

From straight to curly, thick to thin: Here's how hormones and chemotherapy can change your hair

January 14 2024, by Theresa Larkin



Credit: Element5 Digital from Pexels

Head hair comes in many colors, shapes and sizes, and hairstyles are often an expression of personal style or cultural identity.

[Many different genes](#) determine our [hair](#) texture, thickness and color. But some people's hair changes around the time of puberty, pregnancy or after chemotherapy.

So, what can cause hair to become curlier, thicker, thinner or gray?

Curly or straight? How hair follicle shape plays a role

Hair is made of [keratin](#), a strong and insoluble protein. Each hair strand grows from its own [hair follicle](#) that extends deep into the skin.

Curly hair forms due to asymmetry of both the [hair follicle and the keratin](#) in the hair.

Follicles that produce [curly hair](#) are asymmetrical and curved and lie at an angle to the surface of the skin. This kinks the hair as it first grows.

The asymmetry of the [hair follicle](#) also causes the keratin to bunch up on one side of the hair strand. This pulls parts of the hair strand closer together into a curl, which maintains the curl as the hair continues to grow.

Follicles that are symmetrical, round and perpendicular to the skin surface produce straight hair.

Life changes, hair changes

Our hair undergoes repeated cycles throughout life, with different stages of growth and loss.

Each hair follicle contains [stem cells](#), which multiply and [grow into a hair strand](#).

Head hairs spend most of their time in [the growth phase](#), which can last for several years. This is why head hair can grow so long.

Let's look at the life of a single hair strand. After the growth phase is a transitional phase of about two weeks, where the hair strand stops growing. This is followed by a resting phase where the hair remains in the follicle for a few months before it [naturally falls out](#).

The hair follicle [remains in the skin](#) and the stem cells grow a new hair to repeat the cycle.

Each hair on the scalp is replaced [every three to five years](#).

Hormone changes during and after pregnancy alter the usual hair cycle

Many women notice their hair is [thicker during pregnancy](#).

During pregnancy, high levels of [estrogen, progesterone and prolactin](#) prolong the resting phase of the hair cycle. This means the hair [stays in the hair follicle for longer](#), with less hair loss.

A drop in hormones a few months after delivery causes increased hair loss. This is due to all the hairs that remained in the resting phase during pregnancy falling out in a fairly synchronized way.

Hair can change around puberty, pregnancy or after chemotherapy

This is related to the genetics of hair shape, which is an example of [incomplete dominance](#).

Incomplete dominance is when there is a middle version of a trait. For hair, we have curly hair and straight hair genes. But when someone has one curly hair gene and one straight hair gene, they can have wavy hair.

Hormonal changes that occur around [puberty](#) and [pregnancy](#) can affect the function of genes. This can cause the [curly hair](#) gene of someone with wavy hair to become more active. This can change their hair from wavy to curly.

Researchers have identified that activating [specific genes](#) can change hair in pigs [from straight to curly](#).

[Chemotherapy](#) has very visible effects on hair. Chemotherapy kills rapidly dividing cells, [including hair follicles](#), which causes hair loss. Chemotherapy can also have [genetic effects](#) that influence hair [follicle](#) shape. This can cause hair to [regrow with a different shape](#) for the first few cycles of hair regrowth.

Hormonal changes as we age also affect our hair

Throughout life, [thyroid hormones](#) are essential for production of keratin. Low levels of [thyroid hormones](#) can cause dry and brittle hair.

[Estrogen and androgens](#) also regulate hair growth and loss, particularly as we age.

Balding in males is due to higher levels of androgens. In particular, high dihydrotestosterone (sometimes shortened to DHT), which is produced in the body from testosterone, has a role in [male pattern baldness](#).

Some women experience female pattern hair loss. This is caused by a combination of genetic factors plus lower levels of [estrogen and higher androgens](#) after menopause. The hair follicles become smaller and

smaller until they no longer produce hairs.

Reduced function of the cells that produce [melanin](#) (the pigment that gives our hair color) is what causes graying.

This article is republished from [The Conversation](#) under a Creative Commons license. Read the [original article](#).

Provided by The Conversation

Citation: From straight to curly, thick to thin: Here's how hormones and chemotherapy can change your hair (2024, January 14) retrieved 27 April 2024 from <https://medicalxpress.com/news/2024-01-straight-curly-thick-thin-hormones.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.