

The Dandruff Menace

Dandruff is a common scalp condition that is difficult to control and treat. How can we manage it?

HOW often have you dreaded wearing your black jacket in winters for fear of publicly displaying your snowy and flaky dandruff? Dandruff can be bad for your image, and bad for your confidence too. It is not just a health problem, it is a social one too. It is embarrassing and not easily treatable unless tackled in the early stages. But what is dandruff?

Although most cases of dandruff do not need a doctor's visit, in cases where dandruff has affected many parts of the body, it is important to get treated at the right time.

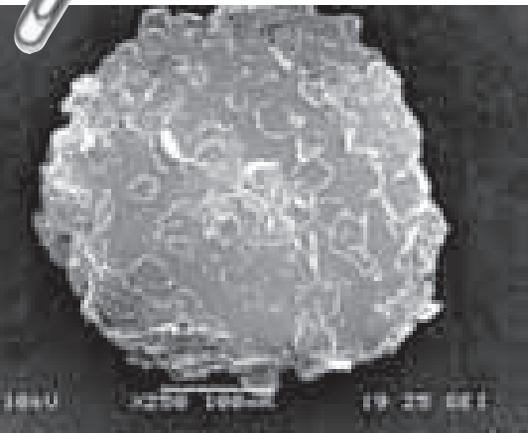
Dandruff is a condition of the scalp accompanied by an abnormal flaking of the scalp. About 17-50% of the human population suffers from dandruff. Dandruff may occur when your scalp goes on an overdrive producing new cells. It gets accentuated due to dry skin and unhygienic scalp. Medical conditions such as psoriasis, eczema, fungal infection due to *Malassezia* species and bacterial infection due to *Staphylococcus epidermidis* also cause a dandruff scalp.

In countries where winter is severe, scalp dandruff tends to worsen as indoor heating dries the skin. Lack of zinc and vitamin B in diet could also lead to dandruff. In our present urban scenario, a stressful lifestyle also contributes to dandruff formation.



Dandruff often strikes young children

The severest form of dandruff is called Seborrheic dermatitis, which causes larger, and greasier flakes than regular dandruff and affects other parts of the body as well. Seborrheic dermatitis occurs in areas highly concentrated in sebaceous glands like face, scalp, ears, body folds and chest. In adults the condition usually occurs during puberty when sebaceous glands are more active, this condition stays until young adulthood whereas the infant form is a self limiting disease that usually disappears about 3-4 months of age.



Choosing an anti-dandruff shampoo is not easy. It is important to check the ingredients before buying.

Exposure to sunlight is a good remedy for dandruff (right)

Microscopic image of human dandruff (Source: Wikipedia) (left)



Seborrheic dermatitis occurs due to the increased proliferation of the scalp commensal *Malassezia* species. It occurs more in patients infected with HIV and Parkinson's disease (Goldenber G, February 2013, *J of Clinical Aesthetic Dermatology*).

Some patients suffer severe itching condition known as pruritus. Secondary bacterial infection may worsen the condition leading to erythema (redness of the skin) and oozing of fluids.

Risk Factors for Dandruff

Like many other skin problems, dandruff also has several risk factors, some of which are avoidable.

Age by itself is a risk factor. Dandruff usually attacks young children and continues through middle age. Dandruff also occurs in newborns where it is called cradle cap and occurs anywhere between two weeks and six months. Sometimes the problem stays life long after an attack.

The second risk factor is sex. Being male is a disadvantage for predisposition to dandruff. Since men have more oil producing glands, this could contribute to rich growth of dandruff. Having excessive oily skin and scalp predisposes to dandruff growth in either sex. Researchers postulate that male hormones could play a role in causing dandruff because more men succumb to dandruff than women.

As much as other factors, diet contributes to dandruff growth. Specifically, a diet lacking zinc and vitamin B leads to enhanced dandruff growth.

Another risk factor predisposing people to dandruff could be neurological diseases. Adults with Parkinson's disease are more likely to get Seborrheic

dermatitis and dandruff. Patients with stress conditions such as heart attack, stroke and compromised immune systems also welcome dandruff.

Symptoms and Stages

Common symptoms of dandruff in adults are itching, oily flakes in scalp, tingly feeling scalp, red flaky dandruff and, in rare cases, crusting and scaling rash. A severe case of dandruff leads to facial dry skin, ear eczema that keeps reoccurring, chest rash with red spots and rash in eyebrows, nose, and ears.

Seborrheic dermatitis is often mistaken for psoriasis, rosacea, dermatitis, atopic eczema, pityriasis versicolor, contact dermatitis, and tinea infections. Seborrheic dermatitis sometimes resembles Langerhans cell histiocytosis or secondary syphilis. Candidiasis, tinea infection and dermatitis can be ruled out with a negative potassium hydroxide test.

Another complication is that Seborrheic dermatitis is often accompanied by other dermatological disorders. During diagnosis it is important to differentiate Seborrheic dermatitis from psoriasis vulgaris. Initial stages of Seborrheic dermatitis show spongiform appearance that makes it different from psoriasis vulgaris. Later stages are very hard to differentiate thus often leading to wrong diagnosis. Some patients suffer from seborrheic dermatitis which includes symptoms from both Seborrheic dermatitis and psoriasis. Elbow or knee lesions and nail pitting suggests psoriasis where the face is mostly not affected.

Based on present knowledge, dandruff can be categorized into two stages: primary stage and secondary

stage (Manuel F and Ranganathan S, *Int J Trichology*, 2011).

The primary stage of dandruff infestation is non microbial in origin and multiple host specific factors. Secondary stage of dandruff infestation has multiple microbial origins and individual-specific response pattern. In spite of so many dandruff shampoos and treatments available in the market, the problem has not been resolved because we still do not know the exact microbial population of the scalp.

Preventing Dandruff

Dandruff can be prevented as much as possible using the following measures:

- 1. Stress Management:** Stress is the biggest enemy that worsens all kinds of health conditions including dandruff. People who have dealt with stress know very well that it is not easy to reduce stress. Positive attitude, time management, accepting limitations, spending valuable time on hobbies, friends and relatives, regular physical activity, breathing techniques and meditation and cutting down caffeine and sugar intake are very important.
- 2. Watch your hair products:** Our bathrooms are often filled with hair styling products like hair spray, mousse, gel, hair straightening spray, cream to curl, wax, etc. These products can lead to oiliness of scalp and they can also build up on scalp and flake off. If you are using unnecessary styling products try to avoid them from your beauty routine. If you cannot avoid using them, at least rinse the hair very thoroughly at the end of the day.
- 3. Watch your diet:** A good dietary plan plays a significant role in healthy

HOW TO GET RID OF DANDRUFF AT HOME?

- **Yogurt:** Take about half a cup of fermented yogurt and apply it on to your scalp thoroughly. Let the yogurt stay for at least an hour, before rinsing it off with water and a mild shampoo.
- **Vinegar:** Add about 2 tablespoons of cosmetic vinegar to 6 tablespoons of hot water and apply the mixture on to your scalp. Cover your head with a piece of cloth and leave the solution on overnight. Wash your hair with warm water and shampoo the next morning.
- **Aloe Vera Gel:** Extract some fresh gel from an Aloe Vera leaf and apply it on to your scalp. Leave the gel on for as long as possible, preferably overnight, before rinsing it off.
- **Ginger:** Mix some ginger root in warm olive oil and apply it on to your head. This is one of the most effective dry scalp home remedies, which not only gets rid of dandruff, but also nourishes your hair.

Essential oils are also an important part of natural remedies for dandruff. Some of the herbal oils recommended for curing dandruff include:

- Tea tree oil
- Lavender oil
- Rosemary oil
- Eucalyptus oil
- Clary sage oil
- Cypress oil
- Basil oil
- Thyme oil
- Birch oil

Make sure that you dilute these essential oils in some plain water before applying it on to your scalp.

(Source: <http://www.home-remedies-for-you.com/remedy/Dandruff.html>)



Coal tar shampoo can increase scalp sensitivity to UV light. In case tar-based shampoo is used for anti dandruff treatment, sun exposure should be avoided in parallel.

Treatment of Dandruff

The severity of dandruff is rated visually and a two week washout period is important before starting any clinical trial. Although most cases of dandruff do not need a doctor's visit, in cases where dandruff has affected many parts of the body, it is important to get treated at the right time.

Personal Care: There are several home remedies that can be easily followed. Rubbing salt and rinsing the hair thoroughly and rinsing with apple cider mixed in water after regular shampoo helps control dandruff. Extreme cases of dandruff can be treated by giving a massage with mouthwash after regular shampoo, massage of both hair and scalp with lemon juice following a gentle wash, massage of the scalp with baking soda without mixing with shampoo. Keeping hair healthy and clean would add to the

skin and hair. To avoid dandruff, it is advisable to take foods rich in zinc, omega-3 fatty acids, selenium, and vitamin B. Drinking plenty of water and consuming watery fruits like melon and oranges in ample amount will also prevent dandruff attack. There is as such no food that you can avoid to prevent dandruff. The following foods are a must for healthy hair:

- Oysters, whole grains, beans, dairy products, crab, nuts, red meat and fortified cereals are rich sources of zinc.
- Salmon, flax seed, canola oil, grape leaves, kidney beans, spinach, broccoli, cauliflower, kiwi and cantaloupe, walnuts are sources of Omega-3 fatty acids.
- Foods rich in vitamin B are cabbage, sweet potato, white potato, legumes, broccoli and lean beef.

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1. **Use a Humidifier:** Although there is still debate on whether dry skin leads to dandruff, it is certain that winter weather causes dandruff. The general belief is that if humidity reduces in air during winter it increases the dry skin leading to dandruff. To maintain humidity in winter months it is recommended to buy a humidifier. It is equally important to maintain the humidifier, it has to be cleaned and dried frequently or else it can invite bacterial and fungal breeding which in turn can cause other problems.



Prevent dandruff by avoiding stress, washing hair regularly, keeping a close watch on hair products you use and eating a healthy diet

inner and outer beauty and gives self confidence. Black pepper, neem oil and egg are also very good to treat dandruff scalp.

Excessive oil invites malassezia infection; shampooing everyday helps reduce excessive oil on scalp. If the regular shampoo is not doing the job, use an anti-dandruff shampoo. Choosing an anti-dandruff shampoo is not easy. It is important to check the ingredients before buying.

The shampoo should contain the following ingredients: Zinc pyrithione (antifungal, thus helps in reducing the fungal population), selenium sulfide (reduces the cell turnover and may also control the fungal growth), salicylic acid (scrubs the dead cells) or ketoconazole (a broad spectrum antifungal).

If you develop resistance to an antidandruff shampoo, it will not work and you should choose another one. Try rotating three to four different brands. Try lathering twice, the first lather will remove all the superficial dandruff and dead skin. The second lather should be left for about five minutes on scalp, this will aid in a deep action. Antifungal shampoo containing ketoconazole or ciclopirox can be used. If the dandruff is due to bacteria, antibacterial cleansers such as surfactamide should be used. In severe cases, cortisones are used in treatment.

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Treatment of Non-scalp Seborrheic Dermatitis: Seborrheic dermatitis can be of non-scalp and scalp varieties. Since it occurs due to increase in infection, it is important to follow a treatment regime to successfully washout the infection.

For Seborrheic dermatitis on the face, a 2% ketoconazole application will help. For patients who are resistant to topical applications, oral antifungals will be a better option. Itraconazole, 200 mg/day for a week and a maintenance dose helped in the improvement of the condition in two clinical trials. Hydrocortisone and other mild corticosteroids are also used for treatment

Sertaconazole, metrinidazole, itraconazole, lithium succinate are antifungals that can be used for non-scalp dermatitis. Another approach is the combination of antifungal and anti-inflammatory drugs. Promiseb is an approved drug with the dual combination.

Treatment of Scalp Seborrheic Dermatitis: It is most easily treated with keratolytic agents, corticosteroids or antifungal shampoo. A study compared ketoconazole with selenium sulfide in a four week random trial. The study was double blind among patients suffering from moderate to severe dandruff. Using twice weekly was better than a placebo shampoo but between them there was no difference. There was an increased adverse effect to selenium sulfide shampoo as compared to ketoconazole.

Another randomized double blind study with 949 patients using 1% ciclopirox shampoo for once or twice

weekly for four weeks proved to be superior to the vehicle treatment. A follow up use of ciclopirox once a week or once in two weeks reduced the relapse rate. In another double blind study with 350 patients comparing ciclopirox shampoo and ketoconazole shampoo, patients preferred ciclopirox although both of them proved to be equally effective.

Exposure to Sun and Phototherapy: Experts recommend exposure to sunlight as a remedy for dandruff. Like in many other skin conditions such as psoriasis and eczema, sunlight exposure helps in dandruff treatment. This treatment is a bit tricky as exact time of exposure cannot be determined and over exposure could lead to skin cancer. Wearing sun protective clothing during treatment is advisable.

Coal tar shampoo can increase scalp sensitivity to UV light. In case tar-based shampoo is used for anti dandruff treatment, sun exposure should be avoided in parallel. Dermatologists also recommend phototherapy using UV-A and UV-B laser light or LED light. This inhibits the growth of Malasseia sps and also reduces the inflammation in Seborrheic dermatitis.

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