

Telogen Effluvium

Telogen effluvium (TE) is probably the second most common form of hair loss dermatologists see. It is a poorly defined condition; very little research has been done to understand TE. In essence though, TE happens when there is a change in the number of hair follicles growing hair. If the number of hair follicles producing hair drops significantly for any reason during the resting, or telogen phase, there will be a significant increase in dormant, telogen stage hair follicles. The result is shedding, or TE hair loss.

Hair is made in tiny pouches in the skin called hair follicles. Each scalp hair has a normal 'life cycle'. Most scalp hairs last about three years and grow about 1 cm a month. After a period of time (about three years), each hair on the scalp comes to the end of its life and falls out. The hair follicle rests for a short while. It then starts to make a new hair. All the hairs on the scalp are at different stages in their life cycle. At any one time about 1 in 100 scalp hairs are at the end of their life ready to fall out. This is why you will commonly find a few hairs on your shoulders, and some hairs fall out each time you wash your hair.

TE appears as a diffuse thinning of hair on the scalp, which may not be even all over. It can be a bit more severe in some areas of the scalp than others. Most often, the hair on top of the scalp thins more than it does at the sides and back of the scalp. There is usually no hair line recession, except in a few rare chronic cases. The shed hairs are typically telogen hairs, which can be recognized by a small bulb of keratin on the root end. Whether the keratinized lump is pigmented or unpigmented makes no difference; the hair fibers are still typical telogen hairs.

People with TE never completely lose all their scalp hair, but the hair can be noticeably thin in severe cases. While TE is often limited to the scalp, in more serious cases TE can affect other areas, like the eyebrows or pubic region.

Whatever form of hair loss TE takes, it is fully reversible. The hair follicles are not permanently or irreversibly affected; there are just more hair follicles in a resting state than there should normally be.

There are three basic ways TE can develop.

1. There might be an environmental insult that "shocks" the growing hair follicles so much that they decide to go into a resting state for a while. This results in an increase in hair shedding and a diffuse thinning of hair on the scalp. This form of TE can develop rapidly and may be noticeable one or two months after receiving the shock. If the trigger is short lived, then the hair follicles will return to their growing state and start producing new hair fibers pretty quickly. This form of TE usually lasts less than six months and the affected individual has a normal scalp hair density again within a year.

2. The second form of TE develops more slowly and persists longer. The hair follicles may not all suddenly shed their hair fibers and enter a resting telogen state. Rather, the follicles may enter a resting state as they normally would, but instead of returning to a new anagen hair growing state after a month or two, they stay in their telogen state for a prolonged period of time. This results in a gradual accumulation of hair follicles in a telogen state and progressively fewer and fewer anagen hair follicles are left growing hair. In this form of TE, there may not be much noticeable hair shedding, but there will be a slow thinning of the scalp hair. This form of TE is more likely to occur in response to a persistent trigger factor.

3. In a third type of TE, the hair follicles do not stay in a resting state but rather cycle through truncated growth cycles. When this happens, the individual experiences thin scalp hair and persistent shedding of short, thin hair fibers.

Causes of Telogen Effluvium: Stress and Diet

What are the trigger factors for TE? The short answer is many and varied. Classic short-term TE often happens to women soon after giving birth. Called postpartum alopecia, the sudden change in hormone levels at birth is such a shock to the hair follicles that they shut down for a while. There may be some significant hair shedding, but most women regrow their hair quickly. Vaccinations, crash dieting, physical trauma such as being in a car crash, and having surgery can sometimes be a shock to the system and a proportion of scalp hair follicles go into hibernation. As the environmental insult passes and the body recovers, the TE subsides and there is new hair growth. Some drugs may also induce TE, especially antidepressants. Often a switch to a different drug resolves the issue.

More persistent insults can result in more persistent TE. For example, a chronic illness may lead to TE. Arguably, the two most common problems are chronic stress and diet deficiency. Many dermatologists believe chronic stress can gradually exert a negative effect on hair growth and lead to persistent TE. Research with animal models has provided evidence to back up this claim. There does indeed seem to be a link between stress, a change in hair follicle biochemistry, and more hair follicles entering a telogen resting state.

Whether dietary problems are causing TE in North America is hotly argued among dermatologists. A lack of a mineral, vitamin, or essential amino acid can certainly cause TE, such as with people in third world countries where diets can be completely deficient in one or more nutrients. Animal experiments also provide supporting evidence.

In first world countries the average diet is rarely completely deficient in a particular vitamin or mineral. However, some dermatologists claim that with a reduction in red meat intake and a preference for vegetarian diets, some individuals are not getting a balanced intake of all the nutrients required for good hair and overall body growth. In particular, there are claims that women may be deficient in their iron intake. Why women specifically? Because women lose iron at regular intervals as a result of menstruation.

Some dermatologists believe that as we now eat less red meat, a key source of iron, some people are not eating enough iron and TE is the result. Other potential deficiencies of the modern North American diet -- such as a lack of zinc, amino acid L-lysine, or vitamins B6 and B12 -- have also been suggested to contribute to TE.

When dietary deficiencies are suspected, supplements may be taken. However, supplements themselves can cause problems. Our bodies can only process so much iron each day. At high doses, iron is toxic and this can itself cause hair loss. At really high doses, iron supplements will cause death. Vitamin A supplements can also cause a TE reaction in some individuals, as excessive vitamin A can also be toxic.

TE can occur on its own or as part of another disease. The early stages of androgenetic alopecia (male or female pattern baldness, AGA for short) are effectively TE. Early AGA is characterized by an increase in resting telogen hair follicles. Someone in the early stages of AGA may have up to 40% of their scalp hair follicles in telogen.

TE can also be a symptom of other conditions, such as inflammatory conditions like alopecia areata. Hair follicles are particularly sensitive to thyroid hormones and about one third of individuals with a thyroid disorder have TE. Exposure to toxins can also cause TE as one of many symptoms.

Treatments for Telogen Effluvium

How TE is treated depends on what has activated it. For short-term TE that can be linked to a trigger like surgery, the best response is to sit tight and wait for the follicles to recover of their own accord.

For persistent TE, if the causal factor can be isolated, then the best method is to remove it. For example, if stress is the problem, stress reduction is the long-term answer. If a dietary deficiency appears on a blood test, then supplements can work. A deficiency in thyroid hormones can be treated with hormone supplements.

However, often a specific causal factor cannot be identified. If this is the case, there are few treatment options. Most dermatologists resort to prescribing minoxidil, a direct hair growth stimulator. Minoxidil can work well for some individuals with TE, but if the underlying cause is still present, then minoxidil must be continued to block redevelopment of TE. With removal of the trigger, minoxidil use can be stopped.

Before leaving the subject of TE, here are a few words about natural hair shedding. Everyone sheds hair and you may see more hair shed at certain times of the year. Studies show that humans, at least in Northern Europe away from the equator, shed more hair in the fall and to a lesser extent in the spring.

This temporary increase in the number of telogen hair follicles and shed hair is probably due to changes in hormones in response to changes in daylight exposure. Studies in mink and other mammals show that daylight exposure significantly alters prolactin levels and that prolactin has a significant effect on molting. As with mink and other mammals, humans probably have much the same molting response. Such hair loss should be temporary.

