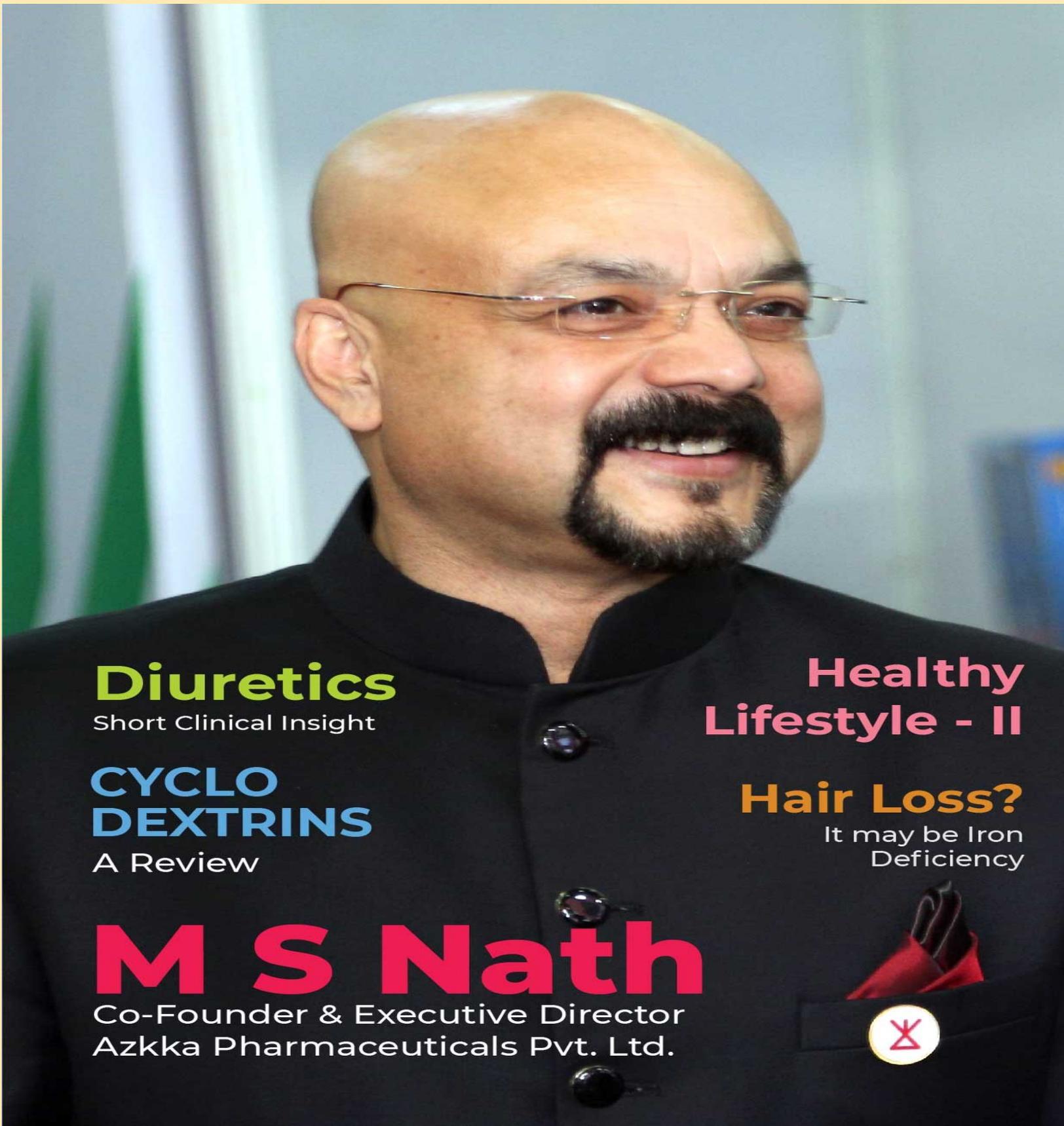


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The Learning and development Journal



Diuretics

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CYCLO DEXTRINS

A Review

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Healthy Lifestyle - II

Hair Loss?

It may be Iron
Deficiency



MEDICAL



Hair Loss?

**It May Be Iron
Deficiency**

Hair is the fastest growing tissue in the human body: the average rate of growth is about one half inch a month. Optimal hair growth occurs from age 15 to 30, slows down from age 40 to 50, and is progressively lost by about age 50. Most men lose hair to some degree by age 35 and are more likely to lose their hair than are women. On a healthy scalp, 90% to 95% of hair follicles are growing, less than 1% is declining, and 5% to 10% are resting.

Hair fall is a natural process. Every strand of hair grows for a period of about 6 years and then sheds, while a new strand of hair pushes through. So, if you are losing around 100-150 strands a day, then there is nothing to worry. But if you are losing more than that number, it may be due to some disease. While there can be many reasons for excessive hair loss, like over styling, heat treatment, particular hairstyles, stress, hypothyroidism etc, lack of iron, vitamins, proteins and minerals is a common cause.

Iron: A vital mineral

Iron participates in the structure of many molecules in the body, such as enzymes, cytochromes and transcription factors. Iron is also involved in many critical physiologic processes. It is a catalyst in oxidation

-reduction reactions and can control DNA synthesis in dividing cells.

Serum ferritin is the standard test for assessing body iron stores. Serum ferritin is one of the most sensitive and specific markers of iron deficiency. It is directly related to intracellular ferritin and total iron reserves. A cut-off of 41 ng/L of serum ferritin level has sensitivity and specificity of 98% in detecting iron deficiency. Serum ferritin values < 12 ng/l suggest absent iron stores and it is considered diagnostic for iron deficiency anaemia. Lack of energy, fatigue, tiredness, pale tongue and conjunctiva, brittle nails and restless legs are some of the symptoms suggestive of iron deficiency. The Recommended Dietary Allowance (RDA) of iron for men of any age and for postmenopausal women is 8 mg/day; and for premenopausal women is 18 mg/day. Red meat, egg yolks, green leafy vegetables, lentils, and beans are some of the good dietary sources of iron; however, iron present in vegetarian foods is poorly absorbed as compared to that present in animal foods. For individuals getting inadequate dietary iron, regular intake of iron supplements will help in prevention and treatment of iron deficiency.

Hair loss and iron deficiency:

A number of recent studies have evaluated the role of iron in hair follicle biology. It is believed that decreased iron bioavailability may impair the proliferation of the follicular matrix cells. Dividing cells require higher levels of ferritin. An abnormal balance between cellular ferritin and free iron has been suspected as a mechanism for abnormal hair growth. In 2008, *Du et al.* described iron-dependent genes in the hair follicle bulge whose mutation causes high levels of hepcidin, a liver protein that decreases iron absorption. While *Kantor et al* proposed the “Threshold hypothesis”, stating that decreased iron stores can lower the threshold to develop different type of alopecia depending on the genetic predisposition and the family history.

A case-control study to assess whether diffuse telogen hair loss in women of child bearing age (15 to 45 years old) is associated with iron deficiency was conducted by *Moeinvaziri M et al* in 30 consecutive women with documented diffuse telogen hair loss in comparison with 30 women without hair loss. Study subjects had no history of nutritional supplement intake or chronic underlying diseases, and had normal thyroid function and inflammatory profiles.

Biochemical investigations were performed in all study women. The mean ferritin level and transferrin saturation was statistically significantly lower in patients with diffuse telogen hair loss than in subjects without hair loss (16.3+/-12.6 vs. 60.3+/-50.1, ng/mL; $P < 0.0001$ and 20.3+/-9.7 vs. 28.3+/-11.8 percent; $P = 0.006$, respectively). Also, total iron binding capacity was significantly higher in patients than in control group (367.8+/-58.2 vs. 319.2+/-60.1 microg/dL; $P = 0.004$). Of nine patients with iron deficiency anemia ($Hb < 12$ g/dL), eight patients had telogen hair loss (odds ratio: 10.5, 95%CI: 1.2-90.7; $P = 0.013$). Odds ratio (95% confidence interval) for diffuse telogen hair loss was 21.0 (4.2-105.0) at serum ferritin levels $<$ or $= 30$ ng/mL. The authors concluded that women with iron deficiency status are at a risk of telogen hair loss. In women without systemic inflammation or other underlying disorders, serum ferritin levels below or equal to 30 ng/mL are strongly associated with telogen hair loss.

Deloche C et al studied the relationship between iron deficiency and excessive hair loss in a large population of 5110 women aged between 35 and 60 years. Hair loss was evaluated using a standardized questionnaire sent to all

volunteers. The iron status was assessed by a serum ferritin assay. Among the women affected by excessive hair loss, a larger proportion of women (59%) had low iron stores (< 40 microg/L) compared to the remainder of the population (48%). The study concluded that a low iron store represents a risk factor for hair loss in non-menopausal women.

Hair loss: Prevention

Growing evidence suggests that iron deficiency is a frequent and major cause of excessive hair loss. For healthy and growing hair, haemoglobin level should be over 140 g/L and serum ferritin level should be above 40 ng/L. The proposed optimal serum ferritin level for hair regrowth is 70 ng/L. Values less than these suggest iron deficiency and increased risk of excessive hair loss.

Regular intake of a supplement containing iron along with other vitamins and minerals, is an easy and effective way of preventing and treating excessive hair loss due to iron deficiency.



Dr Sanjay Agrawal

Dr Agrawal founded PHARMA CONSULTANTS and INVENTOR to fulfill his passion, capabilities and desire to assist pharmaceutical companies around the globe. He has actively worked in pharmaceutical and related industries for more than 28 years and started this firm in 2005. He is **Editor-in-Chief** of renowned IJM Today and honorable member of the editorial board of **The Antiseptic**.