# Libyan International Medical University
# Faculty of Basic Medical Science

## Relation Between Vitamin D And Hair Loss

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## Abstract

Having enough vitamin D is important for a number of reasons, including maintaining healthy bones and teeth; it may also protect against a range of conditions such as cancer, type 1 diabetes, and multiple sclerosis. Although some studies have linked Vitamin D with hair loss. so in this report a collecting data from different sources were taken to see if there is actually a link between Vitamin D and hair loss. Group of studies were about Serum Vitamin $D_3$ Levels and Diffuse Hair Fall among Students. another group of studies were about Serum Vitamin D3 Level with Female Pattern Hair Loss. And another studies included Serum Vitamin D in patients with alopecia areata.

## Introduction

Hair loss can affect just your scalp or your entire body. It can be the result of heredity, hormonal changes, medical conditions or medications. recently they found that Vitamin $D_3$ has emerged as a molecule with key role to play with Anyone who experiences hair loss.[1]

## Discussion

A study population consisted of 44 college going students, out of which 22 each were cases and controls. The mean age of the study population was 20.89 years, the age distribution was similar across the cases and controls. Among the study population, 16 (36%) were males and 28 (64%) were females. The major portion of study population was Indians 35 (79%), 6 (14%) were nonresident Indians (NRIs), and 3 (7%) were foreigners.

Perceptions of the study population toward hair fall depicted that The most common reasons for hair fall among study population were water and climate change by 36 (81.8%) people, stress by 35 (79.5%) people, and dietary factors by 29 (65.9%) people. Among the study population, stress was opined by 77.3% cases and 81.8% controls and cosmetics was opined by 9.1% cases and 18.2% controls; however, their difference was not significant. Statistical significance was observed in 86.4% cases and 45.5% controls who opined dietary factors to be responsible for hair fall ($P$ = 0.01).[2]

In other case–control studies, 45 women admitted to the Dermatology Clinics of MUMS Quaem and Imam Reza hospitals with clinical diagnosis of FPHL and the same number of healthy individuals without hair loss or family history of hair loss matched in terms of age, hours spent under sunlight during the day, and body mass index (BMI) were enrolled. All patients selected from Northeast of the country were evaluated in autumn to avoid the impact of seasonal variation on Vitamin D levels.

Disease severity in patients was recorded using Ludwig classification by a questionnaire developed for this purpose (Grade I or mild, Grade II or moderate, and Grade III or severe). Other data such as age, family history, simultaneous presence of menstrual disorder, hirsutism, BMI, disease duration, the average time spent outdoor (per hour) were also recorded.

In an analysis of patient group, 4 patients (8.9%) had BMI 0–18, 27 patients (60%) had BMI 18.1–25, and 14 patients (31.1%) had BMI >25.1. In control group, 5 patients (11.1%) had BMI 0–18, 32 patients (71.1%) had BMI 18.1–25, and 8 patients (17.8%) had BMI >25.1. Chi-square test showed no significant difference in BMI between the two groups ($P$ = 0.33). According to Ludwig classification, 28 patients (66.7%) were in mild group, 12 (28.6%) were in moderate group, and 2 patients (4.8%) were in severe group

Mean BMI in patient and control group was 22.94 and 22.78, respectively with no significant difference ($P$ = 0.69).

Mean (SD) serum Vitamin D3 level in patient and control group was 13.45 and 17.16, respectively. *T*-test showed a significant difference between the two groups in terms of serum Vitamin D3 levels ($P$ = 0.04).

Moreover, after classification of Vitamin D level into three categories ([0–19.9], [20–29.9], and [30–150]), the evaluation of frequency distribution of Vitamin D levels showed that 36 patients (80%) had Vitamin D 0–19.9, 5 patients (11.1%) had Vitamin D 20–20.9, and 4 (8.9%) had Vitamin D 30–150. In control group, 32 patients (71.1%) had Vitamin D 0–19.9, 6 (13.3%) had Vitamin D 20–20.9, and 7 (15.6%) had Vitamin D (30–150). Pearson Chi-square test showed no significant difference between the three categories of Vitamin D in both groups ($P = 0.56$).

There was no significant correlation between serum levels of Vitamin D3 and age, BMI and FPHL duration. Furthermore, there was no significant relation between serum Vitamin D3 level and family history of FPHL, menstrual disorder, hirsutism, Ludwig score of alopecia severity, and skin type of the patients.[3,4,5,6,7,8]

Another study population consisted of equal number of cases and controls (having hair fall of more than 100 strands per day), respectively. The median value of Vitamin D among the cases came out to be significantly lower than the controls.This was similar to a study on alopecia areata an autoimmune disease causing inflammation all around the anagen hair follicles where the cases having had significantly lower values of Vitamin D than controls. However, a study done on telogen effluvium (TE) showed findings contrary to this study, who found those with hair fall due to TE had higher level of Vitamin D. However, they attributed this high Vitamin D levels to the excess exposure to sunlight among that population. Thus, level of hair fall and Vitamin D levels share complex association and are affected by several factors.

Although Vitamin D levels have been compared among the cases and controls.81.8% cases had Vitamin D deficiency compared to 45.5% of controls. Half of the controls (50%) were in the Vitamin D insufficiency category. None of the cases had normal Vitamin D values, whereas 4.5% controls fell in the normal category.[9,10,11]

## Conclusion

Serum 25(OH)D levels was lower in patients with hair loss than healthy controls. These levels were negatively correlated with disease severity and pattern of hair loss. Future studies are needed to clarify the association between 25(OH)D and hair loss and provide evidence about the role of vitamin D deficiency in the pathogenesis of the disease.

## References


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