

# FORUM

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## Vitamin D Deficiency and Hair Loss: A Case Report and Review of the Literature for Diagnosis and Treatment

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### ABSTRACT

A small number of case reports seem to suggest a relationship between vitamin D deficiency and hair thinning. This article takes a look at the link between vitamin D and hair loss and examines the role of vitamin D in hair growth. Although comprehensive research on the direct link between vitamin D deficiency and hair loss in androgenetic alopecia remains incomplete, this article will discuss what we do know so that you can consider supplementation as a potential medical treatment for hair loss in patients where vitamin D deficiency is identified.

**Keywords:** androgenetic alopecia (AGA), medical therapy, supplementation, 25(OH) vitamin D

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### INTRODUCTION

It is well known the hormone DHT (dihydrotestosterone) is etiological to hair loss in genetically affected patients with androgenetic alopecia (AGA). Researchers have shown that each hair follicle is a mini endocrine organ itself that contains receptors and even synthesizes a multitude of different hormones.<sup>1</sup> It is not surprising that DHT is only one of many hormones that can impact hair growth or loss. What may surprise some people is the fact that while vitamin D is described as a “conditionally required nutrient,” its designation as a vitamin is something of a misnomer as it is actually considered a steroid hormone.<sup>2</sup> While once thought to be mostly involved with calcium and phosphorus metabolism integral to bone health, its range of physiologic effects identified in the past two decades includes a broad swath of immune, neurologic, cardiovascular, and metabolic functions, to name only a few.<sup>3</sup> What is important for hair loss specialists to be aware of is the evidence to substantiate its role in normal hair growth and to recognize that the high population incidence of vitamin D deficiency globally may be a contributing factor when evaluating and treating hair loss patients.<sup>4,5</sup> Specifically, correction of vitamin D deficiency has been observed in at least two previous published case reports to result in reversal of hair thinning in female patients with no other cause for hair loss.<sup>6,7</sup> For decades it has been known that genetic mutations which cause an abnormal vitamin D receptor, usually manifested by various degrees of resistance to vitamin D, often result in alopecia being displayed in affected infants. Research has established the vitamin D receptor as integral to initiating anagen and hair follicle cycling.<sup>8</sup> However, the role of vitamin D itself for hair growth has been less clear.

This article represents an additional case report of a patient who presented with a diagnosis of severe vitamin D deficiency and advanced pattern AGA, where the frontal hair was observed to regrow following supplemental treatment and normalization of vitamin D levels. This case report will be followed by a discussion of the relevant literature regarding the important role that vitamin D can play in hair health.

### CASE REPORT

A 41-year-old male patient presented for a virtual consultation to see if he would be eligible for surgical treatment of his patterned hair loss. He had experienced hair thinning since the age of 22, and he had a family history of advanced pattern AGA (maternal uncle Class VI pattern). On review of the patient's pho-



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