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### **Age-related thinning (Senescent alopecia)**

#### **What is age related thinning?**

- Age-related thinning refers to hair thinning that affects both men and women in their later decades, usually starting around age 50.
- The cause of age related thinning is not known. The condition is sometimes referred to as “senescent alopecia.”

#### **What are the signs and symptoms of age-related thinning?**

- Patients with age-related thinning typically notice significant changes in their hair around 60 (some sooner and some later). The thinning occurs all over the scalp and may be most marked over the top.
- The affected individual may or may not have developed genetic hair loss in his or her 20s, 30s or 40s. However, age related thinning is a different process.

#### **How rapidly do patients lose hair?**

- Hair loss is a slow process in age-related thinning

#### **Are blood tests needed for age related thinning?**

- There are no specific blood tests for this condition.
- As part of general evaluation for hair loss, Dr. Donovan may order iron studies, thyroid studies, and vitamin D

**Is a biopsy needed?**

- A biopsy is not usually necessary.
- If a biopsy was performed, it would appear very similar to genetic hair loss. The two conditions can not be easily distinguished under the microscope.

**What treatments are available for age-related thinning?**

- The main treatment for age-related thinning is topical minoxidil lotion or Rogaine foam. Other treatments have not been shown to have consistent benefit in age-related thinning but Dr. Donovan may consider a variety of treatments.

# HAIR FOLLICLE AGING

What is Senescent Alopecia?



Hair follicle aging appears to be a real thing, like any tissue in the body. Traditionally, a form of hair loss known as senescent alopecia ("SA") has been defined as a very specific type of age related thinning that is distinct from androgenetic alopecia ("AGA"). Androgenetic alopecia tends to start somewhere between age 8 and age 50 - at least that has been the traditional view. Hair thinning that occurs after age 60, with no thinning prior to this, has a high likelihood of representing senescent alopecia. (Of course other types of hair loss may also occur after age 60). A study by Karnik and colleagues in 2013 confirmed that these two conditions (AGA and SA) are truly unique. The authors studied 1200 genes in AGA and 1360 in SA and compared these to controls. Of these, 442 genes were unique to AGA, 602 genes were unique to SA and 758 genes were common to both AGA and SA.

The genes that were unique to AGA included those that contribute to hair follicle development, morphology and cycling.

In contrast to androgenetic alopecia, many of the genes expressed in senescent alopecia have a role in skin and epidermal development, keratinocyte proliferation, differentiation and cell cycle regulation. In addition, the authors showed that a number of transcription factors and growth factors are significantly decreased in SA.

## **Conclusion**

The concept of senescent alopecia is still open to some debate amongst experts. The studies by Karnik give credence to the unique position of these two conditions. But studies by Whiting suggested that it is not so simple as to say anyone with new thinning after age 60 has SA - many of these are also more in keeping with androgenetic alopecia. As one ages into the 70's, 80's and 90's - hair loss in the form of true senescent alopecia becomes more likely.

## **Reference**

Karnik et al. Microarray analysis of androgenetic and senescent alopecia: comparison of gene expression shows two distinct profiles. J Dermatol Sci. 2013.

Whiting DA. How real is senescent alopecia? A histopathologic approach. Clin Dermatol. 2011 Jan-Feb.

