



## A Study of Psoriasis: Understanding the Disease, its Impact, and Treatment Options

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### ABSTRACT

Psoriasis is a long-lasting, immune-driven inflammatory condition that predominantly impacts the skin and joints. This disease is observed globally, can manifest at any age, and imposes a significant burden on both individuals and society. It may cause discomfort, disrupt sleep patterns, and hinder concentration. It is linked to various significant medical conditions, such as depression, psoriatic arthritis, cardiometabolic syndrome, metabolic syndrome, inflammatory bowel disease, and psychological disorders. This condition is marked by the accelerated proliferation of skin cells, resulting in the formation of thick, red, scaly patches. It is linked to various significant medical conditions, such as depression, psoriatic arthritis, cardiometabolic syndrome, metabolic syndrome, inflammatory bowel disease, and psychological disorders. The condition is marked by the accelerated proliferation of skin cells, resulting in the formation of thick, red, and scaly patches. The most prevalent variant, known as chronic plaque or psoriasis vulgaris, arises from genetic predisposition, especially when the HLA-C\*06:02 risk allele is present, alongside various environmental factors including streptococcal infections, stress, smoking, obesity, and alcohol intake. Its exact cause is not fully understood, but it is thought to involve an autoimmune component, particularly related to abnormal T-cell function. Factors such as genetics, environmental triggers, and immune system dysregulation. Numerous phenotypes exist, and research has distinguished between pustular and chronic plaque forms. Immunological and genetic investigations have recognized IL-17 and IL-23 as crucial factors in the pathogenesis of psoriasis. The immune targeting of these cytokines, along with TNF $\alpha$ , through biological therapies has transformed the management of severe chronic plaque disease. Psoriasis is not currently curable; however, effective management should focus on reducing both physical and psychological impacts. This can be achieved by initiating treatment early in the disease progression, recognizing and preventing related multimorbidity, promoting lifestyle changes, and adopting a tailored approach to therapy.

**KEY WORDS:** Psoriasis, plaque, T-cell involvement, and multimorbidity.

### INTRODUCTION

Psoriasis is a multifaceted and significant condition. It is marked by persistent inflammation and has the potential to result in various severe health complications, such as psoriatic arthritis, as well as heightened risks for psychological disorders, cardiovascular problems, and liver diseases. The acknowledgment of psoriasis as a significant non-communicable disease by the World Health Organization highlights the critical need to tackle the stigma, misdiagnosis, and insufficient treatment options that numerous patients encounter.

The data derived from the Global Burden of Disease Study highlights the considerable impact of psoriasis on both individuals and healthcare systems, as evidenced by the 5.6 million disability-adjusted life-years (DALYs) recorded in 2016. This serves as a clear indication of the necessity for heightened awareness, improved treatment alternatives, and holistic care approaches to elevate the quality of life for individuals impacted. Increasing awareness of the diverse effects of psoriasis is essential for promoting understanding and support for those affected by the condition.

#### *Types of Psoriasis*

**Plaque psoriasis** = Plaque psoriasis, the most prevalent form of psoriasis, is characterized by dry, itchy, elevated patches of skin known as plaques, often covered with scales. The number of plaques can differ widely, from a few to many lesions, typically manifesting on areas such as the elbows, knees, lower back, and scalp. The color of these patches may change based on the individual's skin tone. In some cases, the affected skin may undergo temporary color changes, referred to as post-inflammatory hyperpigmentation, especially in individuals with brown or Black skin.

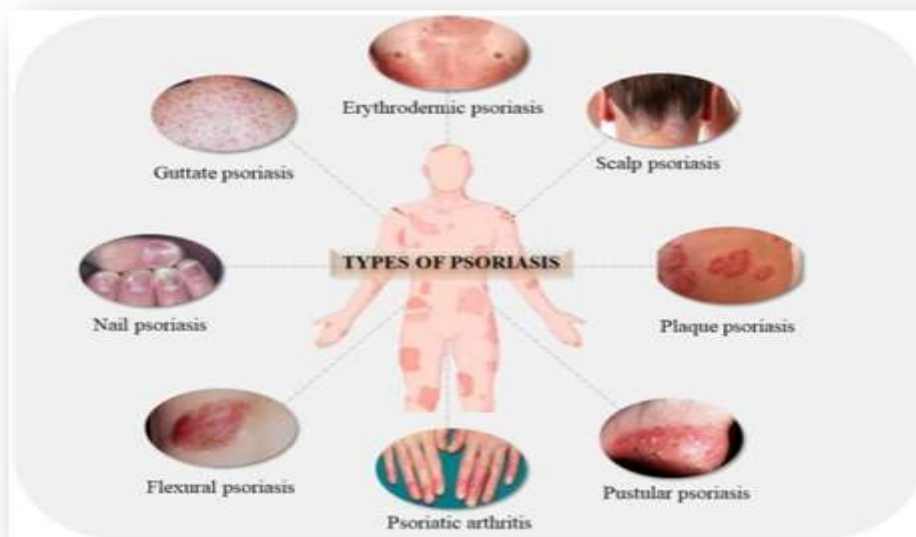
**Nail psoriasis**= Psoriasis can impact both fingernails and toenails, leading to issues such as pitting, irregular nail growth, and changes in color. Nails affected by psoriasis may become loose and detach from the nail bed, a condition known as onycholysis. In more severe cases, the nails may deteriorate and crumble.

**Guttate psoriasis**= Guttate psoriasis predominantly impacts young adults and children. It is often initiated by a bacterial infection, particularly streptococcal throat infections. The condition is characterized by small, drop-like scaling lesions that appear on the trunk, arms, or legs.

**Inverse psoriasis**= Inverse psoriasis primarily impacts the skin folds located in the groin, buttocks, and breasts. It results in smooth areas of inflamed skin that can be exacerbated by friction and perspiration. Additionally, fungal infections may act as a catalyst for this particular form of psoriasis.

**Pustular psoriasis**= Pustular psoriasis, an uncommon variant, is characterized by distinct pus-filled blisters. This condition may manifest in extensive patches or localized regions on the palms or soles.

**Erythrodermic psoriasis**= Erythrodermic psoriasis, the rarest form of psoriasis, has the potential to affect the entire body with a peeling rash that may cause severe itching or burning sensations. This condition can manifest as either a short-term (acute) or a long-lasting (chronic) ailment.



**Figure 1 Types of Psoriasis**

## EPIDEMIOLOGY

Psoriasis exhibits notable variations in its prevalence and demographic characteristics. It impacts both genders, generally manifesting earlier in females. The condition demonstrates a bimodal distribution regarding its onset, with peaks occurring between the ages of 30 to 39 and 60 to 69 in males, while women tend to experience onset approximately a decade earlier.

Approximately 60 million individuals worldwide are impacted, with the rates of prevalence differing considerably across various regions. Taiwan indicates a prevalence rate of 0.05%, in contrast to Australia, which exhibits a significantly higher rate of 1.88%. The condition is more commonly observed in affluent regions and among older demographics, indicating the influence of both environmental and genetic factors. In the UK, psoriasis affects approximately 1.52% of the general population, highlighting its considerable impact within the country.

## PATHOGENESIS

Psoriasis is marked by an increase in the thickness of the epidermis and the infiltration of immune cells within the dermis. The underlying mechanisms of psoriasis are complex, involving interactions among keratinocytes, immune cells, and various other resident cells of the skin.

Researchers have discovered the presence of cytotoxic T cells within the capillaries, epidermis, and dermis of psoriatic lesions, delineating unique T cell populations according to their cytokine profiles. Their findings reveal that Th1 cells mainly release IFN- $\gamma$  and TNF- $\alpha$ , whereas Th2 cells are responsible for the production of IL-4, IL-5, and IL-13, thereby positioning psoriasis as primarily a Th1-mediated condition. Further models suggested that IFN- $\gamma$  and IL-12 play essential roles as key drivers of the disease. In the late 1990s, this work led to the discovery of IL-23, a cytokine that consists of a unique p19 subunit and a shared p40 subunit with IL-12. By the early 2000s, it was established that IL-23 promotes the production of IL-17A from a specific subset of T cells that do not express IFN- $\gamma$  or IL-4, thereby introducing Th17 cells into the Th1-Th2 paradigm of autoimmune diseases.

The progress made in comprehending the cytokine networks and the molecular mechanisms associated with psoriasis has catalyzed the creation of highly effective targeted therapies, representing a notable advancement in the management of this chronic skin disorder.

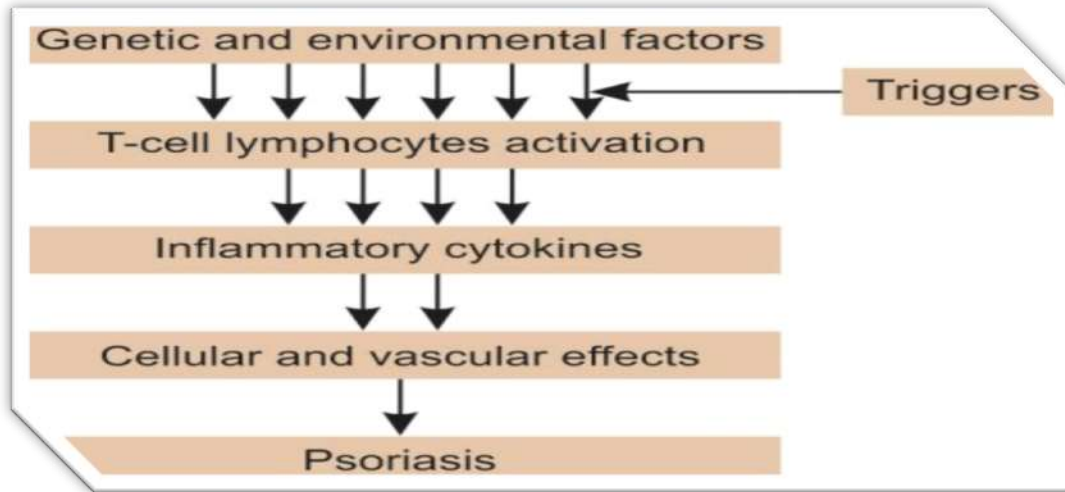


Figure 2 Flow chart for pathogenesis

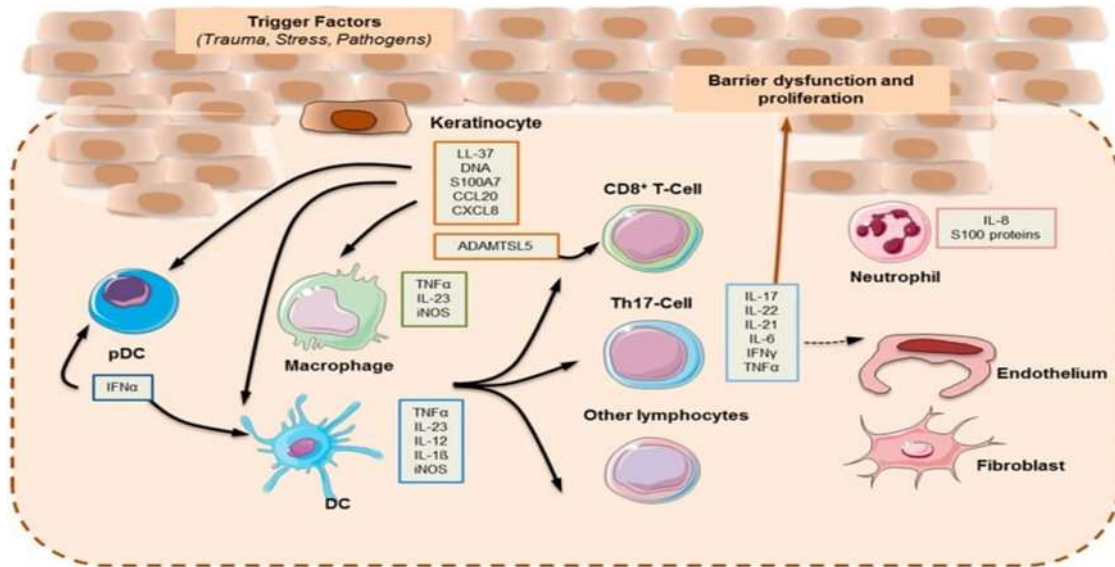


Figure 3 Basic Pathogenesis

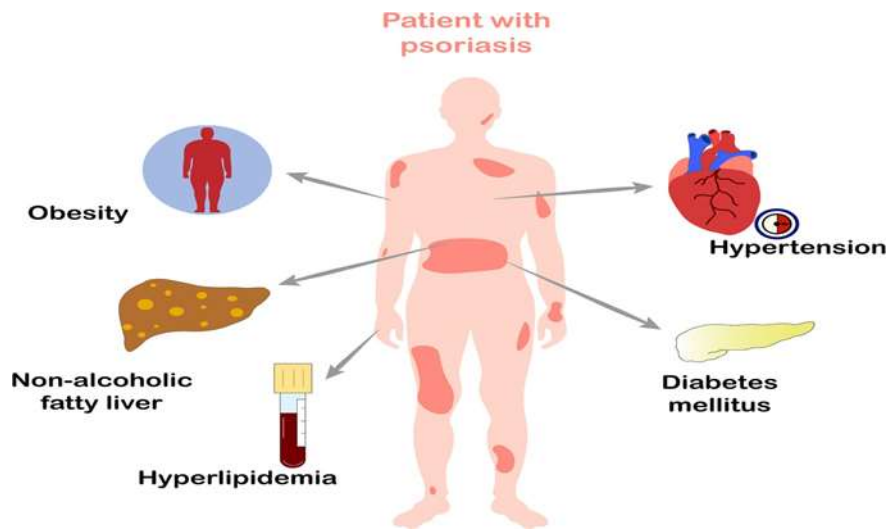


Figure 4 Metabolic Syndrome and Psoriasis

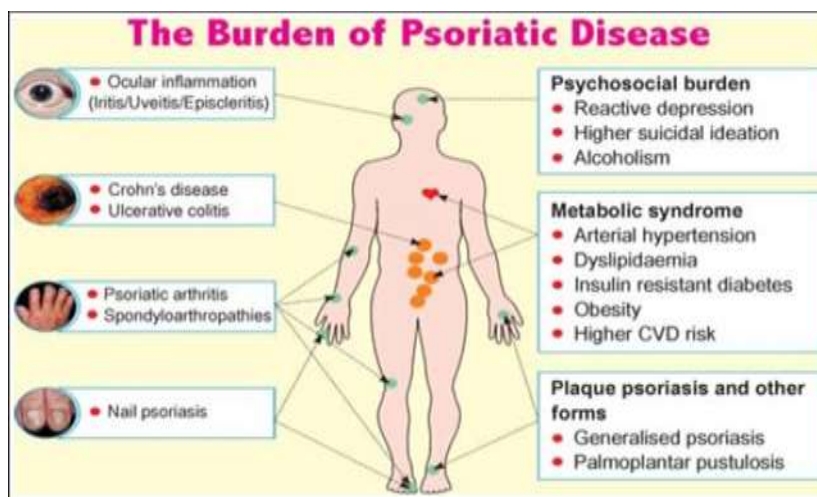


Figure 5 Comorbidities in Psoriasis

## DIAGNOSIS

To diagnose psoriasis, a physician typically inspects the skin, scalp, and nails for indications of the disorder. Additionally, they may inquire about your overall health as well as your medical and family history, including any relevant conditions. To diagnose psoriasis, your doctor usually examines your skin, scalp, and nails for signs of the condition.

- Individuals may present with symptoms including pruritus or a burning sensation on the skin.
- They may have recently suffered from an illness or undergone significant stress. The use of specific medications may also be a factor.
- A family history of the condition could be relevant, as well as the presence of joint tenderness.
- Typically, a dermatologist can diagnose psoriasis through a visual examination of the skin. However, if there's a need for further clarification to differentiate it from other conditions like eczema or cutaneous lupus, a skin biopsy may be conducted. This procedure involves taking a small sample of skin tissue for laboratory analysis, helping to confirm the diagnosis and rule out other potential causes of the symptoms.

A biopsy is a diagnostic technique in which a pathologist analyzes skin cells using a microscope to determine if psoriasis is responsible for the observed symptoms. Dermatologists frequently employ a procedure known as a punch biopsy. This technique utilizes a tool that resembles a pencil to penetrate the skin and obtain a small sample of tissue. The resulting circular incision is generally secured with one or two sutures to facilitate the healing process. This approach enables precise evaluation and assists in distinguishing psoriasis from other dermatological disorders. The findings from a skin biopsy are typically accessible within approximately one week.

## TREATMENT and MANAGEMENT

Although a definitive cure for psoriasis is not yet available, various treatments exist that effectively manage symptoms, allowing individuals to return to their daily routines and improve their sleep quality. Various treatment options are available, and your physician will collaborate with you to determine the most suitable approach. This decision will be based on the specific type of psoriasis you have, its severity, the affected areas of your body, and the potential side effects associated with the medications. Your treatment plan may encompass the following components.

### Medications

- Topical treatments are frequently employed for individuals with mild to moderate conditions. These include creams, ointments, lotions, foams, or solutions, particularly those that contain corticosteroids. Additional topical options encompass vitamin D-derived medications, retinoids (which are associated with vitamin A), coal tar, anthralin (another tar derivative), phosphodiesterase 4 (PDE4) inhibitors, and agents that activate the aryl hydrocarbon receptor (AhR).
- Methotrexate is classified as an antimetabolite and is available in both oral and injectable forms. This medication functions by suppressing the immune system and inhibiting the growth and division of cells.
- Oral retinoids are compounds associated with vitamin A that may benefit individuals suffering from moderate to severe psoriasis. They can be utilized in conjunction with phototherapy.
- Biologic response modifiers are medications administered via injection that target specific immune molecules, thereby aiding in the reduction or cessation of inflammation.

- Immunosuppressants are medications typically employed in critical situations, functioning by inhibiting the immune system's activity.
- Oral phosphodiesterase 4 (PDE4) inhibitors are designed to target enzymes within immune cells, thereby reducing the rapid turnover of skin cells and mitigating inflammation.
- Oral inhibitors of tyrosine kinase 2 (TYK2) function by obstructing the activation of specific immune cells.

### Phototherapy

This procedure entails a physician applying ultraviolet light to your skin within a clinical setting. Additionally, a physician may recommend a portable ultraviolet light device for use at home. Phototherapy is typically employed when extensive regions of the skin are impacted by the condition.

### Homeopathic treatment

Homeopathic treatment for psoriasis has been noted to yield significant benefits for numerous patients. This method generally commences with the management of symptoms such as itching and burning associated with psoriatic lesions. Subsequently, the emphasis transitions to preventing the advancement of the disease. In the concluding stage, homeopathic remedies are designed to facilitate the healing of the psoriatic lesions.

Homeopathic remedies have demonstrated encouraging outcomes in treating different types of psoriasis, including psoriatic arthritis, and are frequently customized to align with the individual's particular symptoms and general health status. Nevertheless, it is crucial to seek guidance from a qualified homeopathic practitioner to establish the most suitable treatment strategy for your specific circumstances. Homeopathic medicine works by:-

- Homeopathy is thought to activate the body's inherent healing mechanisms and tackle the underlying factors of psoriasis by reestablishing immune balance.
- It employs naturally derived medicinal compounds in extremely diluted forms, ensuring the efficacy of treatments while reducing the likelihood of adverse effects.
- Numerous patients indicate experiencing favorable outcomes within a timeframe of 3 to 6 weeks after initiating treatment. Homeopathy is frequently suggested for individuals looking for a holistic and possibly lasting remedy for various forms of psoriasis. Nevertheless, it is crucial to seek guidance from a qualified homeopathic practitioner to develop a personalized treatment strategy.

### Herbs used in the treatment of Psoriasis

Although a definitive cure for psoriasis does not exist, a range of treatments and natural remedies can effectively manage its symptoms. Numerous herbs are thought to diminish inflammation and inhibit the rapid growth of skin cells, thereby providing relief from the symptoms associated with psoriasis. Several frequently utilized herbs consist of: .

#### 1. Mahonia aquifolium



**Synonym:** Mahonia nervosa, Mahonia pinnata

**Family:** [Berberidaceae](#)

Mahonia aquifolium, commonly referred to as Oregon grape, is known to contain berberine, a compound that may aid in reducing inflammation linked to psoriasis. Furthermore, it demonstrates antiproliferative properties, which means it can inhibit the excessive proliferation of skin cells. This characteristic is particularly advantageous for individuals with psoriasis, a condition characterized by the rapid division of skin cells that results in scaly patches and plaques. By assisting in the regulation of cell growth and alleviating inflammation, Mahonia aquifolium may act as a beneficial natural remedy for alleviating the symptoms of psoriasis. It is essential to consult a healthcare professional prior to considering it as a treatment option.



## 2. Indigo naturalis



**Synonym:** Qing- dai

**Family:** Acanthaceae

Indigo naturalis, also known as qing dai, is a traditional herbal remedy from China that is frequently utilized for the treatment of various dermatological issues, particularly psoriasis. This remedy is derived from several plant sources, with *Baphicacanthus cusia* being one of the most notable. It is thought to exhibit anti-inflammatory and antiproliferative effects, which may aid in diminishing the accelerated skin cell turnover associated with psoriasis, thereby enhancing the skin's appearance and minimizing scaling. It is crucial to seek advice from a healthcare professional prior to initiating any new treatment to confirm its suitability for your individual condition.

## 3. Aloe vera



**Synonym:** Aloe barbadensis, Aloe humilis Blanco, Aloe indica Royle

**Family:** [Asphodelaceae](#)

Creams and gels that incorporate aloe vera extract are recognized for their antibacterial and anti-inflammatory characteristics. These formulations can alleviate skin irritation, diminish redness, and enhance hydration. Furthermore, the antibacterial properties of aloe vera may assist in fighting bacteria that could potentially cause infections, rendering it a valuable choice for those suffering from skin disorders such as psoriasis. Consistent application can promote overall skin health and comfort. Initially, it is advisable to apply the gel or cream to a small patch of skin to monitor for any adverse reactions. If no reaction is observed within 24 hours, the individual may apply the gel or cream generously to the affected areas up to three times daily. While aloe vera is also available in tablet form, the National Psoriasis Foundation indicates that these do not alleviate psoriasis symptoms and may pose risks.

## 4. Neem



**Synonym:** margosa, nimtree or Indian lilac

**Family:** Meliaceae

Neem oil is recognized for its anti-inflammatory and antimicrobial characteristics, which contribute to its popularity in the treatment of skin conditions such as psoriasis. Its calming properties can alleviate redness, irritation, and dryness. Consistent use may also facilitate healing and enhance overall skin health. Nevertheless, it is advisable to conduct a patch test prior to use and seek guidance from a healthcare professional for tailored recommendations.

This is an excellent suggestion. The combination of neem oil and coconut oil can improve the moisturizing benefits while still utilizing the healing and astringent qualities of neem.. Here's a quick summary of the steps:

**Neem Oil Application for Psoriasis****Ingredients:**

- 1/2 teaspoon neem oil
- Coconut oil (as needed)

**Instructions:**

1. **Blend:** Integrate neem oil with coconut oil.
2. **Administer:** Carefully apply the blended solution to the impacted regions once or twice each day.
3. **Persistence:** Maintain this regimen for a minimum of 1-2 months to achieve the best outcomes.

It is important to conduct a patch test on the mixture prior to use and to seek advice from a healthcare professional if you have any concerns. This natural method may serve as a complementary treatment for psoriasis alongside other therapies.

**5. Capsaicin**

**Synonym:** Capzasin P, Zostrix, Capzasin-HP, Axsain, No Pain-HP, Pain Doctor, Pain-X

**Family:** Solanaceae

Capsaicin cream has shown efficacy in the treatment of psoriasis. Its mechanism involves the depletion of substance P, a neuropeptide that plays a role in transmitting pain signals. This action can contribute to a gradual reduction in itching, scaling, and inflammation associated with the condition.

**Tips for Using Capsaicin Cream:**

1. **Initiate Gradually:** When applying capsaicin cream, start with a minimal quantity to evaluate your skin's response. The initial burning sensation generally lessens with ongoing use.
2. **Maintain Consistency:** To achieve optimal results, apply the cream regularly as instructed—usually two to four times daily.
3. **Cleanse Hands:** After application, ensure to wash your hands thoroughly to prevent the cream from coming into contact with sensitive areas such as the eyes.
4. **Integrate Treatments:** Capsaicin cream can be used alongside other psoriasis therapies; however, it is advisable to consult a healthcare professional beforehand.

## 6. Curcumin



**Synonym:** Turmeric

**Family:** Zingiberaceae

Curcumin demonstrated the ability to suppress the proliferation of psoriatic-like cells through the down-regulation of pro-inflammatory cytokines, including interleukin-17, tumor necrosis factor- $\alpha$ , interferon- $\gamma$ , and interleukin-6. Additionally, curcumin notably improved skin barrier function by promoting the up-regulation of involucrin (iNV) and filaggrin (FLG).

## 7. Ashwagandha



**Synonym:** *Withania somnifera*

**Family:** Solanaceae

Ashwagandha is recognized for its extensive health advantages, which encompass antioxidant, antibacterial, and anti-inflammatory characteristics. These qualities render it a significant component in skincare, especially for addressing conditions such as psoriasis and various inflammatory skin disorders.

### Benefits of Ashwagandha for Skin:

1. **Antioxidant Defense:** Assists in neutralizing free radicals that may contribute to skin deterioration and the aging process.
2. **Anti-inflammatory Benefits:** Alleviates redness and swelling, proving advantageous for skin conditions characterized by inflammation.



3. **Antimicrobial Attributes:** Aids in the prevention of infections, thereby promoting overall skin wellness.

How to Use Ashwagandha for Skin:

- **Topical Use:** Seek out creams or oils that include ashwagandha extract as an ingredient.
- **Powdered Form:** Combine ashwagandha powder with a carrier oil, such as coconut or olive oil, and apply it to the skin.
- **Dietary Supplements:** Think about using ashwagandha supplements to enhance overall well-being, but it is advisable to consult a healthcare professional beforehand.

#### 8. Brahmi



**Synonym:** Somvalli Sarawati

**Family:** *Scrophularaciae*

Brahmi powder serves as an excellent solution for a range of hair and skin concerns. Its enriching qualities can enhance hair vitality and address persistent scalp conditions.

Benefits of Brahmi Powder:

1. **Fortifies Hair:** Encourages the development of robust hair roots, thereby minimizing thinning and loss.
2. **Improves Aesthetic:** Assists in darkening hair while imparting shine, resulting in a healthier appearance.
3. **Alleviates Scalp Concerns:** Demonstrates efficacy in combating dandruff and alleviating scalp itchiness.
4. **Calms Dermatological Conditions:** May be beneficial in the treatment of eczema and psoriasis.

How to Use Brahmi Powder for Hair and Scalp:

**Ingredients:**

- Brahmi powder
- Tulsi powder (optional)
- Amla powder (optional)
- Carrier oil (coconut or olive oil)

**Instructions:**

1. **Combine Powders:** In a bowl, blend equal quantities of Brahmi, tulsi, and amla powders.
2. **Prepare Infused Oil:** Warm your selected carrier oil and incorporate the powders. Allow the mixture to steep for several hours to enhance infusion.
3. **Apply and Massage:** Strain the infused oil and apply it to your scalp, gently massaging to promote blood circulation.
4. **Allow to Rest:** Let the oil remain on your scalp for a minimum of 30 minutes (or overnight) prior to rinsing it out with a gentle shampoo.

## 9. Tulsi



**Synonym:** holy basil, tulsi or tulasi

**Family:** Lamiaceae

Tulsi, commonly referred to as holy basil, serves as a remarkable asset in skin care. Its diverse range of beneficial properties positions it as an outstanding option for addressing numerous skin issues. An in-depth examination of its advantages and effective usage is presented here.

Benefits of Tulsi for Skin:

1. **Anti-inflammatory:** Aids in alleviating redness and swelling linked to conditions such as acne and irritation.
2. **Antiseptic and Antibacterial:** This formulation safeguards the skin against infections and may assist in alleviating acne by targeting bacteria.
3. **Hydrating Properties:** Maintains skin hydration, improving its softness and elasticity.
4. **Rich in Antioxidants:** Assists in combating free radicals, which may diminish the visible signs of aging and enhance overall skin wellness.

How to Use Tulsi for Skin:

**Tulsi Face Mask:**

**Ingredients:**

- Fresh or dried tulsi leaves (or tulsi powder)
- Honey (optional, for added moisture)
- Yogurt (optional, for added nourishment)

**Instructions:**

1. **Begin by creating the paste:** Combine fresh tulsi leaves with a small amount of water, or alternatively, mix tulsi powder with water until a paste is formed.
2. **Incorporate additional ingredients:** If preferred, blend in honey and yogurt to enhance the mixture benefits.
3. **Application:** Evenly distribute the mixture across your face and neck.
4. **Duration:** Let the application remain for 20 to 30 minutes before rinsing it off with lukewarm water.

**Frequency:**

Utilize this mask once or twice weekly to achieve optimal results.

Additional Uses:

- **To prepare a toner :** steep tulsi leaves in hot water, allow the infusion to cool, and apply it to the face as a refreshing skin treatment.
- **Targeted Treatment:** Directly apply a paste made from tulsi leaves to the affected acne areas for focused intervention.

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