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## Skin Inflammation: Symptoms, Causes, Treatment



Inflammation of the skin is the body's defence mechanism against viruses and bacteria. The immune system of the body becomes agitated, and cytokines and histamines, which are inflammatory byproducts of the body, begin to be produced. These compounds

cause skin irritation, which can lead to a variety of skin-related medical problems.

Redness, scars, blotches, and rough skin are common side effects of skin inflammation, and they must be addressed promptly to avoid further skin damage. However, understanding the causes of inflammation is critical before attempting to treat it. Inflammation in any part of the body can cause damage to the skin, which can take a long time to recover.

### **Symptoms of Skin Inflammation**

Inflammation of the skin manifests itself in a variety of ways. For several reasons, some people are more prone to being inflamed than others. The following are the signs and symptoms of skin inflammation:

- Itching
- Burning
- Scarring
- Redness
- Puckering
- Warm skin
- Cracked bleeding skin
- Pimples
- Blisters
- Acne
- Scaly skin
- Stinging sensation
- Pain
- Swelling
- Hyperpigmentation
- Hypersensitivity

All these signs and symptoms might occur simultaneously or sequentially. If the skin is not properly cared for, it may become

permanently damaged. Before it spreads further, skin inflammation requires quick care from a general physician or a dermatologist to find out the causes and treat them appropriately.

## **Causes of Skin Inflammation**

There are a plethora of factors that might cause skin inflammation. Some causes are well-known, while others are unknown and are being researched. Inflammation of the skin is usually caused by an underlying body illness or disease, which must be treated first before the skin inflammation may be treated.

The following are the key sources of inflammation that require immediate care before they worsen.

### **1. Food Induced Inflammation**

Some foods cause a lot of inflammation in our bodies, which eventually leads to skin inflammation. It's critical to understand which foods promote skin hypersensitivity and inflammation and should be avoided at all costs. These include foods like:-

- Sugars
- High Fructose Corn Syrups
- Processed Carbohydrates
- Gluten
- Alcohol
- Artificial Preservatives
- Saturated Fats
- Vegetable Oils
- Fruits such as, kiwi and strawberries

Some people may have inflammation as a result of these foods, while others may have no reaction at all. This is due to a variety of factors. Some people's bodies have high hypersensitivity reactions, rendering them hypersensitive to nearly any food. As a result, they must

consume a variety of alternate foods to meet their daily nutrition requirements, or they must take anti-inflammatory shots or drugs.

## **2. Medicines Induced Inflammation**

Some patients have inflammation as a result of taking certain medications. These medications can cause an inflammatory response in the body, which is perfectly normal and nothing to be concerned about. However, some patients experience an exaggerated skin inflammation as a result of using these medications. The drugs listed below can produce inflammation in the body.

- Antibiotics such as ciprofloxacin, levofloxacin
- Steroids
- Rheumatoid Arthritis Medicines such as risedronate
- Cholesterol medicines such as atorvastatin, rosuvastatin
- Chemotherapeutic drugs
- NSAIDs such as naproxen, diclofenac
- Blood Thinners such as aspirin, loprin

If you have inflammation as a result of any of these medications, you should seek medical advice before discontinuing use. Your doctor may prescribe an anti-inflammatory cream to your skin to prevent it from becoming inflamed.

## **3. Postoperative Inflammation**

Since the body endures such a major surgery, post-operative inflammation is prevalent. Certain anaesthetic medicines are given during surgery to make you pain-free, which can cause inflammation on the skin. These medications eventually wear off, causing skin inflammation as a side effect. The main source of inflammation on the body is post-operative stitches, which must be handled.

#### **4. Environment Induced Inflammation**

People who work in harsh environments, such as extreme hot or cold climates, may get inflamed skin from time to time. People who work with strong chemicals or who are exposed to pollutants are more likely to develop skin inflammation. UV rays can also cause skin inflammation, therefore it's always a good idea to wear a sunblock with a high SPF. To minimise the severity of inflammation, such persons require ongoing therapy or injections of anti-inflammatory medicines. Anti-inflammatory creams and lotions have been developed to keep their skin free of inflammation.

#### **5. Acne Induced Skin Inflammation**

Acne and pimples are the most common causes of skin irritation. Acne may disappear over time, leaving scars, redness, and irritation behind. Some acne medications, such as tretinoin creams, might cause irritated skin, necessitating the use of additional acne treatments. If acne is not treated appropriately, the inflammation might last for a long period. Inflammation caused by acne can be painful and hard to deal with. People with acne should always look out for inflammation as it can exaggerate their condition or make it worse.

#### **6. Pregnancy Induced Inflammation**

Pregnancy causes your body to undergo numerous changes. This is primarily due to hormonal imbalances such as oestrogen and progesterone. Inflammation affects pregnant women's skin as well as other regions of their bodies, such as their hands and feet. They may experience skin inflammation on their nose, cheeks, and chin, which may or may not go away after pregnancy. It is completely normal to get mild inflammation on the skin during pregnancy. However, it is recommended to consult your doctor if inflammation is much worse.

## **7. Menopause Induced Inflammation**

Menopause refers to the time in a woman's life when she no longer has monthly periods. This normally happens after 45 years of age for some women, but it might happen much sooner or later for others. The onset of menopause is determined by your overall health and fitness. Due to a variety of factors, some women experience a more difficult menopause than others.

Menopause causes various skin changes, hot flashes, weight gain, height loss, increased inflammation, and illness vulnerability. Women experience higher skin inflammation, which results in rough, uneven skin, giving them an older appearance that women despise. Skin irritation caused by menopause may require hormone therapy or other medications to be managed.

## **8. Alcohol Induced Inflammation**

In certain persons, heavy alcohol use or smoking is associated with skin inflammation. Excessive alcohol use, according to some studies, can cause an increase in liver enzymes like SGOT and SGPT, which can cause inflammation in the body's organs and on the skin. If you are more prone to being inflamed, it is highly recommended that you reduce or stop drinking alcohol.

## **Treatments for Skin Inflammation**

To cure inflammation, particularly on the skin, millions of therapy choices have been developed. Inflammation is transient in some people, but it requires a good treatment plan in others to prevent it from reoccurring in the long run. Science has now excelled in producing anti-inflammatory skincare solutions, due to cosmetic scientists and skincare product developers. The following treatment options are available to treat or reduce skin inflammation.

## 1. Vitamins

Vitamins cannot be replaced in our bodies. We must eat it at all costs. Vitamins are not only consumed orally, but are also found as topical creams, lotions, and serums. Topical vitamins are available in a variety of forms. They are used to prevent and cure skin inflammation caused by a variety of factors. The following vitamins have been shown to be important in the treatment of skin inflammation.

- **Vitamin A:** Retinol should be used within the range of 0.3% to 1% for maximum effectiveness.
- **Vitamin C:** Vitamin C is mostly used in concentration of about 8-9 percent. It should be less than 20 percent to avoid any adverse effects.
- **Vitamin D:** Vitamin D is often used in its powder form within 30 to 100 ng/mL concentration which is the Optimal Range.
- **Vitamin E:** It can be used within the concentration range 0.1%-1.0% with no indication of side effects.

These are the crucial vitamins that cosmetic manufacturers always include in their products to achieve greater outcomes while developing anti-inflammatory skincare for persons who are more prone to inflammation.

## 2. Supplements

There are both organic and inorganic supplements that have been shown to be useful in treating a variety of skin inflammatory diseases. These supplements are frequently derived from food and transformed into topically applied skincare products. These supplements are also available in oral form, which can be taken orally for even better benefits. Certain beneficial supplements are as follows.

- *Alpha-Lipoic Acid* is a natural fatty acid in our body which acts as an antioxidant and reduces inflammation. Alpha-Lipoic Acid is also developed and utilized in various skincare ranges.
- *Curcumin* is a derivative of a natural spice called Turmeric. Turmeric has been proved to be extremely beneficial when it comes to inflammation. Turmeric is consumed orally as well as applied topically to reduce the post inflammatory condition such as redness, warmth, and irritation. 3 to 5.4% is the optimal curcumin concentration used in skincare products.
- *Ginger* is another amazing natural anti-inflammatory spice which is consumed orally. Cosmetic Developers are now using Ginger powders in many cosmetic products to improve their outcome against skin inflammation. Carbohydrates (50–70%), lipids (3–8%), terpenes, and phenolic compounds are the most abundant elements in ginger rhizomes.

### **3. Essential Oils**

When it comes to creating skincare and cosmetic products, essential oils are a must-have element. They do a lot more than just add scent. When essential oils are combined with carrier oils and applied topically to the skin, they can significantly relieve inflammation. Some of the best essential oils for fighting skin inflammation include:

- Peppermint Oil
- Lavender Oil
- Chamomile Oil
- Ginger Oil

All these essential oils have a calming and relaxing effect on the skin, as well as reducing inflammation and scarring.

### **4. Medications**

Drugs are always the most effective treatment for inflammation. Using traditional approaches to manage inflammation is

unquestionably difficult. Before beginning any drug, it is usually advisable to visit a doctor, preferably a dermatologist. For different forms of inflammation, different types of medicines are employed. Following are the different types of topical medications which are recommended to be used while dealing with skin inflammation.

- Topical Antibiotics: Azithromycin, clindamycin, erythromycin, roxithromycin, clarithromycin, mupirocin, and Anthralin are topical antibiotics that have been approved by dermatological and skin associations. All of these have been shown to be beneficial in the treatment of skin inflammation. The dosage and duration of treatment differ greatly from person to person, as does the severity of inflammation.
- Topical Antifungals: Certain fungal infections that produce skin inflammation are treated with topical antifungal medicines. Skin physicians recommend these antifungal medicines. Antifungal drugs in lesser doses can be administered topically without a prescription to treat skin irritation. Some of the most effective antifungal drugs are Clotrimazole, Miconazole, Ketoconazole, butenafine hydrochloride, terbinafine hydrochloride,
- Topical Corticosteroids: Corticosteroids are used to treat inflammation on a bigger scale by applying them topically to the skin. Clobetasol propionate 0.05 percent, Halobetasol propionate 0.05 percent, Diflorasone diacetate 0.05 percent, and Betamethasone dipropionate 0.25 percent are the corticosteroids suggested. These corticosteroids can be found at medical stores and local markets in the form of creams, lotions, soaps, and serums.

## 5. Skin Acids

Skin acids come in a variety of forms, each with its own set of ingredients. These acids are commonly used in skincare products. These are not only safer to use on sensitive areas of the skin, but they also provide excellent anti-inflammatory effects. Among the skin acids that are effective in treating skin inflammation are:

- **Salicylic acid:** It is used in concentrations of 1% or less in cosmetic products.
- **$\alpha$ -linolenic acid:** This acid is used in concentration 1% to 5%
- **Oleic acid:** It is used in concentrations of up to 0.5 to 2 % which is considered safe.
- **Ferulic acid:** The recommended concentration for this acid is 0.5 to 1%.
- **Glycolic acid:** It is mostly used in concentration 8–10% or less in face washes and soaps.
- **Hyaluronic Acid:** It is used in 1%-2% concentration. If used more than this, it might dry out the skin.
- **Retinoic Acid:** It is used in 0.0015% and 0.3% concentration in cosmetic products
- **Niacinamide:** It is Used in 5% concentration or less.

Aesthetic physicians frequently utilize these skin acids in conjunction with their machines, such as HydraFacial, Prophilos, Lasers, and other procedures. It substantially aids in the reduction and treatment of skin inflammation. If the inflammation is getting worse, it is usually a good idea to try some additional oral drugs.

### **Topmost Anti-Inflammatory Ingredients**

Cosmetic formulators use certain top-rated and most effective ingredients to treat skin inflammation in creams, serums, and lotions. These not only improve the quality of skincare products, but they also make them better for overall skin health. Many skin disorders can now

be treated at home with the help of skincare products developed with these specific ingredients.

## **1. Aloe Vera**

When it comes to developing skin care or hair care products, aloe vera has long been the go-to ingredient. Aloe vera is the main ingredient in every bottle of skincare. Aloe vera is a natural anti-inflammatory that has been bestowed upon humanity as a gift. To date, various aloe vera concoctions and potions have been created. People place a high value on its benefits and outcomes because it is made up entirely of natural ingredients.

Aloe vera works directly on the body's anti-inflammatory pathway by inhibiting the cyclooxygenase pathway and lowering the production of prostaglandin E2 from arachidonic acid. Not only that, but aloe vera is an antioxidant that helps the body fight free radicals. Aloe vera gel can be applied directly to the skin without causing any irritation.

Creams, lotions, serums, mousses, moisturisers, gels, and a variety of other products contain aloe vera. Throughout the year, aloe vera can be easily extracted from the aloe vera plant. It's then turned into gels or liquids to make it more portable and useful.

## **2. Coconut Oil**

Coconut oil is known as a "wonder oil" because of its numerous health benefits. Not only is it beneficial to consume coconut oil, but it may also have numerous benefits when applied to the skin. It improves overall skin quality and has powerful anti-inflammatory properties. Because of its numerous health benefits, coconut oil is widely used in Asian countries, particularly for cooking.

Many skincare and cosmetic products contain coconut oil as a main ingredient. Because of its powerful antioxidant properties, it is found in a lot of makeup remover creams and sprays. Individuals with skin conditions such as eczema, psoriasis, acne, scarring, and dandruff use coconut oil. Some people claim that coconut oil has cured their ailments overnight.

Coconut oil is excellent for reducing skin inflammation, killing bacteria and fungus, moisturising the skin, healing wounds, preventing infection in sutures, removing acne scars, and a variety of other skin conditions.

### **3. CBD Oil**

CBD, or cannabidiol, is a powder extracted from the marijuana or hemp plants. CBD powder is then mixed with a carrier oil, such as olive or coconut oil, and used for a variety of purposes. CBD and hemp oil are frequently confused, but they are different. Cannabidiol is abundant in CBD, whereas hemp oil contains only a trace of it. CBD has been approved by the FDA for use in skincare products.

CBD has been shown to be effective in treating skin inflammation, as well as acne and dark spots. It's widely used in cosmetics to make them safer and more effective at treating skin problems. CBD is one of the most popular products among skincare and cosmetic formulators because it provides a plethora of benefits to users, making it an excellent makeup ingredient.

### **4. Ceramides**

Ceramides are long-chain fatty acids that form complexes with other essential molecules to boost cellular activity. Ceramides aid in the formation of a barrier that prevents penetration. This seals moisture into the skin, preventing dryness, roughness, and inflammation.

Ceramide concentrations in personal care products range from 10-8 percent to 0.2 percent. Ceramides are found in soaps, face washes, cosmetics, and skin serums. It is used in a variety of cosmetic products for a variety of reasons. It possesses anti-inflammatory as well as anti-microbial properties.

## **5. Copper Peptides**

By boosting collagen proteins, copper peptides have been proven to help minimise the appearance of fine lines, wrinkles, and inflammation. Copper peptide stimulates collagen and elastin formation in the skin. It also works as an antioxidant and promotes glycosaminoglycan growth. Copper peptide concentrations of no more than 1-2 percent are normally suggested in beauty products.

## **6. Copper Zinc Malonate**

The use of 0.1 percent copper-zinc malonate on the skin has been shown to alleviate skin irritation and minimise noticeable fine wrinkles around the lips, face, and eyes. Copper zinc malonate is a common ingredient in skincare products. It has been shown to be effective against wrinkles, acne, pimples, and even inflammation.

## **7. Green Tea**

Due to the presence of polyphenols in green tea, it is thought to have an anti-sebum effect. Reduced sebum production in the skin also aids in the reduction and treatment of inflammation. Green tea is thought to help people lose weight, improve their gut health, and improve their overall health. Green tea is made by extracting leaves from plants and grinding them into powder.

Green tea has anti-inflammatory properties, which explains why it's used in skincare. Green tea can be applied directly to the face without causing harm to the skin. Green tea can be found in a variety of face masks, face packs, and skin scrubs. They can be used to treat a more advanced form of skin inflammation overnight.

## **8. Neem**

Neem has been used for a variety of purposes for over a thousand years. Neem comes in the form of leaves, which are then processed into powders, oils, solutions, liquids, and other forms as needed. Because of its numerous health benefits, particularly for the skin and hair, neem is considered a medicinal plant.

Neem is a powerful antioxidant, eliminating free radicals that may impact the development of certain illnesses. It is also a potent anti-inflammatory agent. Neem contains antibacterial properties and may be beneficial against a variety of bacteria, viruses, and fungus.

Because of its anti-acne, anti-hyperpigmentation, and anti-inflammatory properties, neem is used to create a variety of soaps and face washes. Neem is also responsible for skin tone evenness by lowering melanin formation and making the skin one shade lighter. Neem is an important element in herbal skincare products, particularly for persons with sensitive skin.

## **9. Peptides**

Peptides are amino acids that are thought to be the building blocks of proteins in the skin. These are used in varying amounts in skincare products to address various skin concerns. They are commonly used in face wash, soaps, lotions, and creams to treat skin problems such as psoriasis, skin inflammation, and dryness.

For best effectiveness, peptides are often utilized in doses ranging from 1.5 to 2%. It is also used with other skin acids to address certain skincare concerns.

## **10. Shea Butter**

Shea butter is made from the nuts of the shea tree. Because of its extremely absorbable characteristics and ability to moisturise the skin from within, it is referred to as a hydration bomb. Shea butter is found in cosmetics such as foundations, concealers, and moisturisers. It softens and moisturises the skin. It keeps acne and pimples at bay. Shea butter also has anti-inflammatory properties.

Doctors prescribe shea butter for the treatment of acne, eczema, psoriasis, atopic dermatitis, and other skin problems. Shea butter has no negative side effects, making it ideal for all skin types, including dry, oily, and mixed skin.

## **11. Tea Tree Oil**

Every skincare brand's best-selling product is tea tree oil. People completely rely on its advantages and positive outcomes. It is one of the most gentle and effective skincare ingredients, and it is used to treat a variety of skin diseases. Tea tree oil has antioxidant, anti-inflammatory, and anti-microbial properties, making it a significant element in skincare products.

Before using tea tree oil to the skin, it should always be diluted with a carrier oil or moisturiser. Tea tree oil is frequently found in facial foams, serums, shampoos, and conditioners. It is a completely natural substance that does not require any further processing or alteration.

## **12. Witch Hazel**

Witch hazel has gained popularity in recent decades as a result of its anti-inflammatory qualities. It is not only beneficial to the skin, but it is also effective in the treatment of severe hemorrhoid's, anal fissures, and skin tags. Witch hazel is available in gels and creams to make it more convenient to use. Witch hazel is utilized in a variety of formulae to create skincare products that address skin issues.

Witch hazel is one of the most cost-efficient and effective skincare ingredients available. It inhibits the inflammatory process by acting directly on it. It is also used to treat skin redness, edoema, and various types of acne. Doctors, particularly dermatologists, highly recommend it to their patients for a variety of skin ailments, including sunburns, sunspots, pimples, rashes, boils, and many more.

### **13. Zinc**

Zinc is required for a variety of functions. When utilized in the proper amounts in skincare products, one of its key benefits is anti-inflammation of the skin. For a better outcome, cosmetic developers meticulously determine the optimal amount of zinc to be incorporated in skincare and cosmetic products. The FDA has approved a 25% zinc concentration for use in skincare and cosmetic products.

### **Bottom Line**

Inflammation of the skin is a very bothersome condition that can cause redness, pain, and a variety of other problems. To determine the underlying cause of recurring inflammation, certain medical investigations and testing are recommended. To avoid any negative effects caused by skincare products, it is recommended that we utilize custom-made products, especially for our own skin type.

If the skin inflammation is light and not too severe, there are a number of home remedies that might help you avoid it. If the inflammation does not go away on its own, you should see a dermatologist and let him choose the best treatment options for you. Always choose cosmetics and makeup that are suitable for your skin and do not cause any bad reactions.

Always be on the lookout for potential sources of skin inflammation. Avoid or find a replacement for these sources. Always pay attention to the symptoms and indicators that your body is sending you. Try to resolve the issue before it becomes more serious.