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## Stress and Hair Fall: An Integrative View of Modern Science and Ayurveda

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### Abstract

Stress has emerged as a significant psychosomatic factor influencing various physiological processes, including hair growth and hair loss. Hair fall is increasingly reported among individuals experiencing chronic psychological stress due to modern lifestyle challenges and competition in working sectors. Contemporary biomedical science explains stress-induced hair loss through neuroendocrine, immune and hormonal pathways. Whereas Ayurveda describes stress (*Chinta, Shoka, Bhaya*) as a causative factor for *Keshapata (Khalitya)* through Dosha vitiation and *Strotodushti*. *Khalitya* is included in *Kshudrarogas* by *Sushruta* and *Shirokapalgatroga* by *Vagabhatta* and *Sharangdhar*. This article aims to provide an integrative review of stress and hair fall by correlating modern scientific view with Ayurvedic principles as pathogenesis, clinical symptoms and preventive measures.

**Keywords** – Stress, Hair Fall, *Chinta*, *Keshapata*, *Ayurveda*, *Khalitya*,

## Introduction :

Hair is not only a protective structure but also an important component of an individual's physical appearance and psychological well-being. In recent years, hair fall has emerged as a common complaint across all age groups, particularly among working individuals, often associated with stress, anxiety and emotional disturbances. Modern lifestyle characterized by occupational pressure, various targets, irregular routines and mental strain contribute significantly to stress-related disorders and its ill-effects on body.

Most common causes of hair loss include- Genetics , Hormonal changes, medical conditions, Nutritional deficiencies, specific medications as chemotherapy and most important cause are STRESS.

In Ayurveda, mental factors (Manasika Bhavas) such as Chinta (stress), Shoka (grief), and Bhaya (fear) are recognized as etiological factors for various somatic diseases including hair disorders. An integrative understanding of stress-induced hair fall can help in holistic prevention and management.

### Aim :

1. To study the stress and hair fall - Modern perspective.
2. To study the stress and hair fall / Khalitya – Ayurvedic perspective.
3. To study Integrative correlation between Modern science and Ayurveda related to stress and hair fall.
4. To study Preventive measures and management for stress and hair fall.

## Stress and Hair Fall: Modern Scientific Perspective :

**Stress** – Stress is the body's natural response to physical, emotional or psychological challenges. It may be short term / positive stress or long term/ distress<sup>[1]</sup>. Short term stress can be beneficial by enhancing our activities and performance whereas chronic stress disturbs normal physiological functions and leads to various disorders. Prolonged stress activates the HPA axis i.e. hypothalamic-pituitary-adrenal axis which leads to increased secretion of stress hormone Cortisol. Elevated cortisol levels adversely affect various systems of the body , including the hair growth cycle.

### Physiology of Hair Growth :

Hair growth occurs in a cyclic pattern consisting of 3 phases as<sup>[2]</sup> :

1. Anagen (growth phase)
2. Catagen (transition phase)
3. Telogen (resting/ shedding phase)

Any disturbance in this cycle can lead to excessive hair shedding.

### Mechanisms of Stress-Induced Hair Fall<sup>[2][3]</sup>

Stress affects healthy hair through multiple ways:

#### 1. Neuroendocrine Pathway

Chronic stress activates the **hypothalamic-pituitary-adrenal (HPA) axis**, leading to increased secretion of cortisol hormone. Elevated cortisol levels:

- Disrupt hair follicle cycling
- Prematurely push hair follicles into the telogen phase (Telogen Effluvium)
- Inhibit hair follicle stem cell activity

#### 2. Inflammatory and Immune Response

Stress increases pro-inflammatory cytokines,

leading to:

- Micro-inflammation around hair follicles
- Aggravation of autoimmune hair disorders such as Alopecia Areata

### 3. Oxidative Stress :

Psychological stress increases oxidative stress which damage hair follicle cells and impairs hair shaft formation<sup>[1]</sup>.

### Stress-Related Hair Disorders/ Types of hair loss-

- Telogen Effluvium :- Sudden and excessive hair shedding due to emotional or physical stress.
- Alopecia Areata:- An autoimmune condition where stress is considered as triggering factor, leading to hair loss in patches.
- Trichotillomania:- A psychological condition where individuals compulsively pull out their hair, often associated with anxiety and stress.

### Role of cortisol hormone in hair fall-

Cortisol- stress hormone plays a crucial role in hair loss.

Increased levels of cortisol – Reduce blood circulation to hair follicles, suppress hair follicle stem cell activity, promote inflammation around hair follicles as a result hair become weak, dry, brittle and fall easily.

### Management and Prevention

Effective management of stress-related hair fall involves<sup>[1][2]</sup> :

- **Stress Management:** Yoga, meditation, deep breathing and mindfulness practices help reduce cortisol levels.

- **Healthy Diet:** A balanced diet rich in proteins, iron, vitamins and antioxidants supports healthy hair growth.
- **Adequate Sleep:** Proper rest allows the body to repair and balance hormones.
- **Medical Evaluation:** Identifying underlying causes such as anaemia, thyroid disorders or hormonal imbalances is essential.
- **Counselling and Support:** Psychological support may be beneficial in cases of chronic stress or anxiety<sup>[4]</sup>.

### Stress and Hair Fall (*Khalitya*) : Ayurvedic Perspective :

In *Ayurveda*, hair (*Kesha*) is considered an important indicator of internal health and balance of *Doshas*, *Dhatus* and *Manas* (mind). In the present era, mental stress (*Chinta*, *shoka*, *Bhaya*) has become a common cause of hair fall. *Ayurveda* recognizes stress as a key factor in the vitiation of *Rasavaha Srotas* and *Manovaha Srotas*<sup>[5]</sup>, which ultimately affects hair nourishment and growth.

### Ayurvedic Understanding of Stress (*Chinta*) :

*Chinta* refers to excessive thinking or worry and is described as a *Manasika Nidana* (mental causative factor) in many diseases<sup>[5]</sup>. Prolonged stress leads to imbalance of *Rajas* and *Tamas Gunas* disturbing mental harmony. Continuous mental stress aggravates *Vata* and *Pitta Doshas*<sup>[6]</sup>, particularly *Prana Vata* and *Sadhaka Pitta*, which play an important role in mental and emotional regulation.

## Concept of Hair in Ayurveda

According to Ayurveda [7][8]:

- Hair (*Kesha*) is considered a Mala of *Asthi Dhatus*<sup>[7]</sup>
- Proper formation of hair depends on the nourishment of *Rasa*, *Rakta*, and *Asthi Dhatus*<sup>[8]</sup>
- Healthy hair growth requires unobstructed *Rasavaha* and *Asthivaha Srotas*

When stress disturbs digestion (*Agni*) and circulation of nutrients, the nourishment to hair follicles is reduced leading to hair fall<sup>[9]</sup>.

## Pathogenesis of Stress-Induced Hair Fall (*Samprapti*)

Chronic stress (*Chinta*) leads to<sup>[5]</sup>:

- *Agnimandya* (impaired digestive fire)<sup>[9]</sup>
- Vitiation of *Rasa Dhatus*
- Obstruction or dysfunction of *Rasavaha Srotas*
- Aggravation of *Vata* and *Pitta Doshas*

Increased *Pitta* causes premature greying and hair thinning, while aggravated *Vata* results in dryness, brittleness, and excessive hair fall. Thus, stress-induced hair fall can be understood as *Rasavaha Srotas Dushti* with involvement of *Manas Doshas*.

*Khalitya* as described by *Sushrutacharya* – *Roomkoop* (hair follicle) contains *bhrajak pitta*. *Pitta* present at the root of hair follicle increases in association with *vata* and this appears as falling of hairs. Then *kapha* and *rakta* together block the follicles of the hair by not allowing fresh ones to grow.

## Dosha Involvement<sup>[6]</sup>

- *Vata*: Causes dryness, brittleness, and hair fall
- *Pitta*: Causes inflammation, premature greying and hair fall
- *Kapha*: When vitiated, leads to follicular block

## Integrative Correlation Between Modern Science and Ayurveda :

Modern Science	Ayurvedic Concept
Chronic stress	<i>Chinta</i>
Cortisol excess	<i>Vata-Pitta Prakopa</i>
Telogen Effluvium	<i>Keshapata</i>
Impaired microcirculation	<i>Rasavaha Strotodushti</i>
Oxidative stress	<i>Dhatu Kshaya</i>
Neuroendocrine imbalance	<i>Manas-Sharir-Asamyoga</i>

Both systems emphasize the mind–body connection and acknowledge stress as a primary etiological factor in hair fall.

## Role of Mind–Body Connection :

Ayurveda emphasizes the close relationship between mind and body. Continuous emotional disturbances weaken *Ojas*, the essence of all *Dhatus*, leading to reduced immunity. Loss of *Ojas* directly affects hair strength and growth, making hair prone to shedding.

## Preventive Measures in Ayurveda:

Ayurveda focuses on *Nidan Parivarjana* (avoidance of causative factors) and *Swasthaviritta* (healthy lifestyle) for prevention<sup>[10]</sup>.

## 1. Mental and Emotional Care

- Practice *Yoga*, *Pranayama* and *Dhyana* to calm the mind
- Regular practice of Nadi sodhana and Bhramari Pranayama helps reduce stress
- Adequate sleep (*Nidra*) is essential for mental balance

## 2. Dietary Measures (*Ahara*)

- Consume *Vata-pitta* pacifying foods
- Include milk, ghee, green leafy vegetables, fruits and whole grains
- Avoid spicy, oily, fermented and excessively hot foods
- Maintain regular meal timings to support Agni

## 3. Daily Regimen (*Dinacharya*)

- *Abhyanga* (oil massage) with sesame oil helps pacify *Vata*<sup>[11]</sup>
- *Shiro Abhyanga* nourishes scalp and calms the nervous system<sup>[11]</sup>
- Regular head wash with mild herbal preparations

## 4. Herbal Support

- *Amalaki*, *Brahmi*, *Yaśtimadhu* and *Ashwagandha* help reduce stress and nourish Dhatus
- Use of *Bhringaraj* Taila for scalp application and massage

## 5. Lifestyle factors (*Vihara*)

- Avoid excessive use of electronic devices
- Minimize late-night work and irregular routines
- Engage in positive activities and maintain emotional stability

## Conclusion :

Stress plays a crucial role in the causation and progression of hair fall. Modern science explains this through neuroendocrine and inflammatory mechanisms, while *Ayurveda* attributes it to *Chinta/stress* -induced *Dosha* imbalance and *Strotodushti*. From an *Ayurvedic* perspective, hair fall due to stress is a manifestation of disturbed mental and physical harmony. *Chinta* leads to *Rasavaha Srotas Dushti*, *Dosha* imbalance and depletion of *Dhatus*, ultimately affecting hair health. Prevention lies in maintaining mental calmness, proper diet, disciplined lifestyle and holistic care. An integrative approach combining modern stress management strategies with *Ayurvedic* principles offers a comprehensive and holistic solution for preventing and managing stress- induced hair fall.

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### Declaration :

**Conflict of Interest :** None

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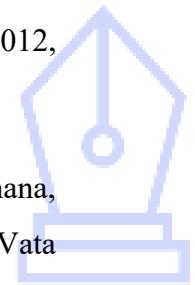
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