc and utilized basically as defensive or emollient for the skin. Present day day treatments as well serve the reason but they moreover carry the medicaments to the blood stream. In like manner they are known as a) Epidermatic-Meant for activity on epidermis. b) Endodermatic-meant for activity on more profound layers of cutaneous tissues. c) Diadermic-Meant to enter profound and discharge medicaments in body liquids (systemic circulation). All treatments comprise of a base which mainly acts as a carrier for the medicaments. The nature of the base too controls its execution. Thus choice of treatment base is exceptionally vital angle of their detailing. For logical understanding of percutaneous retention of treatment bases it is basic to urge commonplace with skin structure in connection to sedate assimilation. Herbal drugs are moreover defined within the shape of treatment. The treatment base is ready and the treatment is defined by consolidating the dynamic fixings within the base at most compelling proportion by trituration. After the completion of detailing, quality of the treatment is surveyed in terms of irritancy, spread ability, dissemination and soundness. Traditional medicine is an vital source of possibly valuable modern compounds for the advancement of chemotherapeutic agents.<sup>[72]</sup> The primary step towards this goal is the screening of plants used in popular medication. Together with other measurement shapes, home grown drugs are moreover defined within the shape of treatment. An treatment could be a viscous semisolid planning utilized topically on a assortment of body surfaces. These incorporate the skin and the bodily fluid films of eye, vagina, butt, and nose.

An treatment may or may not be sedated. Cured treatments contain a medicament broken up, suspended or emulsified within the base. Treatments are utilized topically for a few purposes, e.g. as protestants, cleaning agents, emollients, antipruritic, keratolytic and astringents.<sup>[73]</sup>

### Characteristics of an perfect treatment

1. It ought to be physically and chemically steady.
2. The base of treatment ought to possess no restorative activity.
3. In treatment base, finely partitioned dynamic fixing ought to be consistently distributed.
4. The treatment ought to be sooth and free from grittiness.

### Points of interest of treatment

1. They give means of location particular application of medicate on influenced range, which dodges superfluous non target presentation of medicate in this manner dodging side impacts.
2. They maintain a strategic distance from to begin with pass digestion system of sedate.
3. Helpful for oblivious patients having trouble in verbal administration.
4. Comparatively they are chemically more steady and simple to handle than fluid dose shapes.
5. They are suitable dose shapes for sharp taste drugs.

### Drawbacks of ointments

1. These sleek semisolid preparations are staining and cosmetically less stylish.
2. Application with fingertip may sully the definition or cause aggravation when connected.
3. As compared to strong dose shapes, semisolid arrangements are bulky to handle.
4. In spite of the fact that semisolids permit more adaptability in measurements, dose accuracy is decided by consistency within the amount to be connected.
5. Physico-chemically less steady than strong dose shapes. Ointment bases Treatment bases are anhydrous and by and large contain one or more medicaments in suspension or solution or scattering.

On the premise of their level of activity, they are classified as:

Epidermatic, endodermatic and diadermatic (Carter, 1987). An sterile treatment is pointed to crush or restrain the development of microbes. A few antimicrobial homegrown treatments have been formulated using restorative plants. There's regularly small inconstancy between brands of generics and title brand drugs. They are frequently disliked by patients due to greasiness. The vehicle of an treatment is known as the ointment base.

Preferences of treatment bases

- Launderable and non-greasy in the event that oil-in-water (o/w)
- Wide range of compatibility
- Do not gotten to be foul or back microbial development
- No irritating (to the same degree as lanolin, petrolatum, etc)
- Follow well to skin
- Effortlessly washed off
- Moo frequency of sensitization
- Have a low list of aggravation on capacity
- Simple to compound and stay steady on storage
- Financial and simple to transport.
- Have great keeping qualities.
- Pharmaceutically exquisite.

Drawbacks of treatment bases

- Subject to water misfortune on the off chance that o/w,
- Greasy and un-washable in the event that water-in-oil (w/o),
- Unless, a additive is included, the Emulsion bases are subject to mold growth, some of the time experience progressive discoloration with certain drugs.
- Unless acetyl liquor is included, an watery arrangement can be included as it were to the degree of 5 percent. Treatment bases are nearly continuously anhydrous and for the most part contain one or more medicaments in suspension or arrangement or dispersion.

Characteristics

- a. Insoluble in water
- b. Not water launderable
- c. Contains water (restricted)
- d. Emollient
- e. Occlusive
- e. Greasy Illustrations:

Lanolin and Cold cream;

Water dissolvable drugs:

Gentamycin Sulphate Characteristics

- a. Not effectively evacuated from skin with water washing
- b. May have a few control of infiltration into the most profound layers of the skin
- c. Utilized for “endodermic” treatment Employments:

As emollient but do not give the degree of impediment Joins watery arrangements into oleaginous bases Illustrations of assimilation bases:

- a. Hydrophilic Petrolatum, USP- composed of cholesterol, stearyl liquor, white wax and white petrolatum Illustration:

Aquaphor

- b. Anhydrous Lanolin, USP- may contain NMT 0.25% water. Characteristics:

It is insoluble in water but blends without separation with approximately 2x its weight in water. The consolidation of water comes about within the arrangement of a W/O emulsion

- c. Lanolin, USP- may be a semisolid fat like substance gotten from the wool of sheep Characteristics:

It is a W/O Emulsion that contains between 25 to 30% water. Extra water may be joined into lanolin by mixing Synonym:

Hydrous Fleece Fat d. Cold Cream, USP - is a semi strong white W/O emulsion arranged with cetyl esters wax, white wax, mineral oil, sodium borate, and filtered water Illustrations:

Eucerin cream - could be a W/O emulsion of petrolatum, mineral oil, mineral wax, fleece wax, liquor and bronopol. Cold cream - emollient and base. Water detachable base These are oil-in-water emulsions that are competent of being washed from skin or clothing with water. For this reason, they are as often as possible alluded to as “water-washable” treatment bases.

### Characteristics

- a. Take after creams in their appearance
- b. May be weakened with water or with watery arrangement
- c. From therapeutic perspective, no capacity to assimilate serous discharge in dermatologic conditions
- d. Certain therapeutic specialists may be way better absorbed in the skin
- e. Insoluble in water f. Water launderable
- f. Contains water
- g. Can retain water
- h. Non-occlusive
- i. Non-greasy Example:

Hydrophilic Treatment, USP - Does “water love”. It contains sodium lauryl sulphate as the emulsifying operator, with stearyl alcohol and white petrolatum speaking to the oleaginous stage of emulsion, whereas propylene glycol and water representing the fluid stage. Methyl and Propyl parabens are used as additives Other cases incorporate:

- a. Hydrophilic Treatment
- b. Vanishing Cream
- c. Derma base
- d. Velvachol
- e. Unibase Utilize:

Employed as water detachable vehicle for therapeutic substances

Water dissolvable base Not at all like water-removable bases, which contains both water solvent and water insoluble components. Like water-removable bases, be that as it may, water soluble bases are water launderable and are commonly alluded to as “greaseless” since of the nonappearance of any oleaginous materials Characteristics

- a. Since they relax incredibly with the expansion of water, watery arrangements are not viably consolidated into these bases. Or maybe, they are superior utilized for the joining of non-aqueous or strong substance.
- b. These entered the skin and superior utilized for retention of medicament and therefore used for “diathermic ointment”.
- c. Water dissolvable d. Water washable
- d. May contain water
- e. Can retain water (constrained)

f. Non-occlusive h. Non-greasy

j. Lipid-free Illustration:

Polyethylene glycol treatment Choice of the suitable base depends on:

1. Craved release rate of the specific medicate substance from the treatment base.
2. Allure for improvement by the base of the percutaneous assimilation of the sedate.
3. Prudence of impediment of dampness from the skin by the base.
4. Brief term and long term solidness of the sedate within the treatment base
5. Impact, on the off chance that any, of the sedate on the consistency or other highlights of the ointment base. Other added substances in treatments Other than base and medicaments, the treatments may contain one or other of taking after groups of added substances:

### **A. Additives**

The microbial compounds and their amounts ought to be carefully decided upon on the off chance that the same are being used to anticipate defilement, weakening or deterioration of treatment bases by microbes and fungi. The primary thought in choice is the irritancy or toxicity of compound to the tissue to which the ointment is to be connected. For, occasion methyl and propyl parabens are aggravations to nasal sections. Boric acid may be harmful. Quaternary ammonium compounds or phenyl mercuric nitrates are way better endured by nasal tissues. On events the plastic containers or elastic closures may „take up“ a few sum of preservatives hence diminishing their accessibility for antimicrobial action. Sometimes the additives get complexed by other fixings and are hence not accessible in adequate concentration for microbial action. Within the nearness of tween 80, methyl paraben, benzalkonium chloride, benzoic corrosive, etc get inactivated to obvious degrees. The bacterial activity also depends upon the parcel coefficient of antimicrobial compound between fluid and sleek stage. In case both stages are to be ensured extra sum may be required.

### **B. Cancer prevention agents**

Cancer prevention agents ought to be included at whatever point there's plausibility of oxidative debasement of base. It may be more alluring to choose two cancer prevention agents rather than one. The concentration of antioxidants depends upon their parcel coefficients between the fluid and oil stage of both the phases are display



in a base. Examples-butylated hydroxyl anisole, propyl gallate are used in treatment bases.

### **C. Chelating operators**

Whenever it is anticipated that follows of metallic particles are likely to catalyse oxidative debasements little sum of substances such as citric acid, maleic corrosive, phosphoric corrosive etc. may be included to chelate the metallic particles.

### **D. Perfumes**

Most treatment bases these days have a pleasant smell Imparted by incorporation of select blends. The selection of fragrance mix could be a exceptionally tricky business and every manufacturer would like to allow a particular odorific quality.

## MATERIALS AND METHODS

CTRI Reg. no. - CTRI/2022/01/039717 [Registered on: 25/01/2022]

### BRIHATYADI TAIL NASYA –

खलतौ पलिते वल्यां हरिल्लोन्मि च शोधितम्।

नस्यवक्रशिरोभ्यंगप्रदेहैः समुपाचरेत्॥

सिध्दं तैलं बृहत्याद्यैजीवनीयैश्च नावनम्॥अ. ह. उ.२४/३३

The Brihatyadi Tail *Nasya* was prepared with the help of *Tailapak Vidhi*. The ingredients of *Brihatyadi Tail Nasya* are as follows-

बृहतीकण्टकारिकाकुटजफलपाठा मधुकं चेति ॥३१॥

पाचनीयो बृहत्यादिर्गणः पित्तानिलापहः ।

कफारोचकहृद्रोगमूत्रकृच्छ्ररुजापहः [१] ॥३२ सु. सु३८[75]

जीवकर्षभकौ मेदा महामेदा काकोली क्षीरकाकोली मुद्गपर्णीमाषपर्ण्यौ

जीवन्ती मधुकमिति दशेमानि जीवनीयानि भवन्ति च.सु४/९

1. *Brihati*
2. *Kantkari*
3. *Patha*
4. *Indrayava*
5. *Yashtimadhu*
6. *Jivanti*
7. *kakoli-Kshirkakoli*
8. *Jivak –Vrushabhk*
9. *Meda- Mahameda*
10. *Mudagparni- Mashparni*

**Table No 6: Content details of *brihatyadi nasya*.**

Sr. No	Drug Name	Latin Name	Guna	Useful Part	Quantity
1	<i>Brihati</i>	<i>Solanum indicum</i>	<i>Laghu, ruksha, Tikshna</i>	<i>Root</i>	1 part
2	<i>Kantkari</i>	<i>Solanum sarattense</i>	<i>Laghu, ruksha, tikshna</i>	<i>Root, whole plant</i>	1 part
3.	<i>Indrayava</i>	<i>Holarrhena</i>	<i>Laghu,</i>	<i>Seed</i>	1 part

		<i>antidysenterica</i>	<i>tikshna</i>		
4.	<i>Patha</i>	<i>Cissampelos pareira</i>	<i>Laghu, tikshna</i>	<i>Root, stem</i>	1 part
5.	<i>Yashtimadhu</i>	<i>Glycyrrhiza glabra</i>	<i>Guru, Snigdha.</i>	<i>Root</i>	1 part
6.	<i>Jivanti</i>	<i>Ladtadenia reticulata</i>	<i>Laghu, snigdha.</i>	<i>Root</i>	1 part
7.	<i>Kakoli- Substitute (Ashwagangha)</i>	<i>Roscoea procera</i>	<i>Guru, snigdha.</i>	<i>Root</i>	1 part
	<i>Kshirkakoli Substitute (Anantmul)</i>	<i>Lilium polphyllum</i>	<i>Guru, snigdha, sheeta.</i>	<i>Root</i>	1 part
8.	<i>Jivak Substitute:Guduchi (Tinospora cordifolia)</i>	<i>Microstylis wallichii</i>	<i>Picchila, Snigdha Sheeta.</i>	<i>Root</i>	1 part
	<i>Vrushabhk</i>	<i>Microstylis muscifera Ridley</i>	<i>Snigdha, Sheeta.</i>	<i>root</i>	1 part
9.	<i>Meda Mahameda</i>	<i>Polygonatum verticillatum</i> <i>Polygonatum cirrhifolium</i>	<i>Guru, Snigdha.</i>	<i>Root</i>	1 part
10.	<i>Mudagparni</i>  <i>Mashparni</i>	<i>Phaseolus trilobus,</i> <i>Teramnus labialis</i>	<i>Laghu, snigdha.</i>	<i>Panchanga, Root</i>	1 part

### Substitutes of Ashtavarga plants<sup>[76,77,78,79]</sup>

The popularity of herbal drugs is on the rise, leading to an increasing demand for them. However, the market is unable to keep up with this demand due to various factors, one of which is the disappearance of these plants from the local flora. In order to address the issue of endangered species becoming unavailable, the Department of AYUSH, Government of India, has allowed for the substitution of rare herbal drugs with alternative options based on ayurvedic principles. The concept of substitution has been prevalent for ages and can be found in ancient ayurvedic texts such as the *bhavaprakasha* and *yogaratnakara*.

**Table 7: Substitutes.**

S. no.	Botanical Name	Substitute
1	<i>Kakoli</i>	<i>Ashwagandha (Withania somnifera (L.) Dunal)</i> and <i>Krushna musali (Curculigo orchioides Gaertn)</i>
2	<i>Kshirkakoli</i>	<i>Ashwagandha (Withania somnifera (L.) Dunal)</i> , <i>Śweta- musali (Chlorophytum arundinaceum Baker)</i> , <i>Fritillaria roylei Hook.</i> <i>Fritillaria oxypetala D. Don.</i>
3	<i>Jivak</i>	<i>Vidarikanda (Pueraria tuberosa (Wild.) DC)</i> , <i>Safed- behmen (Centaurea behen L.)</i> and <i>Guḍūci (Tinospora cordifolia (Willd.) Miers, Malaxis cylindrostachya (Lindl.) Kuntze and Malaxis mackinnoni (Duthie) Ames)</i>
4	<i>Rishabhak</i>	<i>Vidarikanda (Pueraria tuberosa (Willd.) DC.)</i> and <i>Lal- behmen (Centaurium roxburghii (D. Don) Druce)</i>
5	<i>Meda</i>	<i>Shatavari (Asparagus racemosus Willd.)</i> , <i>Salama-mishri (Eulophia campestris Wall.) Polygonatum verticillatum (L.) Allioni</i>
6	<i>Mahameda</i>	<i>Shatavari (Asparagus racemosus Willd.)</i> , <i>nagabala (Sida veronicifolia Lam.)</i> , <i>Shakakul-mishri (Polygonatum multiflorum (L.) All.)</i> and <i>prasarani (Paederia foetida L.)</i> .
7	<i>Riddhi</i>	<i>Varahakanda (Tacca integrifolia Ker Gawl.)</i> , <i>bala (Sida cordifolia L.)</i> and <i>Chiriya musali (Asparagus filicinus Buch.-Ham. ex D. Don)</i>
8	<i>Vrdhhi</i>	<i>Varahakanda (Tacca integrifolia Ker Gawl.)</i> , <i>Salam panja (Dactylorhiza hatagirea (D. Don) Soo)</i> and <i>mahabala (Sida acuta Burm.f.) Habenaria griffithii Hook.f.</i>

**Pharmacological Activities<sup>[80]</sup>**

- Aṣṭavarga* is anti- lipid peroxidation assay, superoxide radical scavenging assay and its Active constituents- Quercetin, Kaempferol, Friedelin, Stigmasterol, Lysine, Valine, Vit. K&C. act as antiaging.
- Jivaniya* (Imperativeness promoter)- This restorative plant is essentialness promoter, keep up the adjust between three *dosha* of *vata*, *Pitta* and *Kapha*. This increments the vitality, skin quality, gleam and other properties of the skin, these drugs act as antiaging by significant reduction in telomere shortening.
- Brihaniya* (Body mass promoter)- These therapeutic plants are body mass promoter. These therapeutic plants are depicted inside the *brihaniya varga*. The *ashtavarga* plants *kakoli* and *kshirkakoli* drop in this category. Regain loss of elasticity, fine lines, pigmentation, and a slowed turnover of regenerating cells, oxidative stress and imbalance between the free radical production to be reduced and antioxidant defences with a higher production of collagen.

- d. *Ayushya* (Longevity promoter)- Those restorative plants which moderate the clutter of the body and particularly maintain *tridoshaja* clutter within the body to extend the life span of skin and decreases the method of maturing.

Facial lymphatic drainage can work to enhance the skin's natural radiance, reduce dryness and enhance the natural shape of the face. The massaging technique promotes the movement of lymphatic fluid which reduces wrinkles.

### **Chemical and Natural exercises**

Habenaria species (*H. intermedia*, *H. egdeworthii*) Both of the Habenaria species are of awesome helpful hack, facial loss of motion with their application in rejuvenation.<sup>[81]</sup>

### **Habenaria intermedia**

*H. intermedia* has substantiated that it is viable source of add up to phenols, thiamine, tannins, and calcium. Antioxidant action of polyherbal definition containing tubers of *H. intermedia*.<sup>[82]</sup>

*Habenaria egdeworthii*- Exceptionally small data is accessible on the logical work done on *H. egdeworthii*. In any case, it has been found to be a wealthy source of sodium and has antioxidant action (act through different mechanisms and in different compartments, but are mainly free radical scavengers: 1) they directly neutralise free radicals, 2) they reduce the peroxide concentrations and repair oxidized membranes).

*Malaxis* species - *Malaxis acuminata* showed promising antiinflammatory antiaging activity. Enhanced photoprotective activity with higher sun protection factor was reported. Metabolite profiling exhibited higher antioxidant and secondary metabolite levels.<sup>[83]</sup>

*Malaxis acuminata*- The antioxidant movement in butanol extricate of *M. acuminata* was watched utilizing different accessible strategies like, DPPH free radical scavenging activity, and hydrogen peroxide scavenging method.<sup>[84]</sup>

*Malaxis muscifera*- It is recorded as a undermined species in IUCN Ruddy List.<sup>[85]</sup> There's an pressing require for developing feasible development, in situ and ex situ arrangements which can offer assistance to preserve the populace.

Polygonatum species (*P. verticillatum* and *P. cirrhifolium*)<sup>[86]</sup>

*Polygonatum verticillatum* - The rhizome extract of *P. verticillatum* is used as tonic and energizer. It has moreover been examined for antioxidant<sup>[87]</sup>

*Polygonatum cirrhifolium*- antioxidant activities, good water absorption and high moisture retention.<sup>[88]</sup>

*Roscoea procera* - Tubers of Kakoli are found to contain alkaloid, glycoside, flavonoid, tannin, saponins and dynamic phenolic compounds and are detailed to display immunomodulatory.

*Lilium polyphyllum* -Phytoconstituents like alkaloids (peimine, peiminine, peimisine, peimiphine, peimidine and peimitidine), impartial constituents (propeimin, sterol) are detailed to be show in kshirkakoli.<sup>[89]</sup>

Riddhi- It belongs to the Family Orchidaceae, The Flavonoids, tannins and phenolic acid of Riddhi does anti-oxidant action.<sup>[90,91]</sup>

Vridhhi- It belongs to the Family Orchidaceae, Flavonoids – It suppresses the ROS formation by inhibition of enzymes and reduce the free radicals and scavenge the free radicals, Tannins which is superoxide dismutase inhibit the radical formation and act as free radical scavenging agent, Phenolic acid having free radical scavenging and metal chelating properties does the effect on cell signaling pathways and show the effect on gene expression.<sup>[92,93]</sup>

Meda- It has a place to the Family Liliaceae. It is valuable as skin tonic.<sup>[94,95]</sup>

*Mahameda*- It has a place to the Family Liliaceae, Active constituents Essential amino acids Lysine, Leucine, Isoleucine.<sup>[96,97]</sup>

*Jivaka*- It has a place to the Family Orchidaceae, considered as *Rasayana* drug and is helps to nourish, vitalize, and rejuvenate the body.there was found to be a significant increase in the haematological profile, superoxide dismutase,reduced glutathione and catalase activities.<sup>[98]</sup>

*Rishabhaka* - It has a place to the Family Orchidaceae.

*Kakoli* - It has a place to the Family Liliaceae. The methanolic extract derived from the tubers of *R. purpurea* was tested for anti-oxidant activity by using ferric reducing power, DPPH and carotene linoleate assays. The extract has shown to up regulate the reducing power with an increase in concentration, similar to positive control (ascorbic acid, quercetin, rutin and BHT). In DPPH and carotene bleaching assay, the extract evaluated for anti-oxidant activity by using DPPH assay.<sup>[99,100]</sup>

### Steps involved in the preparation of *nasya taila*

Step----1

*Brihatyadi gana kalka* and *Ashtavarga Dravya Kalka* were washed properly and triturated to get fine *kalka*.

Step---2

Properly processed powder of *Brihatyadi gana churna* and *Ashtavarga Dravya churna* was taken and boiled with 8 litres of water. It was reduced to get 2 litres of *kashaya* under *mandagni*.

Step---3

Above mentioned *kalka* and *kashaya* were added with one litre of *tila taila* in a vessel. It was boiled under *mandagni* till it attained *mrudu paka*. The oil is filtered and kept in a closed container, 20 ml nasal drops bottles was used.

Indication: *Vali* (face wrinkles)



### **KSHIRPRIYAL FACE CREAM**

क्षीरं प्रियालं यष्ट्याहं जीवनीयो गणस्तिलाः ॥

कृष्णाः प्रलेपो वक्रस्य हरिल्लोमवलीहितः॥अ.ह.उ २४/३९[74]

**It contains**

**1) Godugdha**

स्वादु शीतं मृदु स्निग्धं बहलं श्लक्ष्णपिच्छिलम्।

गुरु मन्दं प्रसन्नं च गव्यं दशगुणं पयः॥२१७॥

तदेवङ्गुणमेवौजः सामान्यादभिवर्धयेत्।

प्रवरं जीवनीयानां क्षीरमुक्तं रसायनम्॥२१८॥च.सु २७

**2) Priyal**

गुरूष्णस्निग्धमधुराः सोरुमाणा बलप्रदाः॥१५७॥

वातघ्ना बृंहणा वृष्याः कफपित्ताभिवर्धनाः।

प्रियालमेषां सदृशं विद्यादौष्यं विना गुणैः॥१५८॥ च.सु २७/१५८

**3) Krushna tila**

स्निग्धोष्णो मधुरस्तिक्तः कषायः कटुकस्तिलः।

त्वच्यः केश्यश्च बल्यश्च वातघ्नः कफपित्तकृत्॥३०॥ च.सु २७/३०

**4) Yashtimadhu**

**5) Jivanti**

**6) Kakoli-Kshirkakoli**

**7) Jivak -Vrushabhk**

**8) Meda- Mahameda**

**9) Mudagparni- Mashparni**

**Table No 8: content details of kshirpriyal face cream.**

Sr. No	Drug Name	Latin Name	Guna	Useful Part	Quantity
1.	Priyal	Buchanania latifolia	Guru, Snigdha.	Beeja	1 part
2.	Yashtimadhu	Glycyrrhiza glabra	Guru, Snigdha.	Root	1 part
3.	Jivanti	Ladtadenia reticulata	Laghu, snigdha.	Root	1 part
4.	Kakoli- Substitute (Ashwagangha) Kshirkakoli Substitute (Anantmul)	Roscoea procera Lilium polphyllum	Guru, snigdha. Guru, snigdha, sheeta.	Root Root	1 part 1 part
5.	Jivak Substitute: Guduchi	Microstylis wallichii	Picchila, Snigdha Sheeta.	Root root	1 part



	( <i>Tinospora cordifolia</i> ) <i>Vrushabhk</i>	<i>Microstylis muscifera</i> <i>Ridley</i>	<i>Snigdha, Sheeta.</i>		<i>1 part</i>
6.	<i>Meda Mahameda</i>	<i>Polygonatum verticillatum</i> <i>Polygonatum cirrhifolium</i>	<i>Guru, Snigdha.</i>	<i>Root</i>	<i>1 part</i>
7.	<i>Mudagparni</i>  <i>Mashparni</i>	<i>Phaseolus trilobus,</i> <i>Teramnus labialis</i>	<i>Laghu, Snigdha.</i>	<i>Panchanga, Root</i>	<i>1 part</i>
8.	<i>Krushna tila</i>	<i>Sesamum indicum</i>	<i>Guru, Snigdha</i>	<i>Phala</i>	<i>1 part</i>

### Method of preparation of *kshirpriyal* face cream

Step 1 - 500 gm of *bharad churna* of *kshirpriyal* face cream was taken in bowl, soaked in 600ml of distilled water overnight, Next morning Filtration of *fanta*(aqueous extract) was done, boiling till 80 degree temperature with double boiler bowl.

Step 2 - 10% steric acid, 10 % e wax, 2.5 % cetyl alcohol were taken together double boiling done and continue steering till all ingredient mix properly, mixture kept side to set up to 40degree temperature.

Step 3 - 75 ml olive oil mixed with Ethylenediamine tetra acetic acid (EDTA), EDTA made this mixture homogeneous, then added into above mixture, then this whole mixture kept in side for 6 hours after that stirred with hand mixer for soft and homogeneous mixture.

Step 4 - Add in a few drops of rose merry essential fragrance, as per the reequiment iscagaurd drops added for preservation purpose.

Around 900 gm face cream is ready to use, like this 3-4 batch were prepared, 30 gm plastic container were taken take filled with cream.

Cream and *nasya taila* was prepared in *Rasashashtra* department of *Ayurvedic* hospital and send for standardization to research department. standardization reports are attached below.



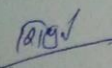
Fig no 6,7,8,9: Shows drug preparation.

SAMPLE NAME- Brihatyadi Tail Nasya

Physico-chemical Parameters	Values
Refractive Index	1.46
LOD	2 %
Specific Gravity	0.9890
Weight per ml	0.95

Organoleptic characters	
Roop	Yellowish brown
Rasa	Tikta
Gandha	Characteristics
Sparsha	Thin flowy Consistency

  
 Director

SAMPLE NAME- Kshirpriyal Face Cream

Physico-chemical Parameters	Values
pH	5.9
Ash Value	0.9 %
Acid insoluble Ash	0.5%

Organoleptic characters	
Roop	Cream Colour
Rasa	Tikta, Madhur
Gandha	Characteristics
Sparsha	Semi solid Consistency

**Fig no 10, 11: Standardization certificates of prepared drugs.**

**Irritancy**

Marked the area (1 cm<sup>2</sup>) on left hand dorsal surface. Then the cream was applied to that area and the time was noted. Then it is checked for irritancy, erythema, and edema if any for an interval up to 24 h and reported. According to the results formulation that was *khirpriyal* face cream showed no sign of irritancy, erythema and edema.



S. No.	Formulation	Irritant effect	Erythema	Edema
1.	<i>KSHIRPRIYAL</i> FACE CREAM	Nil	Nil	Nil

**Washability**

Washability test was carried out by applying a small amount of cream on the hand and then washing it with tap water formulation was easily washable.

S. No.	Formulation	Washability
1.	<i>KSHIRPRIYAL</i> FACE CREAM	Easily Washable

### Viscosity

Viscosity of cream was done by using Brooke field viscometer at a temperature of 25 °C using spindle No. 63 at 2.5 RPM. According to the results *kshirpriyal* face cream formulation showed adequate viscosity.

S. No.	Formulation	Viscosity(Cps)
1.	<i>KSHIRPRIYAL</i> FACE CREAM	21020

### Phase separation

Prepared cream was kept in a closed container at a temperature of 25- 100 °C away from light. Then phase separation was checked for 24 h for 30 d. Any change in the phase separation was observed/checked.

According to the results no phase separation was observed in formulation.

### Spreadability

The spreadability was expressed in terms of time in seconds taken by two slides to slip off from the cream, placed in between the slides, under certain load. Lesser the time taken for separation of the two slides better the spread ability. Two sets of glass slides of standard dimension were taken. Then one slide of suitable dimension was taken and the cream formulation was placed on that slide. Then other slide was placed on the top of the formulation. Then a weight or certain load was placed on the upper slide so that the cream between the two slides was pressed uniformly to form a thin layer. Then the weight was removed and excess of formulation adhering to the slides was scrapped off. The upper slide was allowed to slip off freely by the force of weight tied to it. The time taken by the upper slide to slip off was noted.

$$\text{Spread ability} = m \times l/t$$

Where,

m= Standard weight which is tied to or placed over the upper slide (30g)

l= length of a glass slide (5 cm) t= time taken in seconds.

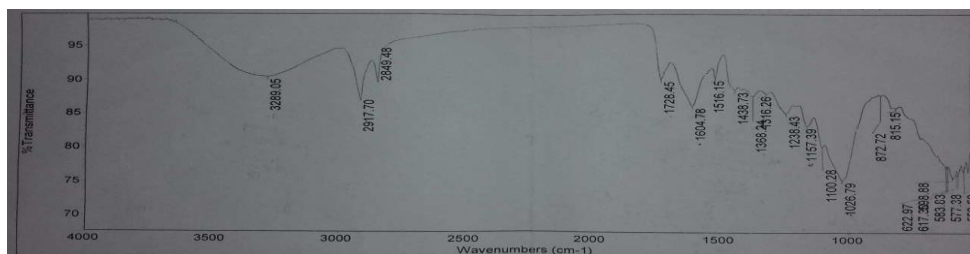
*Kshirpriyal* face cream showed better spread ability.

### Greasiness

Here the cream was applied on the skin surface in the form of smear and checked if the smear was oily or grease-like. According to the results, we could say that formulation was non-greasy.

### Compatibility study

From below fig. we could say that herbal ingredients in *kshirpriyal* face cream was compatible with each other and active ingredients in them was showed proper peaks in the IR graphs and matched peaks in IR graphs.



### Interaction studies through IR spectroscopy

Materials	Peaks	Characteristic function group
Kshirpriyal face cream	1026.79	C-O stretching vibration
	1368.24	Sulfate stretching vibration
	1438.73	C-O-H Bending vibration
	1604.78	C=O stretching vibration
	1728.45	C=O stretching vibration
	3289.05	N-H Bending vibration

### The subjects involved in study was treated with

#### A) NASYA OF BRIHATYADI TAIL

Nasal drop of Brihatyadi Tail 8 -8 drops in each nostrils In morning after bath with prior sthanika (facial) *snehana* and *swedana*.

#### B) APPLICATION OF KSHIRPRIYAL FACE CREAM:-

2 gm on all over face at site of wrinkles, twice a day after face wash.

A) and B) treatment was continued for 60 days, the subjects was called for follow up on 20<sup>th</sup>, 40<sup>th</sup>, 60<sup>th</sup> day

#### SAMPLE SIZE:-

The prevalence rate of wrinkles 15.50% was taken for sample size calculation.

Sample size was calculated by formula given by (As per Daniel Formula)

$$n = Z^2 \times P(1-p)/e^2$$

Determination of sample size n=Required of sample size

z = Confidence interval 95 % (z = 1.96)

p = prevalence of wrinkles 15.50 %

e = margin of error 10%

$$n = Z^2 \times P(1-p)/e^2 \quad n = (1.96)^2 \times 0.155(1 - 0.155) / (0.10)^2 \quad n = 3.84 \times 0.130 / 0.01$$

n = 50.2 Hence, Dropout from study -10 % and sample size 60 was taken.

Total 60 number of patients was closely studied for this proposed study.

The 60 number of known patients of Mukha Vali screened and treated, patient was randomly selected from IPD & OPD of KAYACHIKITSA Dept.

**METHOD OF SELECTION OF STUDY SUBJECT: -**

**A) Inclusion criteria: -**

- 1) Both Sex- male and female
- 2) Age group -35 Years - 55 Years
- 3) Subjects who had any one signs of crow's feet wrinkle, Glabellar Wrinkle, Nasolabial Wrinkles, Marionette line, Jaw line at rest, upper lip wrinkle, Loss of Cheek Volume just below Zygomatic arch.
- 4) Subjects those who were not willing to apply any other cosmetic for face wrinkles.
- 5) Subjects having control Diabetes.

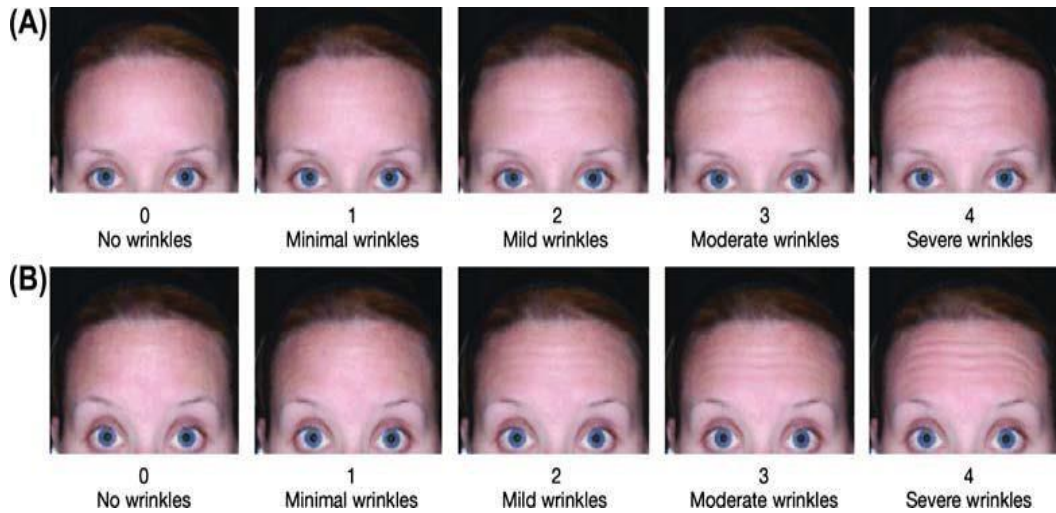
**B) Exclusion criteria: -**

- 1) Age above 55 Years and below 35 Years.
- 2) Subjects having known case of Thyroid Dysfunction.
- 3) Subjects who had taken laser or injection therapy for wrinkles in past days.
- 4) Smokers, alcohol, caffeine addicted Subjects.
- 5) Subjects having Malignancy or any previous history of cosmetic Surgery.
- 6) Major illness regarding skin like facial psoriasis, eczema, tinea corporis etc

**C) SUBJECT WITHDRAWAL CRITERIA: -**

1. Patient willing to discontinue treatment.
2. Patient who did not give two consecutive follow ups during treatment.
3. If any adverse effects were noted while conducting clinical trial, such patients were excluded from the study

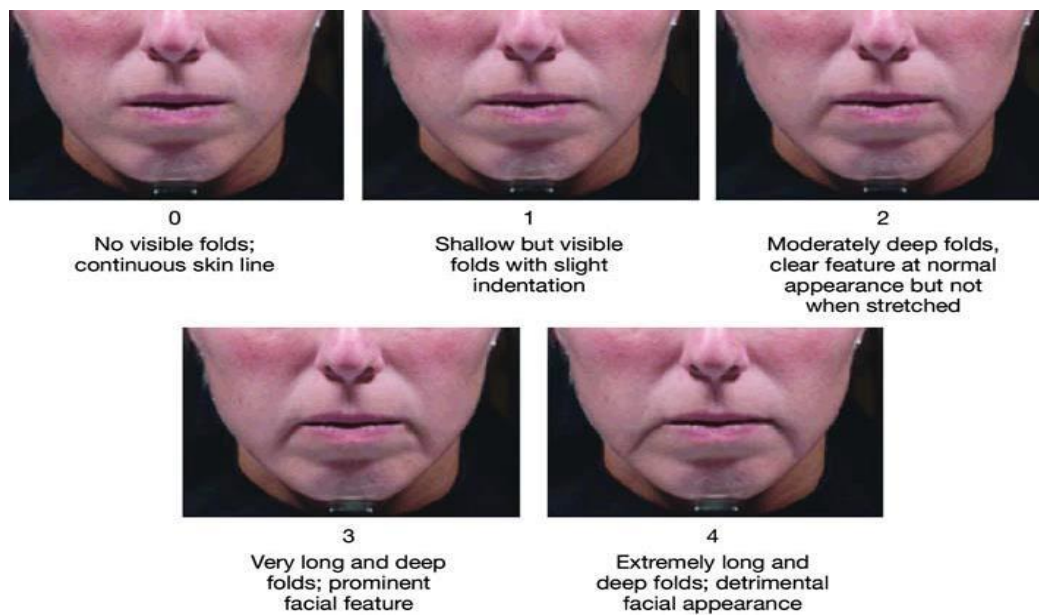
**D) Assessment criteria:-** 1 A validated 5 Point Reference scale with photographs that classifies deep facial wrinkles (Nasolabial Folds) WSRS enables valid and reproducible grading of Nasolabial Folds.



WSRS represents a clinically meaningful change in Nasolabial Fold severity from the adjacent grades.

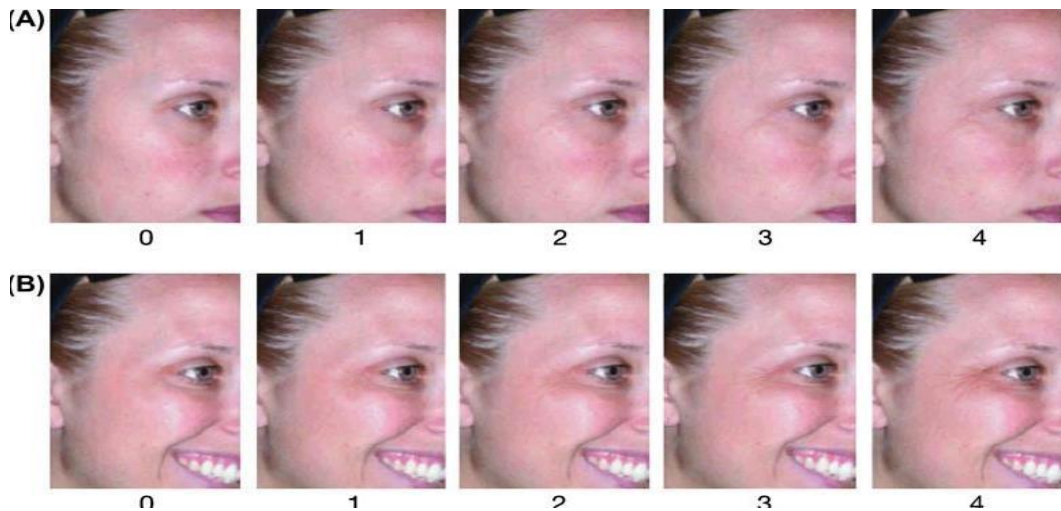
Static Grade	Dynamic Grade	Scales
0	0	No wrinkles
1	1	Minimal wrinkles
2	2	Mild wrinkles
3	3	Moderate wrinkles
4	4	Severe wrinkles

. Reference images for the five-point Marionette Lines Grading Scale (21). (Reproduced with permission from Dermatologic.



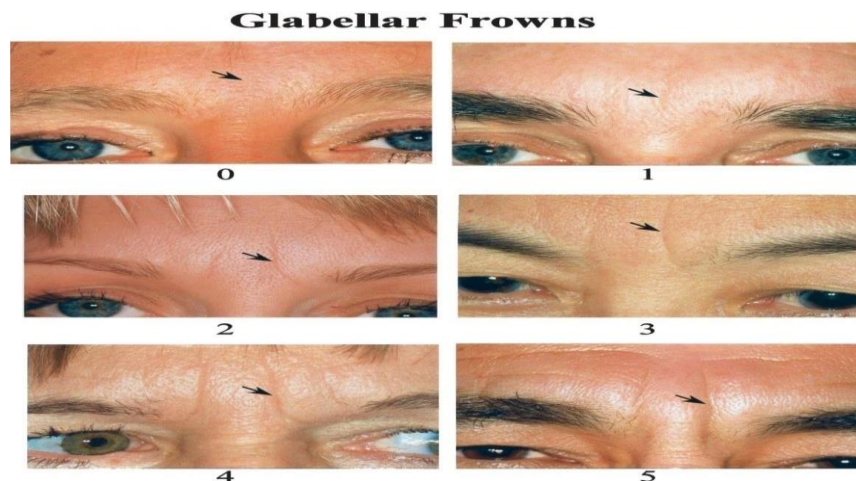
Marionette Lines Grade	Scale
0	No visible fold; continuous skin line.
1	Shallow but visible folds with slight indentation
2	Moderately deep folds, clear features at normal appearance but not when stretched
3	Very long and deep folds; prominent facial feature
4	Extremely long and deep folds; detrimental facial appearance

3) Reference images for the five-point Crow’s Feet Grading Scale: (A) static grading scale; (B) dynamic gradingscale.



Static Grade	DynamicGrade	Scales
0	0	No wrinkles
1	1	Minimal wrinkles
2	2	Mild wrinkles
3	3	Moderate wrinkles
4	4	Severe wrinkles

3) Wrinkle Assessment Scale of glabellar lines

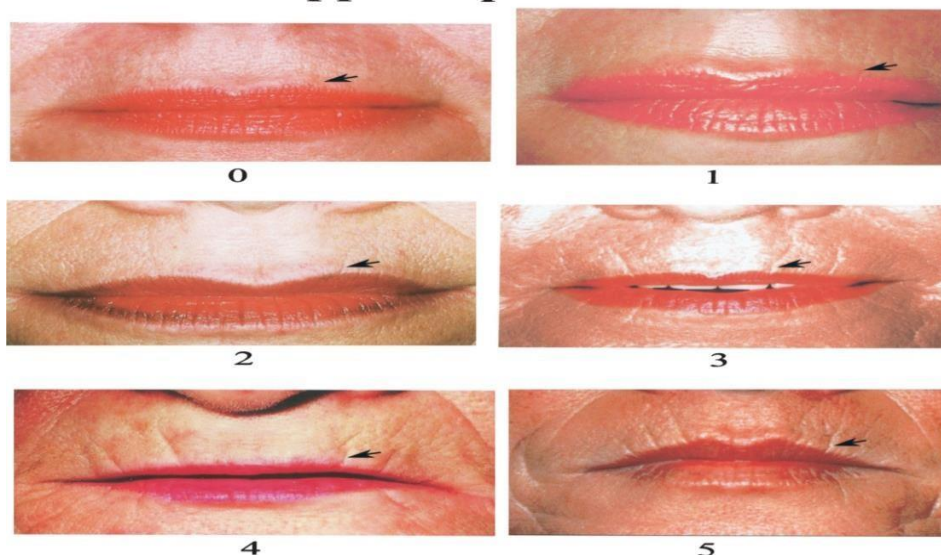




GRADE	Severity
GRADE 1	No visible glabel lines; continuous skin line
GRADE 2	Shallow but visible glabel lines with a slight indentation
GRADE 3	Moderate deep glabel lines ; visible at normal appearance
GRADE 4	Very long and deep glabel lines
GRADE 5	Extreme deep long glabel lines.

3) Wrinkle Assessment Scale of upper lip lines

**Upper Lip Lines**

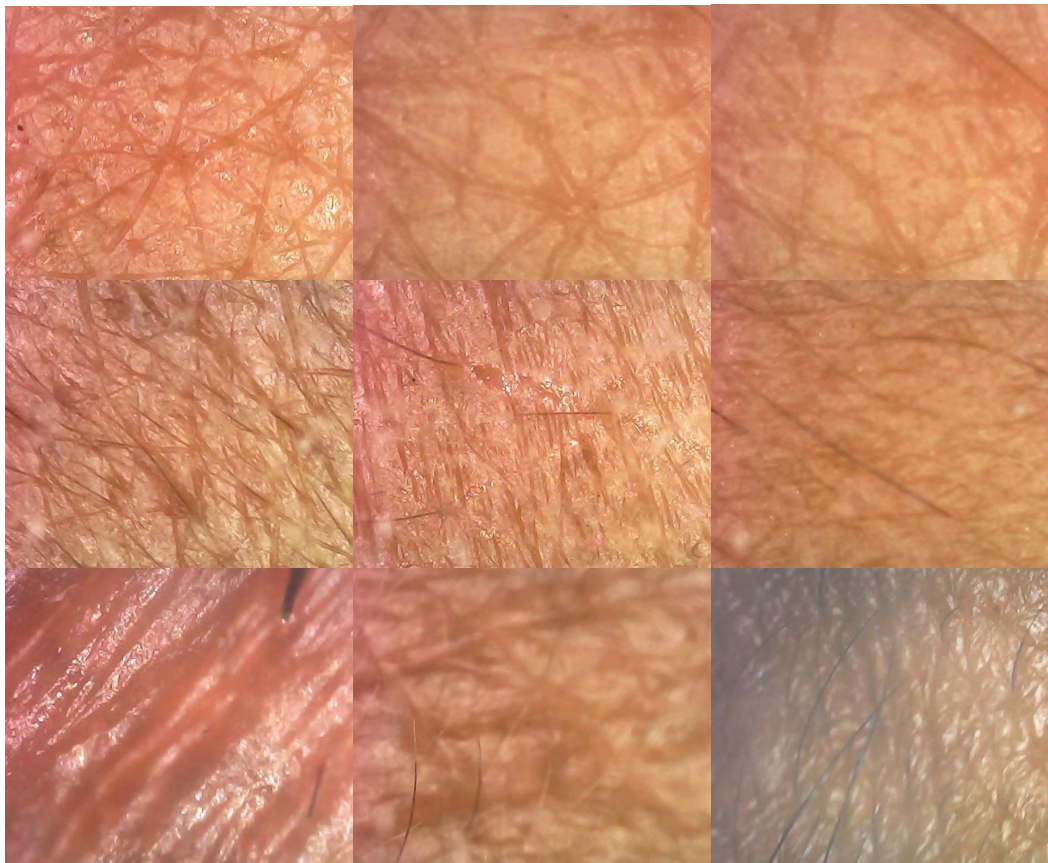


GRADE	Severity
GRADE 1	No visible upper lip lines; continuous skin line
GRADE 2	Shallow but visible upper lip lines with a slight indentation
GRADE 3	Moderate deep upper lip lines; visible at normal appearance
GRADE 4	Very long and deep upper lip lines.
GRADE 5	Extreme deep long upper lip lines.

**CRITERIA FOR OVERALL EFFECT OF THERAPY**

Grade	Percent Relief	Upashya
3 to 0 2 to 0 1 to 0 i.e.from initial gradation to 0	76% to 100% relief	Uttam
3 to 1 2 to 1	51% to 75% relief	Madhyam
3 to 2	Upto 50% relief	Alpa
No change in gradation or raised	No relief in symptoms or increase	Anupshaya

1) Visual assessment was done by using darvascope- Picture of darvascope and patients images using darvascope given below ( fig no 12 darvascope & fig no 13 shows results of study drugs)



Dermatoscopes use light and magnification to help a dermatologist see how a person's skin looks in more detail. Dermatoscopes help show details in the outer layer of skin that would not be visible to the naked eye.

Methods of Data Collection Relevant to Object –

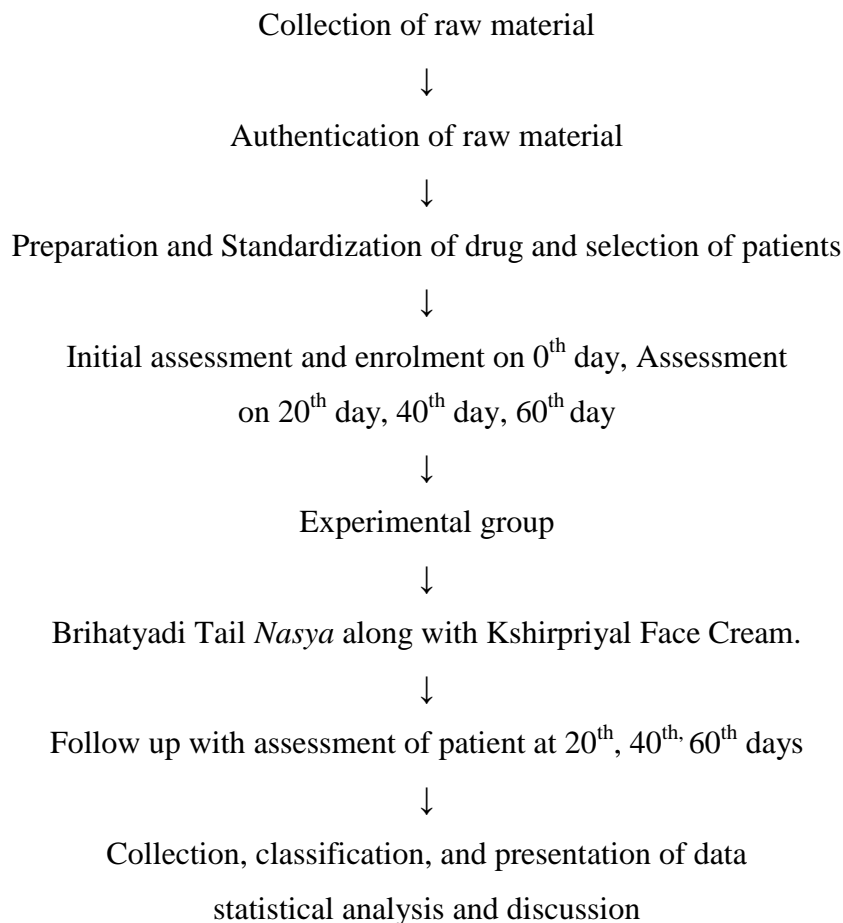
The patients was assessed on the basis of subjective & objective parameters and the relevant data collected for analysis by

- Case taking as per standard format
- Clinical diagnosis

- Case analysis
- Evaluation and Analysis of symptoms
- Proper follow up mentioned was adapted as per severity of case symptoms.

#### 10) Appropriate data management and analysis procedure

All the aspects of trial was explained to participating patients and thereafter a written consent was taken from each separately.



Inferences and conclusion was drawn on the basis of above statistical analysis. The proposed study was done on four levels simultaneously. Procedure was thoroughly explained to the patients and consent was acquired before the study. Details of the procedure was explained below.

#### 11) Appropriate data management and analysis plan and methods-

##### Plan for statistical analysis:

Result of study was calculated statistically with appropriate statistical method for follow up wise results Friedman test

Before after result - Wilcoxon signed rank test is also used if required after clinical

study & final conclusion was drawn.

**Data management and analysis procedure-**

M.S. Excel and other statistical software was used.

**Treatment details**

**The subjects involved in study was treated with**

**A) NASYA OF *BRIHATYADI TAIL***

Nasal drop of *Brihatyadi Tail* 8 -8 drops in each nostril at morning after bath prior *sthanika snehana* and *swedana* of face.

**B) APPLICATION OF *KSHIRPRIYAL FACE CREAM*:-** 2 gm on all over face at site of wrinkles, twice a day after face wash.

A) and B) treatment was continued for 60 days, the subjects was called for follow up on 20<sup>th</sup>,40<sup>th</sup>,60<sup>th</sup> day

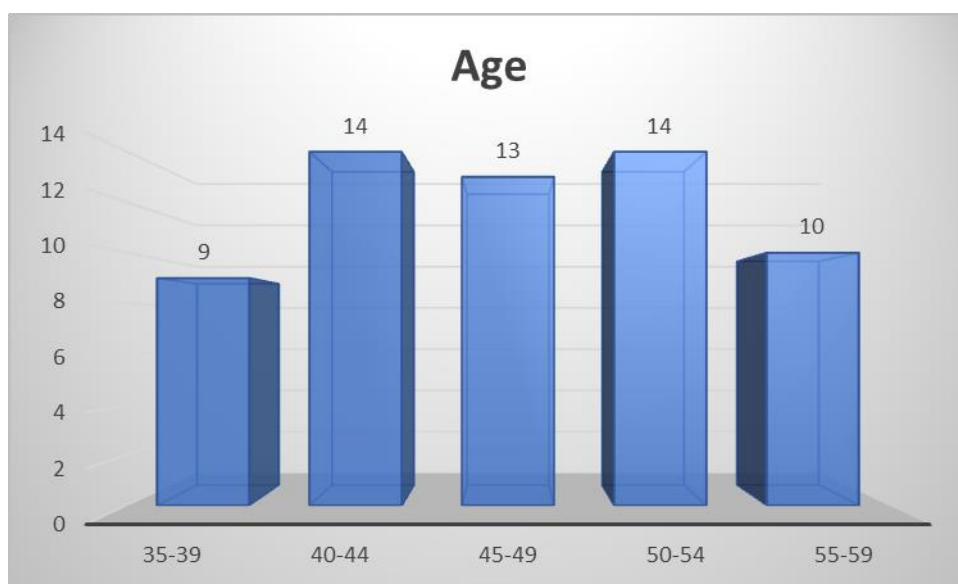


**Fig no 14: Images of before and after Treatment.**

## OBSERVATIONS AND RESULT

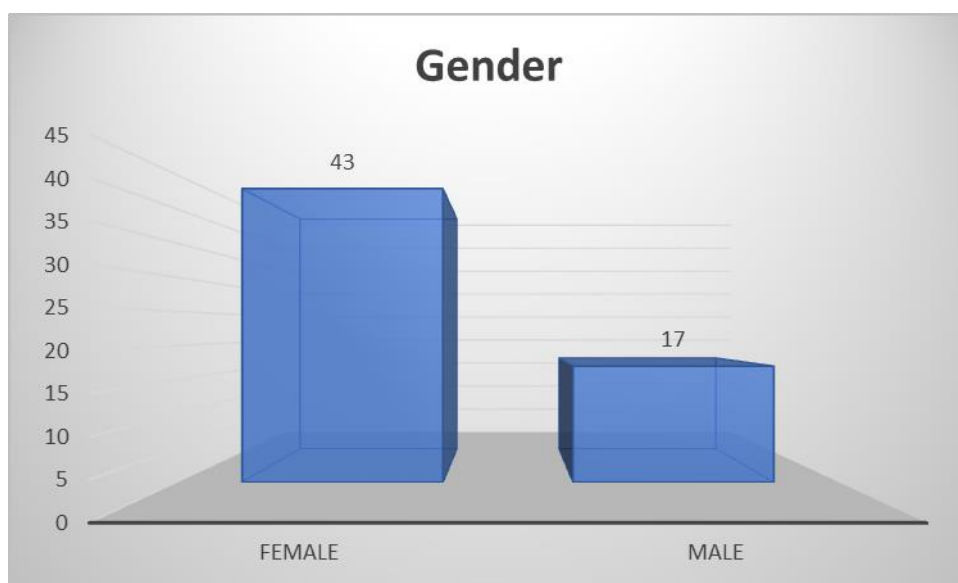
Following are the observations.

### 1) Age wise distribution



**Interpretation:** Above figure reveals that, maximum number of patients (23%) are belongs to age group 40-44 yrs and 50-54 yrs respectively, followed by age group 45-49 yrs with 22% patients. 17% patients from age group 55-59 yrs and only 15% from 35-39 yrs.

### 2) Gender wise distribution



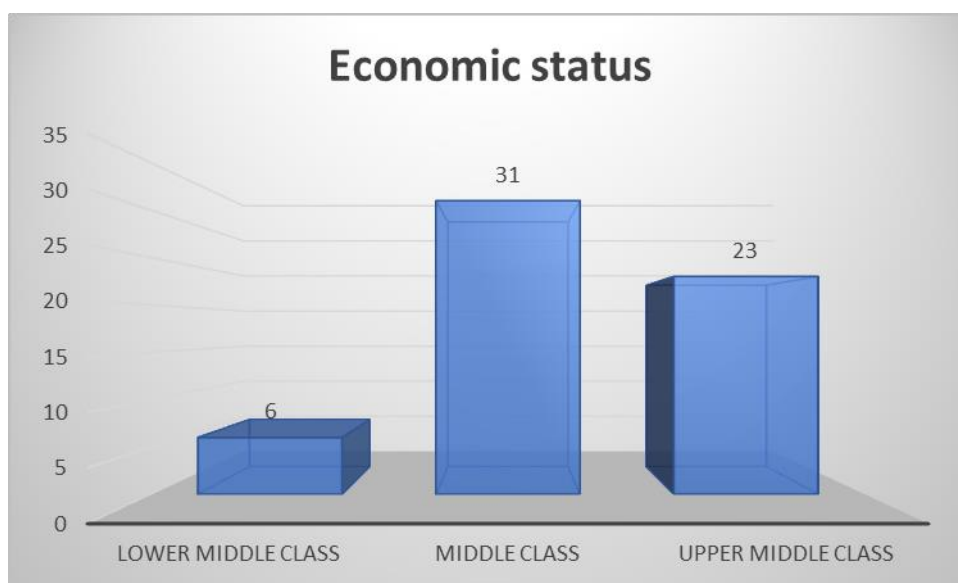
**Interpretation:** Above figure reveals that, maximum patients (72%) are Female.

### 3) Marital Status wise distribution



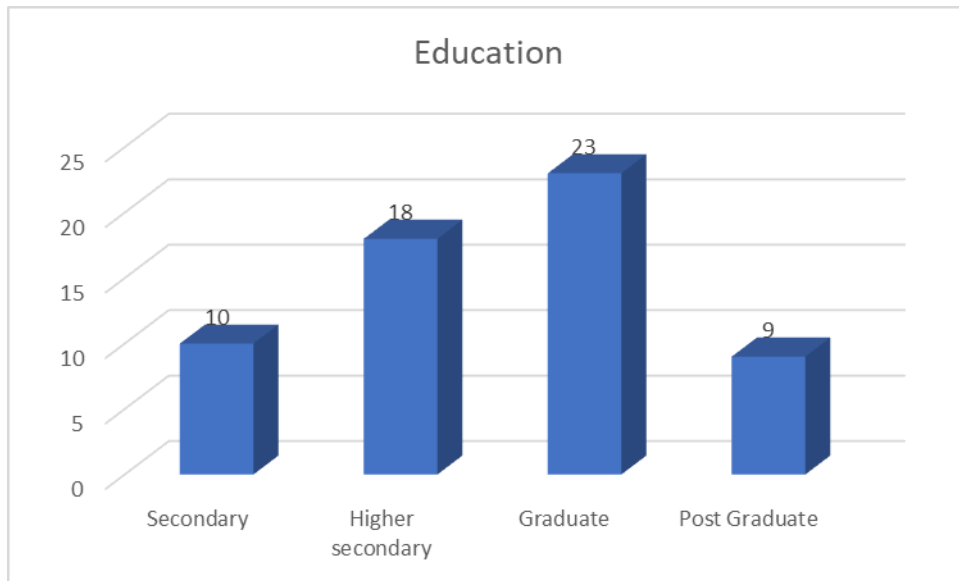
**Interpretation:** Above figure reveals that, maximum patients (93%) are married and only 7% are unmarried.

### 4) Economic Status wise distribution



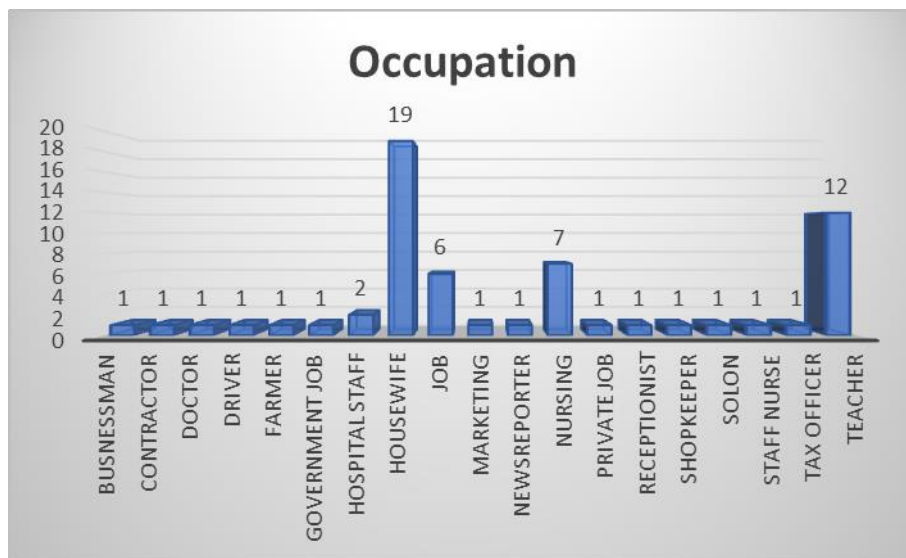
**Interpretation:** As per above figure, maximum patients (52%) from middle economic class, 38% from upper middle class and only 10% from lower middle economic class.

5) Education wise distribution



Interpretation: As per above figure, maximum patients (38%) are graduates. 30% patients completed higher secondary and 17% completed secondary education. 15% patients are post graduates.

6) Occupation wise distribution



**Interpretation:** Above figure reveals that, maximum patients (32%) are house wives, 20% are teacher, 12% are nurse, 10% are doing job, 3% working as hospital staff and only 1.66% are with different occupation like businessman, contractor, doctor, driver, farmer, doing government job, marketing job, news reporter, private job, receptionist, shopkeeper, having salon, staff nurse, tax officer respectively.

**Statistical Analysis**

In this study there are 60 patients. On each patient 5 parameters are measured which are qualitative (ordinal) in nature. These parameters measured in four follow ups and in 2 different cases static and dynamic.

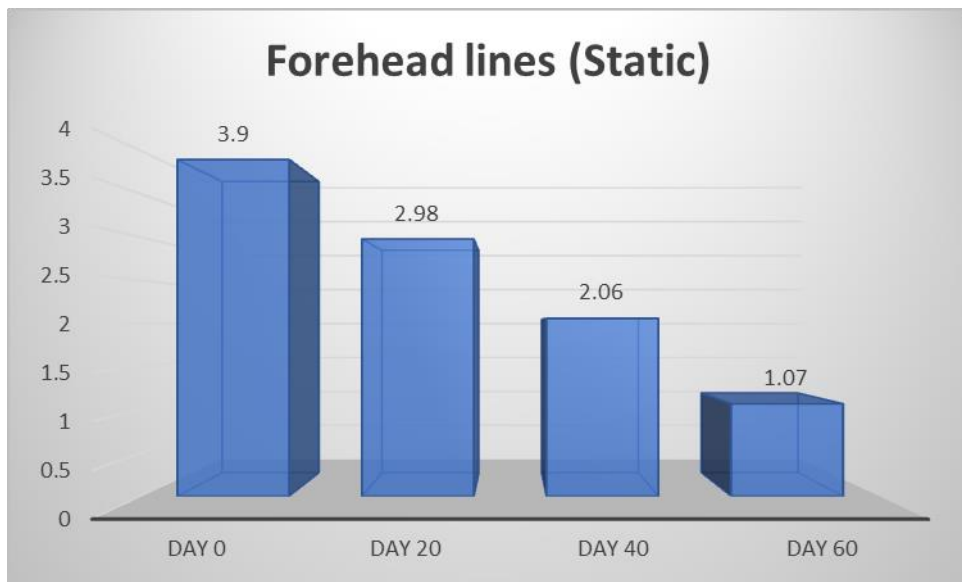
According to type of parameter the appropriate statistical tests are as follows:

**Table no 9: Statistical analysis.**

Type of variable	What is going to check	Appropriate test
Ordinal	Follow up wise treatment results	Friedman test
	Before and after treatment results	Wilcoxon signed rank test

These tests are applied in SPSS software the results are as follows:

1) **Forehead lines (Static):** Follow up wise result by Friedman test as follows:



**Table no 10: Forehead lines (Static).**

Forehead lines (Static)	Mean Rank	Test Statistic	P value
Day 0	3.90	169.556	<0.001
Day 20	2.98		
Day 40	2.06		
Day 60	1.07		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Forehead lines (static)’ during each follow up. It decreased significantly.



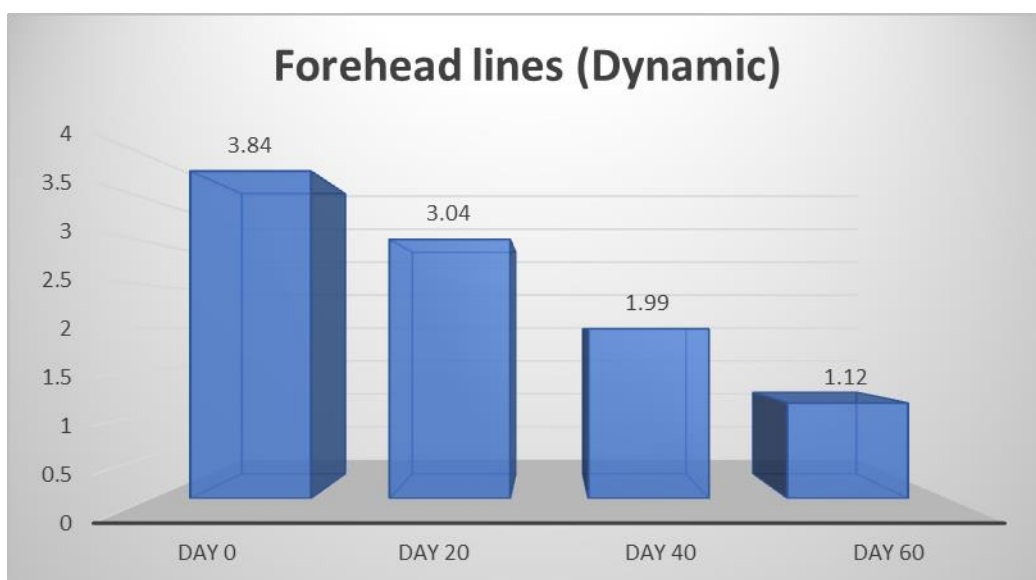
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 11: Forehead lines (Static).**

Forehead lines (Static)	N	Test statistic	P value
Negative Ranks	60	-6.910	<0.001
Positive Ranks	0		
Ties	0		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Forehead lines (Static)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in all patients it gets reduced, treatment is effective to reduce grades of ‘Forehead lines (Static)’.

**2) Forehead lines (Dynamic):** Follow up wise result by Friedman test as follows:



**Table no 12: Forehead lines (dynamic).**

Forehead lines (Dynamic)	Mean Rank	Test Statistic	P value
Day 0	3.84	166.011	<0.001
Day 20	3.04		
Day 40	1.99		
Day 60	1.12		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Forehead lines (Dynamic)’ during each follow up. It decreased significantly.

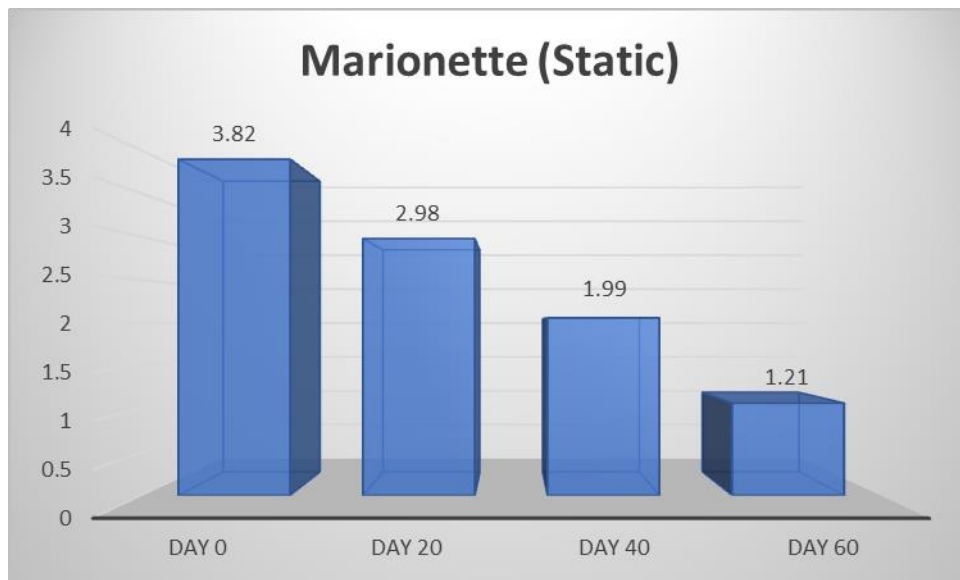
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 13: Forehead lines (dynamic).**

Forehead lines (Dynamic)	N	Test statistic	P value
Negative Ranks	60	-6.898	<0.001
Positive Ranks	0		
Ties	0		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Forehead lines (Dynamic)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in all patients it gets reduced, treatment is effective to reduce grades of ‘Forehead lines (Dynamic)’.

**3) Marionette (Static):** Follow up wise result by Friedman test as follows:



**Table no 14: Marionette (Static).**

Marionette (Static)	Mean Rank	Test Statistic	P value
Day 0	3.82	159.000	<0.001
Day 20	2.98		
Day 40	1.99		
Day 60	1.21		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Marionette (static)’ during each follow up. It decreased significantly.

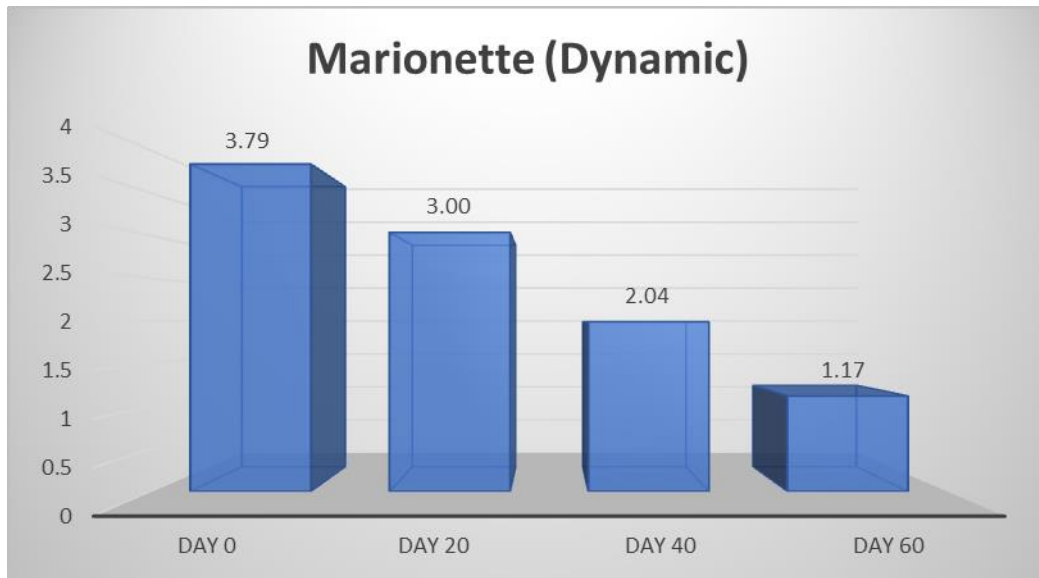
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 15: Marionette (Static).**

Marionette (Static)	N	Test statistic	P value
Negative Ranks	59	-6.802	<0.001
Positive Ranks	0		
Ties	1		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Marionette (Static)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of ‘Marionette (Static)’.

**4) Marionette (Dynamic):** Follow up wise result by Friedman test as follows:



**Table no 16: Marionette (dynamic).**

Marionette (Dynamic)	Mean Rank	Test Statistic	P value
Day 0	3.79	159.198	<0.001
Day 20	3.00		
Day 40	2.04		
Day 60	1.17		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Marionette (Dynamic)’ during each follow up. It decreased significantly.

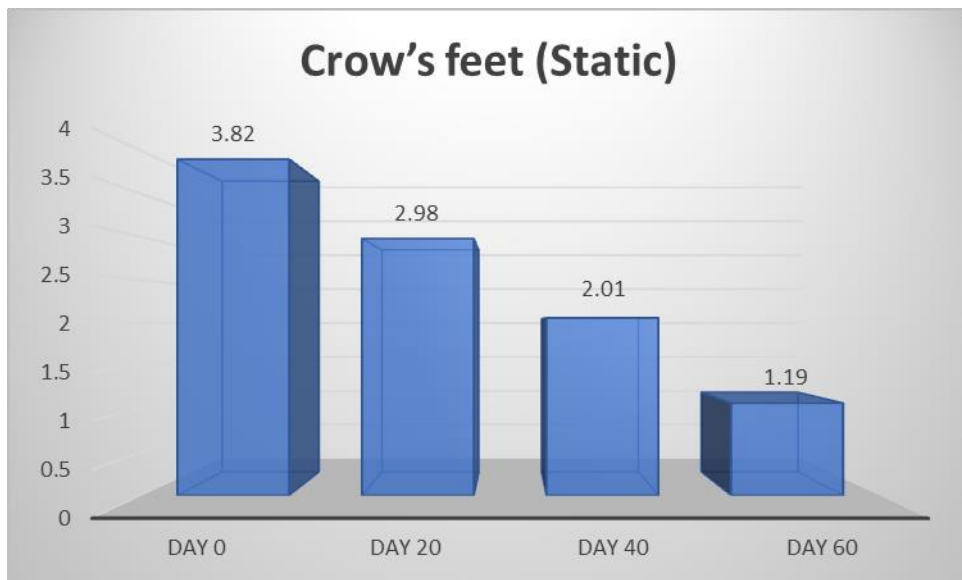
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 17: Marionette (dynamic).**

Marionette (Dynamic)	N	Test statistic	P value
Negative Ranks	59	-6.811	<0.001
Positive Ranks	0		
Ties	1		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Marionette (Dynamic)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of ‘Marionette (Dynamic)’.

**5) Crow’s feet (Static):** Follow up wise result by Friedman test as follows:



**Table no 18: Crow’s feet (Static).**

Crow’s feet (Static)	Mean Rank	Test Statistic	P value
Day 0	3.82	158.563	<0.001
Day 20	2.98		
Day 40	2.01		
Day 60	1.19		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Crow’s feet (static)’ during each follow up. It decreased significantly.

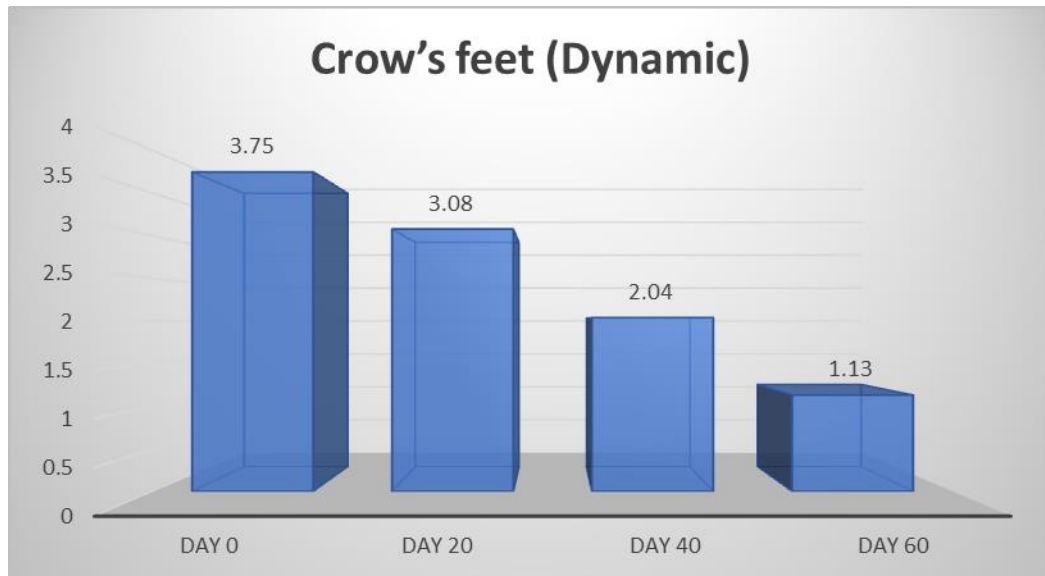
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 19: Crow’s feet (Static).**

Crow’s feet (Static)	N	Test statistic	P value
Negative Ranks	58	-6.876	<0.001
Positive Ranks	0		
Ties	2		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Crow’s feet (Static)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of ‘Crow’s feet (Static)’.

**6) Crow’s feet (Dynamic):** Follow up wise result by Friedman test as follows:



**Table no 20: Crow’s feet (dynamic).**

Crow’s feet (Dynamic)	Mean Rank	Test Statistic	P value
Day 0	3.75	160.925	<0.001
Day 20	3.08		
Day 40	2.04		
Day 60	1.13		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Crow’s feet (Dynamic)’ during each follow up. It decreased significantly.

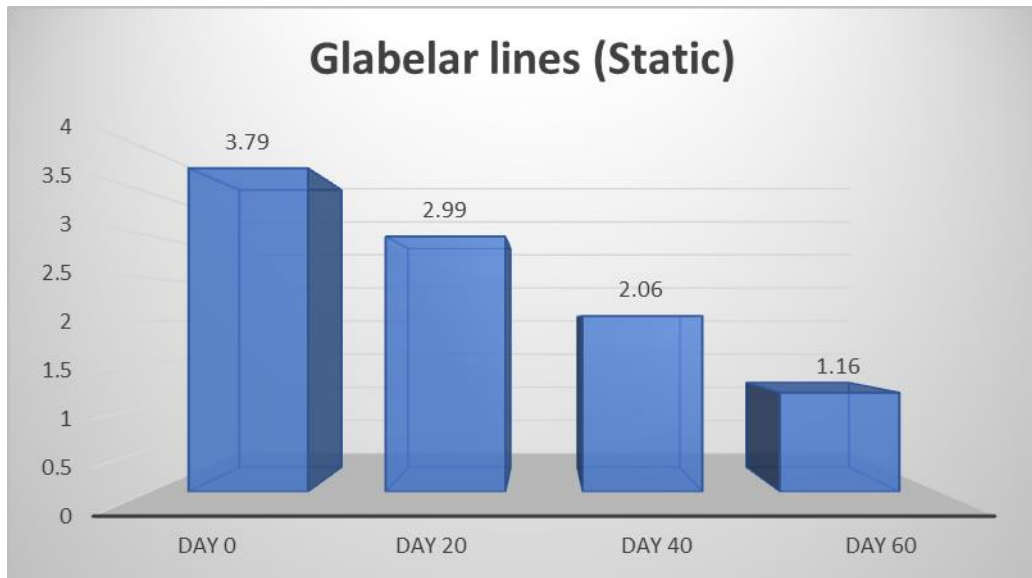
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 21: Crow’s feet(dynamic).**

Crow’s feet (Dynamic)	N	Test statistic	P value
Negative Ranks	59	-6.845	<0.001
Positive Ranks	0		
Ties	1		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Crow’s feet (Dynamic)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of ‘Crow’s feet (Dynamic)’.

**7) Glabellar lines (Static):** Follow up wise result by Friedman test as follows:



**Table no 22: Glabellar lines (Static).**

Glabellar lines (Static)	Mean Rank	Test Statistic	P value
Day 0	3.79	159.158	<0.001
Day 20	2.99		
Day 40	2.06		
Day 60	1.16		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Glabellar lines (static)’ during each follow up. It decreased significantly.

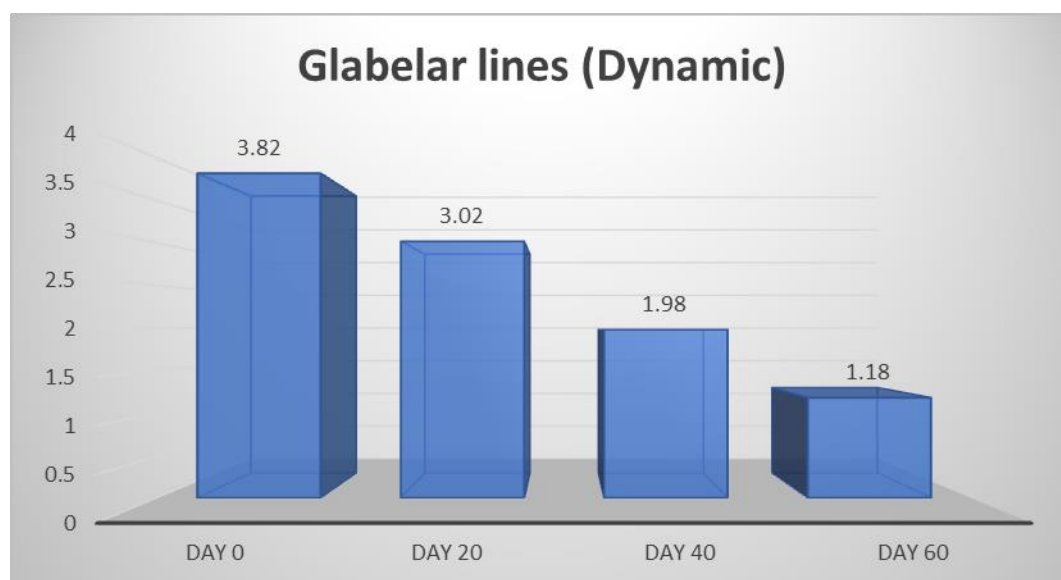
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 23: Glabellar lines (Static).**

Glabealar lines (Static)	N	Test statistic	P value
Negative Ranks	59	-6.850	<0.001
Positive Ranks	0		
Ties	1		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Glabellar lines (Static)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of ‘Glabellar lines (Static)’.

**8) Glabellar lines (Dynamic):** Follow up wise result by Friedman test as follows:



**Table no 24: Glabellar lines (Dynamic).**

Glabealar lines (Dynamic)	Mean Rank	Test Statistic	P value
Day 0	3.82	161.872	<0.001
Day 20	3.02		
Day 40	1.98		
Day 60	1.18		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Glabellar lines (Dynamic)’ during each follow up. It decreased significantly.

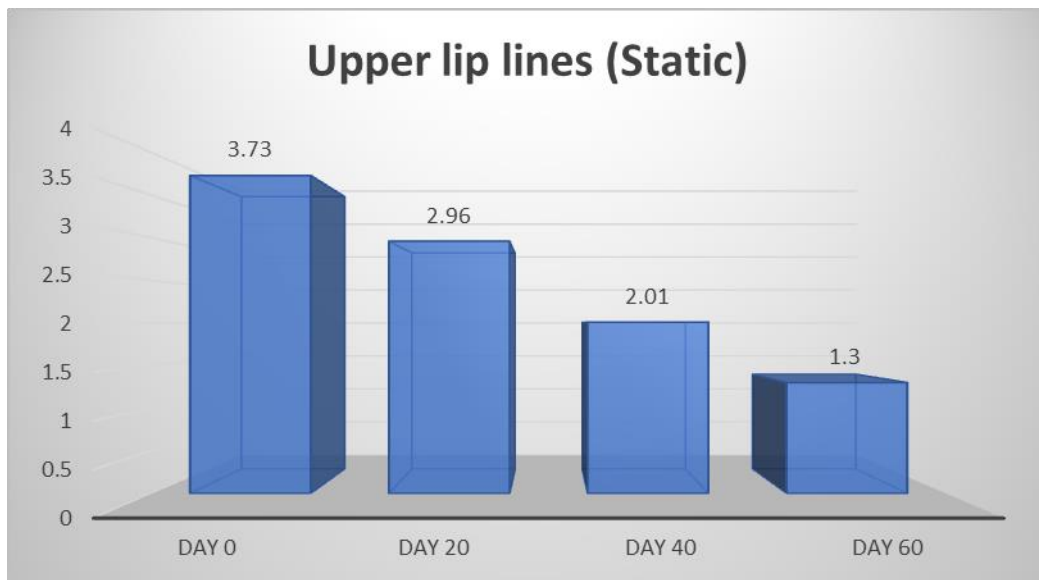
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 25: Glabellar lines (Dynamic).**

Glabellar lines (Dynamic)	N	Test statistic	P value
Negative Ranks	59	-6.831	<0.001
Positive Ranks	0		
Ties	1		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Glabellar lines (Dynamic)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of ‘Glabellar lines (Dynamic)’.

**9) Upper lip lines (Static):** Follow up wise result by Friedman test as follows:



**Table no 26: Upper lip lines (static).**

Upper lip lines (Static)	Mean Rank	Test Statistic	P value
Day 0	3.73	148.927	<0.001
Day 20	2.96		
Day 40	2.01		
Day 60	1.30		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Upper lip lines (static)’ during each follow up. It decreased significantly.



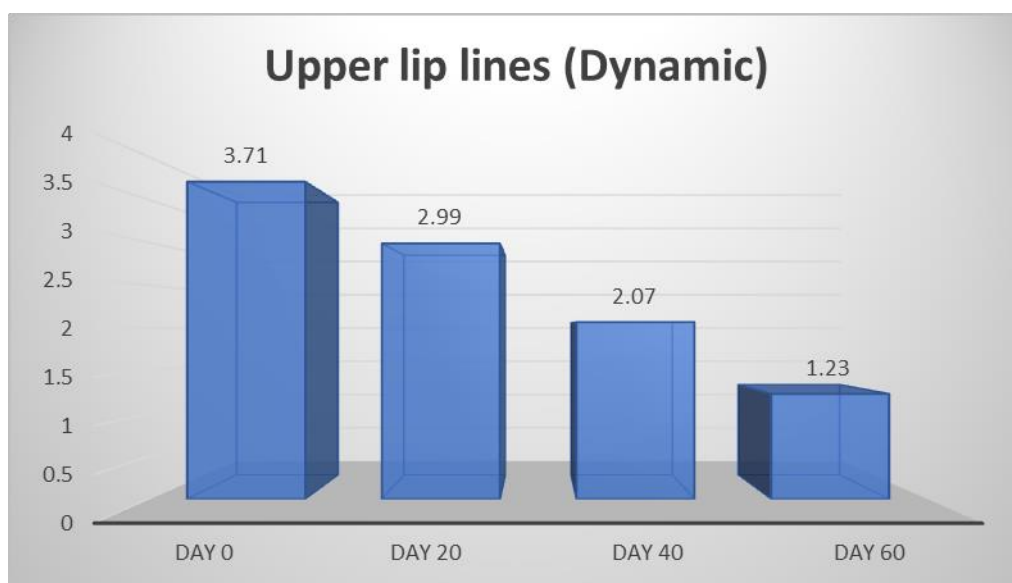
Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 27: Upper lip lines (static).**

Upper lip lines (Static)	N	Test statistic	P value
Negative Ranks	55	-6.567	<0.001
Positive Ranks	0		
Ties	5		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Upper lip lines (Static)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in most of the patients it gets reduced, treatment is effective to reduce grades of ‘Upper lip lines (Static)’.

**10) Upper lip lines (Dynamic):** Follow up wise result by Friedman test as follows:



**Table no 28: Upper lip lines (dynamic).**

Upper lip lines (Dynamic)	Mean Rank	Test Statistic	P value
Day 0	3.71	150.641	<0.001
Day 20	2.99		
Day 40	2.07		
Day 60	1.23		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Upper lip lines (Dynamic)’ during each follow up. It decreased significantly.

Result of before and after treatment by **Wilcoxon signed rank test** as follows:

**Table no 29: Upper lip lines (dynamic).**

Upper lip lines (Dynamic)	N	Test statistic	P value
Negative Ranks	55	-6.576	<0.001
Positive Ranks	0		
Ties	5		
Total	60		

**Interpretation:** As p value < 0.05, there is significant difference in grades of ‘Upper lip lines (Dynamic)’ after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in most of the patients it gets reduced, treatment is effective to reduce grades of ‘Upper lip lines (Dynamic)’.

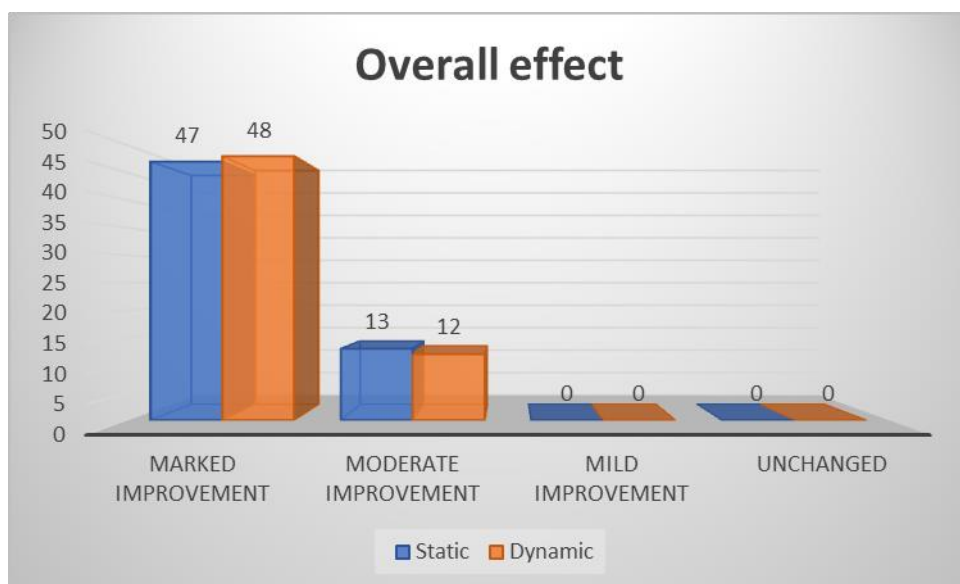
**Overall conclusion**

As per above result of all parameters, treatment is effective in the management of Mukh Vali.

Overall Effect: Following table and graph shows the overall effect.

**Table no 30: Overall effects.**

Overall effect	Static	Dynamic
Marked improvement	47 (78%)	48 (80%)
Moderate improvement	13 (22%)	12 (20%)
Mild improvement	0	0
Unchanged	0	0



**Interpretation:** Above table and graph reveal that, overall effect is approximately same in both cases static and dynamic.

In Static, 22% patients showed moderate improvement and 78% showed marked improvement. In Dynamic, 20% patients showed moderate improvement and 80% showed marked improvement. No patient with mild improvement and unchanged result in both cases.

**Hence Accepted hypothesis is Alternative Hypothesis**

There is significant effect of Brihatyadi Taila Nasya along with Kshirpriyal Face cream topical Application in the management of Mukha Vali w.s.r. Facial Wrinkles.

## **DISCUSSION**

### **Discussion on wrinkles**

#### Definition

Wrinkles are visible creases or folds in the skin. Wrinkles less than 1 mm in width and depth are defined as fine wrinkles. Wrinkles that are 1 mm or more in width and depth are defined as coarse wrinkles.

#### Incidence/ Prevalence

We found no information on the incidence of wrinkles alone, only on the incidence of skin photodamage, which includes a spectrum of features such as wrinkles, hyperpigmentation, tactile roughness, and telangiectasia. The incidence of skin disorders associated with ultraviolet light increases with age and develops over several decades.

#### Aetiology/ Risk factors

Wrinkles may be caused by intrinsic factors (e.g., ageing, hormonal status, and intercurrent diseases) and by extrinsic factors (e.g., exposure to ultraviolet radiation and cigarette smoke). These factors contribute to epidermal thinning, loss of elasticity, skin fragility, and creases and lines in the skin.

Many factors affect the development of wrinkles, including:

Sun exposure

Smoking

Dehydration

Some medications

Environmental and genetic factors

Exposure to ultraviolet (UV) light from sunbathing, tanning booths, and outdoor sports increases the development of wrinkles.

UV light breaks down the collagen and elastin fibers in the skin. These fibers form the connective tissue that supports the skin. As this layer breaks down, the skin becomes weaker and less flexible. The skin starts to droop, and wrinkles appear.

Darker skin contains more melanin and protects from many harmful effects of UV radiation.

People who work in sunlight have a higher chance of early wrinkles. Wearing clothes that cover the skin, such as hats or long sleeves, may delay the development of wrinkles.

Regular smoking accelerates the aging process of skin because it reduces the blood supply to the skin. Alcohol dehydrates the skin, and dry skin is more likely to develop wrinkles.

### Prognosis

Wrinkles cannot be considered a medical illness requiring intervention, but concerns about changes in physical appearance brought on by ageing can have a detrimental effect on quality of life. In some cases, concerns about physical appearance can affect personal interactions, occupational functioning, and self-esteem. Geographical differences, culture, and personal values potentially influence a person's anxieties about ageing. In societies in which the maintenance of a youthful appearance is valued, the demand for interventions that ameliorate visible signs of ageing grows as ageing populations expand.

### Medications

Topical retinoids derive from vitamin A. They aim to reduce fine wrinkles, hyperpigmentation, and skin roughness. They do this by increasing collagen production in the skin.

### According to Ayurveda

In *Ayurveda*, Charaka has described *twak* (skin) in six layers, he has named the first two as *udakadara* (*bahyatwak*) and *astrikdhara* and has not named the remaining four layers. *Sushruta* has described the same in seven layers viz. *avabhasini*, *lohita*, *shweta*, *tamra*, *vedini*, *rohini* and *mamsadhara*. *Avabhasini*, the outermost layer, reflects the complexion and the quality of the *Rasa Dhatu* (nutrient fluid, the first of the seven tissues of the body). It also acts as a mirror as it indicates whether the physiology as a whole is balanced or imbalanced, and whether there is inner health or disorder; it also reflects the aura of the individual. *Mamsadhara* is the innermost layer is the platform for

the skin's stability and firmness. When this layer is in balance, the skin looks young and supple. A skin product that has a *vayasthapana* (antiaging) effect nourishes this layer to help retard the aging process. *Vata* skin which is dry, thin, fine pored, delicate and cool to touch tends to develop wrinkles earlier than the other skin types. *Pitta* skin which is fair, soft, warm and medium thickness is photosensitive and has least tolerance to sun and is most likely to accumulate sun damage over the years. *Kapha* skin which is thick, oily, soft and cool to touch tends to develop wrinkles much later in life than *Vata* or *Pitta* type but because of its thickness and oiliness, is more prone to accumulate ama (toxins) under the skin.

According to *Ayurveda*, a number of factors determine skin health and youthfulness, and these include proper moisture balance (*Kapha* in balance), effective functioning of the metabolic mechanisms that coordinate all the various chemical and hormonal reactions of the skin (*Pitta* in balance), and efficient circulation of blood and nutrients to the different layers of the skin (*Vata* in balance). The health of the following three types of body tissue are especially reflected in the skin: nutritional fluid (*Rasa*), blood (*Rakta*) and muscle (*Mamsa*). To be effective, an antiaging application has to provide support to all of these areas.

Antiaging treatment includes two types of therapies *Urjaskara* (promotive) and *Vyadhihara* (curative) promotive, preventive and therapeutic interventions generally on various degenerating conditions and aging. For *vata* skin to stay youthful skin care products that can nourish and rehydrate the skin should be used otherwise it may be susceptible to wrinkles and premature aging. Warm oil self-massage and all natural moisturizers may help. For *pitta* skin good sunscreens for protection from the sun, good facial skin oils should be used daily. Tanning treatments and therapies that expose delicate sensitive skin for extended periods of time to steam/heat should be avoided. For *kapha* skin a daily warm oil massage and cleansing of skin with gentle exfoliant should be done.

### **Discussion on Probable mode of action of *Nasya***

On cribriform palate of ethmoid bone, nerve endings are located, on administration of *Nasya Dravyas*, these nerve endings are triggered and a message is sent to the CNS which precedes the normal physiological functions of the body. The drain from the brain and venous circulation of nose drains in the cavernous sinus, hence it justifies that

“Nasa hi *shirasodwaram*” that it acts on brain through the cavernous sinus. Also *Shringatak marma*, a place where *Ghrana*, *Shrota* and *Akshi Tarpan Shiras* are united is located in Nasa, so the drugs administered through the nasal cavity stimulates the *Shringatak Marma*, hence enhancing the functions of *Ghrana*, *Shrota* and *Akshi Tarpan Shiras*. Under physiological conditions, lymphatic vessels drain extracellular fluid from the skin and contribute to aging. Lymphatic collector function generally declines with age, with for example, decreased contractile pressure and pumping frequency. On a cellular level, aged lymphatic vessels have a decrease in the glycocalyx and looser cell-to-cell gap junctions, which causes leakier vessels, The lymphatic system is involved in tissue homeostasis as well as transport of lipids, proteins and pathogens. Aging affects all physiological systems. However, it is not well studied how aging affects the lymphatic vasculature, *nasya* oil application supports the lymphatic drainage and help as antiaging.

### **Discussion on cosmetic effect of *Nasya***

A lot of efforts are undertaken by today’s youth, in order to achieve flawless beauty and an appreciable personality, but often the use of chemical contained cosmetics they end up destroying the natural appearance of skin and hair, even these products do not eliminate the root cause of the ailments that degrade the beauty. The *Nasya karma* aims at eliminating the vitiated *doshas* that are situated above the clavicle bone and brings about equilibrium of *Doshas* and in their natural state, thereby curing beauty related ailments.

After taking *nasya* treatment the patient reported about sound sleep as compared to before treatment. Sleeping at least 8 hours a night help to maintain overall health, and this may include skin quality, although this has not been extensively proven by research.

(According to *Ayurveda*, balancing the *vata dosha* is extremely beneficial in getting rid of wrinkles and discovering healthy skin. The active ingredients of Brihatyadi Taila had potent antioxidant activity, antioxidants act through different mechanisms and in different compartments, but are mainly free radical scavengers:

- 1) They directly neutralise free radicals,
- 2) They reduce the peroxide concentrations and repair oxidized membranes,
- 3) They quench iron to decrease reactive oxygen species production,

- 4) Via lipid metabolism, short-chain free fatty acids and cholesteryl esters neutralise reactive oxygen species.

### Discussion on Probable mode of action of *kshirpriyal* face cream

- 1) Age defying activity (*Vayasthapana*) – The ingredient of *kshirpriyal* face cream nourishes the skin and ensures its optimum physiological functions and has an overall anti-aging property is called *vayasthapana*, which literally means ‘maintaining youthfulness’ or ‘arresting age’. *Vayasthapana* herbs give overall support to the skin by keeping all three *doshas* in balance. *Vayasthapana* means Nutritional fluid: This "feeds" all of the body's tissues and keeps the skin healthy, Blood: Associated with liver function and purifies the skin, Muscle: Provides skin firmness.
- 2) Youthful Radiance (*Varnya*) – An important ingredient of *kshirpriyal* face cream were *Varnya*, has the ability to enhance the radiance or bright complexion of the skin. If the skin does not have a healthy glow, or *varnya* quality, then it is not considered youthful in *Ayurveda*.
- 3) Protection from normal wear and tear (*Sandhaniya*) – ingredient of *kshirpriyal* face cream help coalesce discontinued tissue, and in healing and regenerative functions of the skin, repairing effects of aging. ‘Sensitive Plant’ enhances healing and regeneration of the nerves by 30 to 40%.
- 4) Deep healing (*Vranaropana*) – Three primary structural components of the dermis, collagen, elastin and GAGs are responsible layers for aging, ingredient of *kshirpriyal* face cream enhance deeper healing abilities in the skin.
- 5) Enhancing and nurturing (*Tvachya*) – ingredient of *kshirpriyal* face cream support moisture balance and provide overall nourishment to the skin.
- 6) Anti-inflammatory (*Shothahara*) – By protecting the skin against allergens, inflammatory substances, chemicals and even stress, this ingredient of *kshirpriyal* face cream provide the anti-inflammatory effect.
- 7) Strengthening the skin's metabolic mechanisms (*Tvachagnivardhani*) – This means literally to enhance the lustre of the skin by enhancing the skin's metabolism. As one ages, metabolism generally slows down; similarly, skin metabolism also weakens. If enzymes become imbalanced, metabolic toxins are created, ama. Ama in the skin clogs the channels, leading to wrinkles, dryness and other signs of aging. Clogged channels also create dullness and lack of youthful glow. Application of



*kshirpriyal* face cream enhances enzyme principles; topically, it improves circulation early. Also, by removing ama and deep impurities, it helps prevent aging skin, and weakened immunity to allergens and skin diseases.

- 8) Maintaining skin health and retarding aging (*Tvagrasyana*) –In *Ayurveda* the concept of antiaging is embodied in *rasayana*. *Tvagrasyana* means literally ‘skin *rasayana*’, which refers to refined and powerful herbal formula i.e *kshirpriyal* face cream designed to prevent sickness and aging of the skin and Water from deeper epidermal layers moves upward to hydrate stratum corneum cells and is then lost to evaporation. Epidermal water content is essential to prevent skin dryness and maintain plasticity.
- 9) Gallatanning, Glabridin, Quercetin, Kaempferol, Rhamnose, Glycosides, Diosgenin, Stearic acid, lysine, Alpha Mydroy acid, Gallatanning, linoleic acid These are active ingredient of *kshirpriyal* face cream having the significant role as antiaging and rejuvenating the skin.
- 10) Stratum corneum is an active membrane, described as a bricks and mortar model, where loss of intercellular lipids, forming the bilayers (eg, ceramides, cholesterol and fatty acids) will result in water barrier formation damage leading to dry skin and aging, The structure of the stratum corneum is the pivotal factor in skin water flux, retention and overall moisturizing level. There are four key processes in stratum corneum formation and functioning- corneocyte, stratum corneum lipid, natural moisturizing factor, and desquamation. Corneocytes are the stratum corneum’s physical barrier, contributing to elasticity when hydrated, and hydration maintained with lysine like active ingredients present in *kshirpriyal* face cream.

### **Discussion regarding observations**

#### **1) Age wise distribution**

maximum number of patients (23%) are belonging to age group 40-44 yrs and 50-54 yrs respectively, followed by age group 45-49 yrs with 22% patients. 17% patients from age group 55-59 yrs and only 15% from 35-39 yrs.

#### **2) Gender wise distribution**

Maximum patients (72%) are Female.

**3) Marital Status wise distribution**

Maximum patients (93%) are married and only 7% are unmarried.

**4) Economic Status wise distribution**

Maximum patients (52%) from middle economic class, 38% from upper middle class and only 10% from lower middle economic class.

**5) Education wise distribution**

Maximum patients (38%) are graduates. 30% patients completed higher secondary and 17% completed secondary education. 15% patients are post graduates.

**6) Occupation wise distribution**

Maximum patients (32%) are house wives, 20% are teacher, 12% are nurse, 10% are doing job, 3% working as hospital staff and only 1.66% are with different occupation like businessman, contractor, doctor, driver, farmer, doing government job, marketing job, news reporter, private job, receptionist, shopkeeper, having salon, staff nurse, tax officer respectively.

**Forehead lines (static)** As in all patients it gets reduced, treatment is effective to reduce grades of 'Forehead lines (Static)'.

As p value < 0.05, there is significant difference in grades of 'Forehead lines (static)' during each follow up. It decreased significantly.

As p value < 0.05, there is significant difference in grades of 'Forehead lines (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in all patients it gets reduced, treatment is effective to reduce grades of 'Forehead lines (Static)'.

**Forehead lines (Dynamic):** there is significant difference in grades of 'Forehead lines (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in all patients it gets reduced, treatment is effective to reduce grades of 'Forehead lines (Dynamic)'.

As p value < 0.05, there is significant difference in grades of 'Forehead lines (Dynamic)' during each follow up. It decreased significantly.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Forehead lines (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in all patients it gets reduced, treatment is effective to reduce grades of 'Forehead lines (Dynamic)'.

**Marionette (Static):** there is significant difference in grades of 'Marionette (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Marionette (Static)'.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Marionette (static)' during each follow up. It decreased significantly.

**Marionette (Dynamic)** there is significant difference in grades of 'Marionette (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Marionette (Dynamic)'.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Marionette (Dynamic)' during each follow up. It decreased significantly.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Marionette (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Marionette (Dynamic)'.

**Crow's feet (Static):** there is significant difference in grades of 'Crow's feet (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Crow's feet (Static)'.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Crow's feet (static)' during each follow up. It decreased significantly.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Crow's feet (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it

remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Crow's feet (Static)'.

**Crow's feet (Dynamic):** there is significant difference in grades of 'Crow's feet (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Crow's feet (Dynamic)'.

As p value  $< 0.05$ , there is significant difference in grades of 'Crow's feet (Dynamic)' during each follow up. It decreased significantly.

As p value  $< 0.05$ , there is significant difference in grades of 'Crow's feet (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Crow's feet (Dynamic)'.

**Glabella lines (Static):** there is significant difference in grades of 'Glabella lines (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Glabella lines (Static)'.

As p value  $< 0.05$ , there is significant difference in grades of 'Glabella lines (static)' during each follow up. It decreased significantly.

As p value  $< 0.05$ , there is significant difference in grades of 'Glabella lines (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Glabella lines (Static)'.

**Glabella lines (Dynamic):** there is significant difference in grades of 'Glabella lines (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Glabella lines (Dynamic)'.

As p value  $< 0.05$ , there is significant difference in grades of 'Glabella lines (Dynamic)' during each follow up. It decreased significantly.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Glabellar lines (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in almost all patients it gets reduced, treatment is effective to reduce grades of 'Glabellar lines (Dynamic)'.

**Upper lip lines (Static):** there is significant difference in grades of 'Upper lip lines (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in most of the patients it gets reduced, treatment is effective to reduce grades of 'Upper lip lines (Static)'.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Upper lip lines (static)' during each follow up. It decreased significantly.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Upper lip lines (Static)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in most of the patients it gets reduced, treatment is effective to reduce grades of 'Upper lip lines (Static)'.

**Upper lip lines (Dynamic):** there is significant difference in grades of 'Upper lip lines (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in most of the patients it gets reduced, treatment is effective to reduce grades of 'Upper lip lines (Dynamic)'.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Upper lip lines (Dynamic)' during each follow up. It decreased significantly.

As  $p$  value  $< 0.05$ , there is significant difference in grades of 'Upper lip lines (Dynamic)' after treatment. Negative rank indicates it reduces after treatment. Ties indicate it remains same. As in most of the patients it gets reduced, treatment is effective to reduce grades of 'Upper lip lines (Dynamic)'.

### **Overall Effect**

In Static, 22% patients showed moderate improvement and 78% showed marked improvement. In Dynamic, 20% patients showed moderate improvement and 80% showed marked improvement. No patient with mild improvement and unchanged result in both cases.

## CONCLUSION

From the detailed description of conceptual review, drug review, clinical study and discussion, the following conclusion can be drawn:-

- Early Skin aging is a complex process mainly found in *madhyam Vaya*.
- Environmental factors and lifestyle are important causative factors of face wrinkles (*mukh vali*).
- Face wrinkles (*mukh wali*) having *tridosha*, *vata* dominance with involvement of *Rasadusthi*, which can be evident by observing its signs and symptoms.
- *Kshirapriyal* face cream and *Brihatyadi tail nasya* together found effective in face wrinkles (*mukh vali*).
- *Kshirapriyal* face cream and *brihatyadi tail* easy to use at home.
- No adverse effect of *Kshirapriyal* face cream and *brihatyadi tail* was encountered during this study. So, this drug can be used in routine practice for faster and safe recovery.
- *Kshirapriyal* face cream and *brihatyadi tail nasya* is cost effective which can be used as important medicine.
- Local application alone not improve skin ageing, medicated nasal drops together show more effective and has rapid action.

## Scope of further Study

- This is only preliminary study conducted as a part of educational research program in small number of patients and in a fixed duration of time. Further multicentric clinical and experimental studies are required with larger samples to establish the efficacy of these drugs on face wrinkles (*mukh vali*).
- A *Lepa*, contains dry drugs, it should be used within sometime, otherwise the drugs get decomposed, and the application may harm the skin. In contemporary market, here is flood of Ayurvedic cream/ointment covering a range of full therapeutics and Cosmeceuticals.
- topical application of face cream along with ayurvedic nasal drops(*nasya*) that delay and/or reverse visible signs of aging are termed as antiaging cosmeceuticals.
- *Kshirpriyal* face cream and *brihatyadi tail nasya* include proper moisture balance (*Kapha* in balance), effective functioning of the metabolic mechanisms( protein metabolism are a decrease in collagen synthesis and an increase in collagen

degradation, which lead to a decrease in the amount of collagen) that coordinate all the various chemical and hormonal reactions of the skin (*Pitta* in balance), and efficient circulation of blood and nutrients to the different layers of the skin, These structural and functional alterations in the vascular system may explain age associated reductions in muscle blood flow. Decreased leg blood flow and vascular conductance are present in elderly compared to young subjects during whole body exercise and in response to reactive hyperemia (*Vata* in balance).

- A chemical peel, surgical treatments are expansive to refresh the skin and reduce aging. Deeper chemical peels and surgical procedure are usually not recommended for younger patients.

### **Limitation of study**

- Cutaneous surgery is performed to treat visible signs of aging in extremely elderly patients and is well tolerated ensuring comfort and safety even in the oldest patients.
- The application of injectables with botulinum toxin type A has become a useful and significant tool for facial rejuvenation.
- Some modern medicine along with Retinoids, vitamins significant effective in facial rejuvenation.

## **SUMMERY**

### **1. Introduction**

In this chapter need to do the topic, importance of topic, selection of topic wrinkles (*mukh vali*) and scope of topic is written.

### **2. Aim and objectives**

In this chapter 'Aim' or finally what is to achieved after research project and, Objects' written.

### **3. Literary review**

In this chapter compilation of Veda literature, modern as well as Ayurvedic literature is done.

It is further subdivided into the Historical review, *Ayurvedic* aspect of disease, Modern aspect of disease wrinkles (*mukh vali*)

In Historical review various references from *Vedas* and *Samhitas* have been described.

### **4. Material and method**

In this chapter selection of volunteers, inclusion and exclusion criteria, type of research work, plan of research work and the method of experiment is written.

### **5. Observations and Results**

In this chapter data is displayed in tubular form graph and table form. Discussion about these and statistical tool along with calculations of statistics along with data analysis is done.

### **6. Discussion**

In this chapter discussion of observation are explained.

### **7. Summary**

In this chapter contents of all chapters are given.

### **8. Conclusion**

Conclusion drawn from the whole study.



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## ANNEXURE

## ABBREVIATIONS KEY

Sr. No.	Short Forms	Long Forms
1.	सु. सु	Sushrut sutrasthana.
2.	सु. नि	Sushrut Nidansthana
3.	अ. ह. उ	Asthang hriday uttarsthana.
4.	च. शा	Charak sharirsthana.
5.	च. चि	Charak Chikitsasthan.
6.	मा. नि	Madhav nidansthana
7.	भा. नि	Bhavaprakash nighantu
8.	अ.ह.उ.	Ashtang sangrah uttarsthan.
9.	शां.सं.उं.ख.	Sharandhar samhita uttar khand.
10.	भा.प्र. म. बालरोगाधिकार	Bhavaprakash madhyam khanda Balrogadhikara.
11.	भै. र	Baishajyaratnavali
12.	सु.चि	Sushrut chikitsa.
13.	द्र. गु. वि	Dravya duna vidnyan.
14.	चक्र.सं.	Chakradutta sangraha.
15.	वा. सु	Vagbhat sutrastha.
16.	Su.Cha.	Sushkita chikitsasthan
17.	Ch.Chi	Charak chikitsasthan.
18.	B.T	Before treatment
19.	A.T	After treatment
20.	S.D	Standard deviation
21.	Ch.Su	Charak sutrasthan
22.	A.H.Su	Ashtanghruday sutrasthan
23.	Su.Ni	Sushrut nidansthana
24.	Ch.vi	Charak vimansthana
25.	Su.Su	Sushrut sutrasthan
26.	H	Hindu
27.	Bu	Bauddha
28.	M	Muslim
29.	Edu. Of mother	Education of mother
30.	PK	Pitta pradhan Kapha
31.	KP	Kaph pradhan Pitta
32.	KV	Kaph pradhan Vata
33.	PV	Pitta pradhan vata
34.	VP	Vata pradhan Pitta
35.	Wt	Weight
36.	Kg	Kilogram
37.	D	Day
38.	Sr.No.	Serial number
39.	i.e	That is
40.	Etc	Etcetera

**CASE RECORD FORM**

TITLE OF STUDY - SINGLE ARM CLINICAL STUDY TO EVALUATE EFFICACY OF BRIHATYADI TAIL NASYA ALONG WITH KSHIRPRIYAL FACE CREAM TOPICAL APPLICATION IN MUKH VALI WITH SPECIAL REFERANCE TO FACIAL WRINKLES.”

Opd No.

Ipd.No.

Date

Name Of Patient

Residential Address

Age

Sex

Occupation

Education

Economical Status

Mariatal Status

Desh

Kala

Rutu

Vartamanvyadhilakshanani (Chief complaints):

**Vartamanvyadhivritta**

Poorvavyadhivritta (History of previous illness):Kulvritta (Family history):

**Samanyaparikshan (General examination):**

Nadi :

Agni

Mala :

Koshta

Mutra :

Prakruti :

Jivha :

Ahar:

Nidra

Raktabhar (B.P.)

Kshudha

HrIddhwani

**CHIKITSA** Brihatyadi Taila Nasya 4 Drops In Each Nostrils Daily For 60 Days

Kshirpriyal Face Cream 1gm Local Application Over Wrinkle Sites On Face Only

**Kala Pratah and Sayankal**

### OBSERVATIONS

Follow Up	Forehead Lines		Marionette		Crow's Feet		Glabellar Lines		Upper Lip Lines	
	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic
Day 0										
Day 20										
Day 40										
Day 60										

Upashaya	Relief in %
UTTAM	76-100%
MADHYAM	51- 75%
ALPA	26- 50 %
ANUPSHAYA	0 – 25%

### CONSENT

#### WRITTEN INFORMED CONSENT FORM

#### CERTIFICATE BY INVESTIGATOR

I certify that I have disclosed all details about the study in the terms easily understood by the patient.

Date: \_\_\_\_\_ Signature of the subject: \_\_\_\_\_

Name: \_\_\_\_\_

#### CONSENT FOR PARTICIPATION

I have read the patient information sheet. I am ready for this clinical trial on me. I have given complete information of treatment and its side effects in my language and I have understood it. I confirm that my name will be kept confidential.

Signature / thumb impression \_\_\_\_\_

Patient's name / initials \_\_\_\_\_ Date : / /

Investigator's signature \_\_\_\_\_ Date : / /

Investigator's name \_\_\_\_\_

Signature of witness 1 \_\_\_\_\_ Date : / /

Name of witness 1 \_\_\_\_\_

Signature of witness 2 \_\_\_\_\_ Date : / /

Name of witness 2 \_\_\_\_\_

मी माहिती पत्रकातील सर्व मजकूर वाचलेला असून मी माझ्यावर उपचार करून घेण्यास तयार आहे. माझ्यावर करण्यात येत असलेल्या उपचार व त्यातील सम्भाव्य धोक्याची सविस्तर माहिती मला माझ्या भाषेत समजावून सांगितली असून मला ती पूर्ण पणे समजली आहे. माझे नाव गुप्त ठेवण्यात येईल.

पेशंटचेनाव: \_\_\_\_\_

सही/अंगठा..... दिनांक: \_\_/\_\_/20

संशोधकाचे नाव: \_\_\_\_\_

संशोधकाची सही:.....दिनांक: \_\_/\_\_/20

प्रथमसाक्षीदाराची नाव व सही:.....

द्वितीय साक्षीदाराचे नाव व सही: \_\_\_\_\_

### संमतीपत्र

मैंने जांच पत्रक की पूरी जानकारी पढ़ली है। मैं स्वैच्छासे इस औषध उपचार के लिए संमती देता हूँ। मेरे ऊपर होने वाली चिकित्सा और उससे होने वाले संभाव्य परिणामों की मुझे मेरी भाषा में पूरी जानकारी दी गई है। मेरा नाम गुप्त रखा जायेगा।

रुग्णनाम:- \_\_\_\_\_

सही/अंग\_/20 \_\_\_\_\_

संशोधक का नाम \_\_\_\_\_

संशोधक सही:- \_\_\_\_\_

दिनांक\_/20

प्रथमसाक्षीदार नाम व सही \_\_\_\_\_

द्वितीय साक्षी दार नाम व सही \_\_\_\_\_

pt. sr. no.	age	sex	marital	social Status	Education	Occupation	FOREHEAD LINES								MARIONETTE						CROW'S FEET						GLABELAR LINES						UPPER LIP LINES																
							DAY 0		DAY 20		DAY 40		DAY 60		DAY 0		DAY 20		DAY 40		DAY 60		DAY 0		DAY 20		DAY 40		DAY 60		DAY 0		DAY 20		DAY 40		DAY 60												
							Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic											
1	49 years	female	married	middle class	pg	housewife	3	3	2	2	1	1	1	1	0	0	2	2	2	2	1	1	2	2	1	1	0	0	2	2	2	2	1	1	0	0	2	2	2	2	1	1	1	1	0	0			
2	42 years	male	married	upper middle	b.com	contractor	2	2	2	2	1	1	1	1	3	3	2	2	1	2	0	1	3	3	2	2	2	1	1	0	0	2	2	2	2	1	1	0	0	2	2	2	2	1	1	1	1	0	0
3	46 years	male	married	upper middle	b.com	tax officer	2	2	1	2	1	1	0	0	3	3	2	2	1	1	0	0	3	3	2	2	2	1	1	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	56 year	female	married	middle class	12th pass	housewife	2	2	2	2	1	1	1	1	2	2	2	2	1	2	1	1	2	2	1	2	0	1	0	0	2	2	1	1	0	0	0	0	2	2	1	1	1	1	0	0			
5	38 years	female	married	upper middle	m.com	housewife	2	2	1	2	1	1	0	1	2	2	1	2	1	1	0	0	2	2	1	2	1	1	0	0	2	3	2	2	1	1	0	2	2	2	2	1	1	0	0				
6	50 years	female	married	lower middle	8th pass	housewife	2	2	1	2	1	1	0	0	3	2	2	1	1	1	0	0	1	3	1	2	0	1	0	0	2	2	2	2	2	2	3	3	2	2	1	1	0	0					
7	45 years	female	married	upper middle	12th pass	housewife	2	3	1	2	1	1	0	1	3	2	2	2	1	1	1	0	2	2	1	1	1	0	0	2	2	2	2	1	1	0	0	2	2	2	2	1	1	1	1	1	1		
8	41 years	female	married	middle class	12th pass	housewife	2	2	2	2	1	1	0	1	3	3	3	2	2	1	1	1	2	2	2	2	1	1	1	0	3	3	2	2	1	1	0	1	2	3	2	2	1	2	1	1			
9	56 years	male	married	middle class	BA	teacher	2	2	2	2	1	1	1	1	2	3	2	2	1	2	0	1	2	3	2	2	1	1	0	0	2	3	2	2	1	1	1	0	2	3	1	2	1	1	0	1			
10	50 years	male	married	upper middle	12th pass	marketing	2	1	1	1	1	0	0	0	1	1	0	0	0	0	0	2	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0				
11	46 years	male	married	upper middle	12th pass	teacher	2	3	2	2	1	1	0	0	2	2	1	2	1	1	0	1	3	3	2	2	1	1	0	0	2	2	1	1	0	0	0	0	2	2	2	2	1	1	0	0			
12	43 years	female	married	middle class	BA	teacher	3	3	2	2	1	1	0	0	2	2	1	1	0	1	0	1	2	2	1	1	1	0	0	2	2	1	1	1	1	0	0	2	2	1	2	1	1	1	1	1			
13	52 year	female	married	upper middle	GNM	nursing	2	2	1	1	1	0	0	0	3	3	2	2	1	1	0	0	2	2	1	0	1	0	0	3	3	2	2	2	1	1	0	3	3	2	2	2	2	1	1	1	1		
14	43 years	female	unmarried	middle class	bhms	doctor	3	3	2	2	1	2	0	1	2	2	2	2	2	1	1	0	3	3	2	2	2	1	1	0	2	2	1	2	1	1	0	0	2	2	0	1	0	0	0	0			
15	54 years	female	married	lower middle	10th fail	housewife	2	2	2	2	1	1	0	0	2	2	2	2	2	1	1	2	2	1	1	1	0	0	2	2	2	2	1	1	0	1	0	0	0	0	0	0	0	0	0	0			
16	48 years	female	married	middle class	12th pass	housewife	3	3	2	2	1	1	0	0	2	2	1	1	0	1	0	0	2	2	2	2	1	1	0	0	2	2	1	1	0	0	0	2	2	2	1	0	1	0	0	0			
17	50 years	female	married	middle class	BA	housewife	2	2	1	1	1	1	0	0	1	1	1	1	0	0	0	0	2	2	1	2	1	1	0	0	2	3	2	2	1	1	0	0	2	2	1	1	1	0	0	0			
18	40 years	female	married	middle class	msc	private job	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
19	49 years	male	married	upper middle	d.pharm	job	3	2	2	2	1	1	0	0	3	3	2	2	1	2	0	0	3	2	2	1	2	0	1	0	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0			
20	38 years	male	unmarried	upper middle	msc	job	3	2	2	2	1	1	0	0	2	3	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
21	38 years	female	married	middle class	mcom	housewife	3	2	2	2	1	1	0	0	2	2	1	2	0	1	0	1	3	2	2	2	1	1	1	1	3	2	2	2	1	1	1	1	3	3	3	3	2	2	1	1			
22	55 years	male	married	middle class	10th pass	shopkeeper	2	2	1	1	0	1	0	0	2	3	1	2	1	1	0	0	2	3	3	2	2	2	1	3	3	3	2	3	1	1	0	3	3	2	2	1	1	0	0				
23	53 years	female	married	middle class	10th pass	housewife	3	3	2	2	1	1	0	0	3	2	2	2	1	1	1	1	2	2	2	2	1	1	1	0	2	2	2	2	1	1	1	0	3	3	2	2	1	1	0	0			
24	37 years	male	unmarried	upper middle	b.com	newsreport	3	3	2	2	1	1	0	0	2	3	1	2	1	1	0	0	3	2	2	1	1	0	0	2	3	1	2	0	1	0	0	3	2	2	2	1	1	0	0				
25	54 years	male	married	upper middle	BA	farmer	3	3	2	2	2	1	0	0	2	2	0	1	0	0	0	0	3	3	2	2	2	1	1	2	3	1	2	1	1	0	0	3	3	2	2	1	1	0	0				
26	55 years	female	married	upper middle	bams	teacher	3	2	2	1	1	0	0	0	3	3	2	2	1	1	0	1	3	2	2	2	1	0	0	3	2	2	1	2	0	1	0	2	2	2	2	1	1	0	0				
27	55 years	female	married	middle class	b.com	housewife	3	3	2	2	1	1	1	1	2	2	2	2	1	0	1	0	2	2	2	1	1	0	0	2	3	2	2	1	1	0	0	2	2	2	2	1	1	0	0				
28	52 years	male	married	middle class	ba	job	4	3	3	2	2	1	1	0	2	1	1	1	0	0	0	0	3	2	2	2	1	1	1	0	4	3	3	2	2	1	1	0	3	2	2	2	1	1	0	0			
29	43 years	female	married	middle class	12th pass	housewife	3	2	2	1	1	0	0	0	2	2	2	2	1	1	0	0	2	2	2	2	1	1	0	0	2	2	2	2	1	1	0	0	1	1	0	0	0	0	0	0			
30	50 years	female	married	upper middle	md	teacher	2	2	1	1	0	1	0	0	2	2	1	1	1	0	0	0	2	3	1	2	0	1	0	0	2	2	1	1	1	0	0	3	2	2	1	1	0	0	0				
31	43 years	female	married	upper middle	10th pass	housewife	2	2	1	1	0	0	0	0	2	2	2	1	1	1	0	0	2	2	1	2	0	1	0	0	2	2	1	1	1	0	0	1	1	1	1	0	0	0	0				
32	46 years	female	married	lower middle	10th pass	nursing	3	3	3	3	2	2	1	1	4	4	3	3	2	2	1	1	4	4	3	3	2	2	1	1	3	4	3	3	2	2	1	1	4	3	3	3	2	2	1	1			
33	54 years	female	married	lower middle	12th pass	nursing	3	3	2	2	1	2	0	1	2	3	2	2	1	2	0	1	3	4	2	3	2	2	1	1	3	2	2	2	1	1	1	0	3	3	2	2	2	1	1	0			
34	43 years	female	married	lower middle	12th pass	nursing	3	3	2	2	2	1	1	3	3	2	2	1	1	0	0	2	2	2	1	1	0	0	0	2	2	1	2	1	1	0	0	2	2	2	2	1	2	1	1				
35	51 years	female	married	middle class	GNM	staff nurse	3	3	2	3	2	2	1	2	3	3	3	2	2	1	1	4	3	3	3	2	2	1	1	4	4	3	3	2	2	1	1	4	4	3	3	2	2	1	1				
36	39 years	female	married	middle class	b.com	receptionist	3	3	2	2	1	0	1	3	3	2	2	1	1	0	1	2	2	1	2	1	1	0	0	2	2	2	2	1	1	0	0	2	2	2	2	1	1	0	0				
37	56 years	female	married	middle class	10th	housewife	3	3	3	3	2	2	1	1	3	3	2	2	1	1	0	0	3	3	2	2	1	1	0	0	3	2	2	1	1	0	0	2	2	1	1	0	0	0	0				
38	36 years	male	married	upper middle	msc	government	3	3	2	2	2	1	1	3	3	2	3	2	2	2	1	4	4	3	3	2	3	2	2	4	4	3	2	2	2	1	1	3	3	2	2	2	2	1	1				
39	57 years	male	married	upper middle	10th	businessman	3	3	3	3	2	2	1	1	4	4	3	3	2	2	1	1	4	4	3	3	2	2	1	1	3	3	2	2	1	1	0	0	3	3	2	2	1	1	0	0			
40	53 years	male	married	upper middle	ba bed	teacher	3	3	2	2	1	2	0	1	3	2	2	2	1	1	0	0	3	3	3	3	2	2	1	1	3	3	2	2	1	1	0	0	4	3	3	3	2	2	1	1			
41	46 years	female	married	middle class	Ba.b.ed																																												