

NIZORAL: AN EFFECTIVE TREATMENT OF SEBORRHEIC DERMATITIS AND DANDRUFF

A ray of hope for hair loss associated with these disorders?



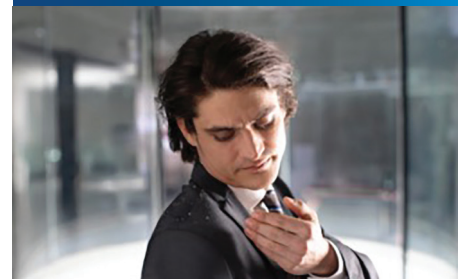
Seborrheic dermatitis and dandruff: Two interconnected skin/scalp disorders

- Dandruff and seborrheic dermatitis are two related manifestations of the same dermatological disorder that affects seborrheic areas of the body (areas rich in sebaceous glands)¹
- Dandruff involves itchy, flaking skin of the scalp without visible inflammation (erythema); seborrheic dermatitis, on the other hand, is associated with flaking or scaling of the skin, erythema (inflammation) and itching in the scalp and other seborrheic areas (behind the ear, face and upper chest)¹
- Both seborrheic dermatitis and dandruff are associated with white to yellow flakes that can be dry or moist¹
- Seborrheic dermatitis and dandruff affect 50% of the adult population worldwide¹
- Dandruff is regarded as a milder and non-inflammatory form of seborrheic dermatitis; the latter often has a chronic recurrent disease course²

Seborrheic dermatitis

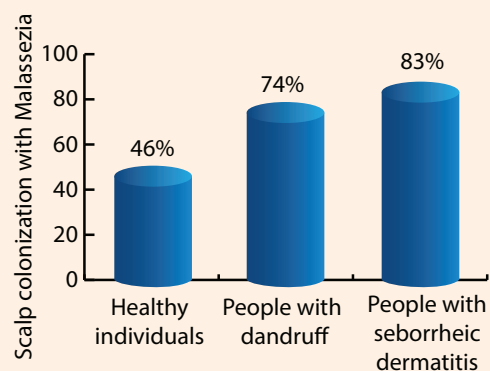


Dandruff



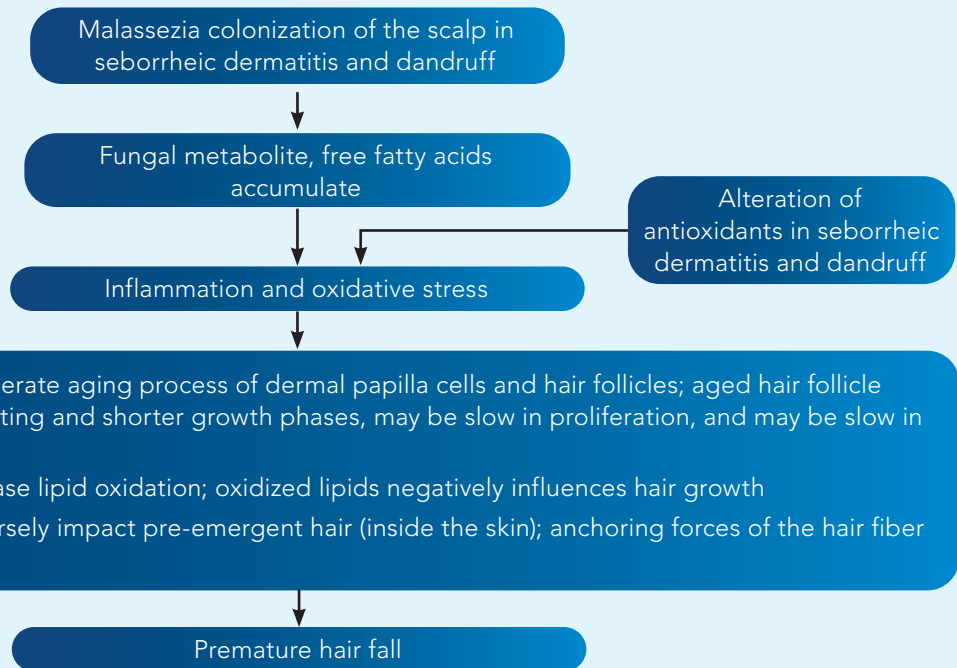
The link between Malassezia and seborrheic dermatitis/dandruff

- Malassezia, a commensal fungus, is among the normal inhabitants of a healthy scalp^{3,4}
- However, Malassezia is also regarded as one of the main causative factors in the development of seborrheic dermatitis and dandruff³
- Overgrowth of Malassezia on the scalp is reported in patients with seborrheic dermatitis and dandruff⁴



In a study, Malassezia colonization of the scalp was noted in 46% of healthy individuals, 74% in patients with dandruff and 83% in cases of seborrheic dermatitis⁴

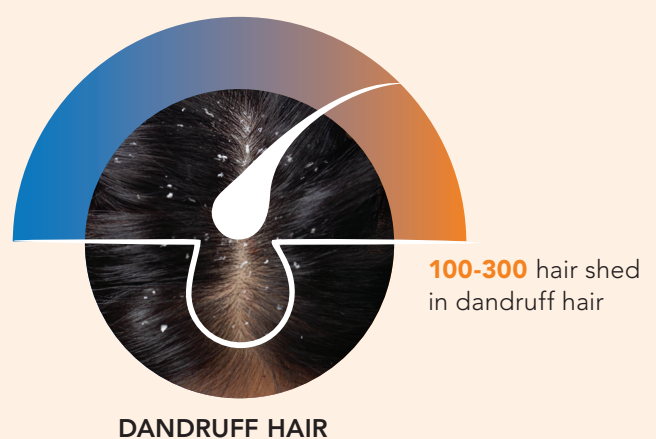
Seborrheic dermatitis and dandruff – Malassezia colonization and premature hair fall³



Seborrheic dermatitis and dandruff – Other mechanisms contributing to hair fall

- Dandruff can also alter the exogen phase of the hair cycle (hair shedding from the scalp)⁵
- Co-existing dandruff may therefore increase hair shedding in androgenetic alopecia (male- and female-pattern baldness)⁵
- Additionally, seborrheic dermatitis and dandruff may also lead to prominent hair eclipse phase (latency period between hair shedding and early emergence of the next growth phase of hair cycle)^{5,6}

Dandruff can be associated with greater shedding of hair compared to normal subjects



A 2-days survey showed about 100-300 hair shed in dandruff compared to 50-100 in healthy subjects⁵

Targeting seborrheic dermatitis and dandruff with NIZORAL (ketoconazole) shampoo



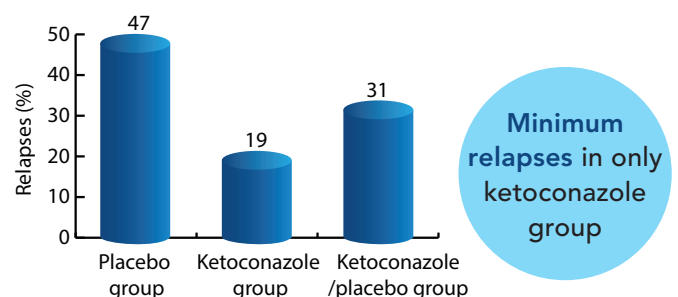
- Ketoconazole is an imidazole antifungal agent with activity against *Malassezia* spp along with direct anti-inflammatory effect⁷
- Ketoconazole has been shown to have high in vitro and in vivo efficacy against *Malassezia*⁸
- Ketoconazole 2% shampoo is advised to be used twice weekly over four weeks to improve symptoms of seborrheic dermatitis⁷
- Intermittent once weekly use of ketoconazole 2% shampoo is effective in preventing relapse of seborrheic dermatitis⁷
- Safety of ketoconazole 2% shampoo
 - » Good safety profile
 - » Low incidence of irritation and contact sensitivity⁷

Efficacy of ketoconazole 2% shampoo in managing seborrheic dermatitis and dandruff and preventing relapse⁸

Efficacy of ketoconazole 2% shampoo vs placebo evaluated in patients with seborrheic dermatitis and dandruff



Responding patients assigned to prophylaxis phase for 6 months. Three groups (only ketoconazole 2% shampoo weekly, ketoconazole 2% and placebo alternate week, and only placebo weekly)



By effectively treating seborrheic dermatitis and dandruff, can NIZORAL (Ketoconazole 2%) shampoo reduce hair fall?

- Ketoconazole 2% shampoo is approved for treating dandruff and seborrheic dermatitis of the scalp. It is not approved for treating hair loss or alopecia⁹
- However, there is some evidence to show that by improving scalp health (rebalancing scalp microbiome), it may reduce hair loss associated or exacerbated by seborrheic dermatitis and alopecia (indirect benefits)^{9,10}

Ketoconazole - Indirect mechanisms on reducing hair fall

- Scalp colonization with lipophilic flora, such as *Malassezia*, can trigger inflammation/oxidative stress leading to hair loss; since ketoconazole is a potent antifungal with activity against *Malassezia* spp., it may support hair growth by reducing scalp inflammation due to this fungus^{9,10}
- Topical applications of ketoconazole may therefore be presumed to be useful for treating dandruff/seborrheic dermatitis-associated male pattern hair loss¹⁰
- Dandruff is associated with reduced proportion of anagen hair (active growth phase) and thin hair shaft diameter. Ketoconazole shampoos appear to increase the anagen hair percentage in subjects with dandruff, thereby it may reduce hair shedding associated with dandruff.¹¹



Indirect benefits of Nizoral on seborrheic dermatitis- and dandruff-associated hair fall



1

Being a potent antifungal with activity against *Malassezia* spp., it may reduce scalp inflammation and oxidative stress due to this fungus thereby reducing hair fall

2

Appear to increase anagen hair (hair in active growth phase) in subjects with dandruff, thereby reducing hair shedding

3

Indirect benefits on hair fall reduction by improving scalp health, treating seborrheic dermatitis/dandruff effectively and rebalancing scalp microbiome.

Daily application of Nizoral Expert (Crinipan PMC) can maintain healthy scalp balance and reduce relapse of seborrheic dermatitis/dandruff.

References

1. Borda LJ, Wikramanayake TC. Seborrheic Dermatitis and Dandruff: A Comprehensive Review. *J Clin Investig Dermatol*. 2015 Dec;3(2):10.13188/2373-1044.
2. Gary G. Optimizing treatment approaches in seborrheic dermatitis. *J Clin Aesthet Dermatol*. 2013 Feb;6(2):44-9.
3. Trüeb RM, Henry JP, Davis MG, Schwartz JR. Scalp Condition Impacts Hair Growth and Retention via Oxidative Stress. *Int J Trichology*. 2018 Nov-Dec;10(6):262-270.
4. Turner GA, Hoptroff M, Harding CR. Stratum corneum dysfunction in dandruff. *Int J Cosmet Sci*. 2012 Aug;34(4):298-306.
5. Ranganathan S, Mukhopadhyay T. Dandruff: the most commercially exploited skin disease. *Indian J Dermatol*. 2010 Apr-Jun;55(2):130-4.
6. Piérard-Franchimont C, Petit L, Loussouarn G, Saint-Léger D, Piérard GE. The hair eclipse phenomenon: sharpening the focus on the hair cycle chronobiology. *Int J Cosmet Sci*. 2003 Dec;25(6):295-9.
7. Del Rosso JQ. Adult seborrheic dermatitis: a status report on practical topical management. *J Clin Aesthet Dermatol*. 2011 May;4(5):32-8.
8. Peter RU, Richarz-Barthauer U. Successful treatment and prophylaxis of scalp seborrheic dermatitis and dandruff with 2% ketoconazole shampoo: results of a multicentre, double-blind, placebo-controlled trial. *Br J Dermatol*. 1995 Mar;132(3):441-5.
9. Rafi AW, Katz RM. Pilot Study of 15 Patients Receiving a New Treatment Regimen for Androgenic Alopecia: The Effects of Atopy on AGA. *ISRN Dermatol*. 2011;2011:241953.
10. Jiang J, Tsuboi R, Kojima Y, Ogawa H. Topical application of ketoconazole stimulates hair growth in C3H/HeN mice. *J Dermatol*. 2005 Apr;32(4):243-7.
11. Piérard-Franchimont C, Goffin V, Henry F, Uhoda I, Braham C, Piérard GE. Nudging hair shedding by antidandruff shampoos. A comparison of 1% ketoconazole, 1% piroctone olamine and 1% zinc pyrithione formulations. *Int J Cosmet Sci*. 2002 Oct;24(5):249-56.

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