

# Chapter I

## Causes of Unwanted Hair

This chapter reviews the biological causes of hair growth. Electrologists must be able to explain the origins of hair growth, and why excess hair is seen as a problem. Additionally, some of your clients will be experiencing accelerated hair growth because of a **hormone imbalance**. Therefore, you should be able to recognize some signs of a hormone imbalance and direct your client to an appropriate **physician** or **endocrinologist**.

### Proper Terminology

In most cases, a female client's hair problem develops during **puberty**, **pregnancy** or **menopause**. These events may or may not produce unwanted hair. Women frequently experience some hair growth during menopause. However, in all cases, *having unwanted hair is not an illness or disease*. Unwanted hair might be **caused** by an illness, but having hair alone is not an illness. Because unwanted hair is not an illness, it's mistaken to call our clients patients that are suffering from **hypertrichosis**. Let's see how the experts define hypertrichoses.

“Hypertrichosis is the term used to denote *excessive and abnormal* growth of hair, on any part of the body that is more than typically seen in individuals of the same sex, age and race as the person under consideration.”

Lee McCarthy, MD, *Diagnosis and Treatment of Diseases of the Hair*

**Hypertrichosis or Superfluous?** Because hair growth is predictable at certain times in a person's life, calling *all* unwanted hair “hypertrichosis” is incorrect. **Superfluous hair** is a better term for unwanted hair. The definition of superfluous is: unnecessary, extra, redundant, surplus. Your client may have excess hair that is completely normal for their age and sex, however she wants hair removed for personal reasons. These reasons might be based on self-image, or the pressure of cultural norms.

Note from Bono: I think that using the term “hypertrichosis” is appropriate if the hair growth is, by definition, “excessive and abnormal.” However, there is no good reason to use the term with your client. “He/she wants the hairs removed,” is enough! Using a medical term that implies a disease might unnecessarily alarm your client.

**Cosmetology or Medicine?** In most jurisdictions, electrology is not considered **the practice of medicine**. Therefore, referring to clients as “patients” and talking about “cures” is inaccurate (no disease is being treated). *Electrologists treat cosmetic problems!*

Even in cases where excessive hair growth was caused by a hormone imbalance, the job of the electrologist is not to cure the illness but to restore the appearance of the client. There are, of course, cases where ingrown hairs must be removed for health reasons; but such cases are a

small part of the profession. As an electrologist you are primarily concerned with appearance. Your manner of dealing with the public should reflect the non-medical nature of the profession.

## What Stimulates New Hair Growth?

Two factors, either together or individually, have the potential for starting or accelerating hair growth. These are: an increase in the **blood supply** and/or **hormone stimulation**.

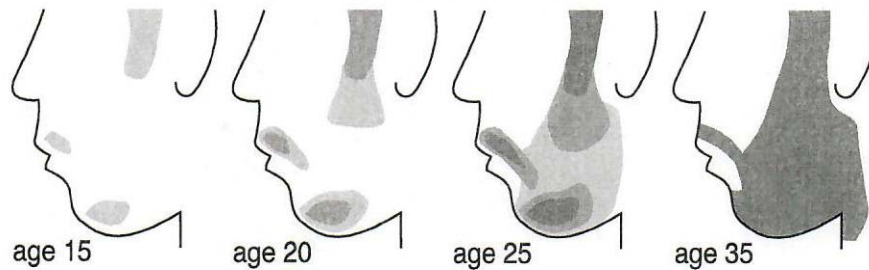
**Increased blood supply:** If a **vellus hair** (tiny, fine, colorless hair) is already growing from, say, the lobe of a **sebaceous gland** (skin's oil gland), an increase in the blood supply (more blood) to the area might stimulate vellus hair growth. Extra blood brings extra nutrition to the follicles and can turn these vellus hairs into so-called **accelerating vellus hairs**. An accelerating vellus hair is just beginning to acquire a **bulb** and **pigmentation**. At this point the accelerating vellus hair is not yet a **terminal hair**. (A terminal hair is a fully formed hair and follicle that has achieved its maximum potential ... terminal ... size.) Indeed, a plentiful supply of blood is necessary for the development of deeper/larger hairs. However, increasing the blood supply alone cannot create new hairs and follicles. The blood supply merely nourishes the existing follicles and hairs.

**Hormone stimulation:** Specific hormones can cause visible hair growth where none was previously seen. However, hormones *alone* cannot produce new follicles and hairs. Instead, hormones stimulate specific **target cells in the sebaceous glands**. **William Montagna, PhD** calls these target cells **hair-germ cells**. When hormones chemically react with the hair-germ cells in the sebaceous gland, the hair-germ cells are stimulated. With hormone stimulation, hair-germ cells **proliferate** and create a vellus hair (a tiny hair emerging from a sebaceous gland). With continued hormone stimulation, vellus hairs can grow larger-and-larger and finally become large terminal hairs.

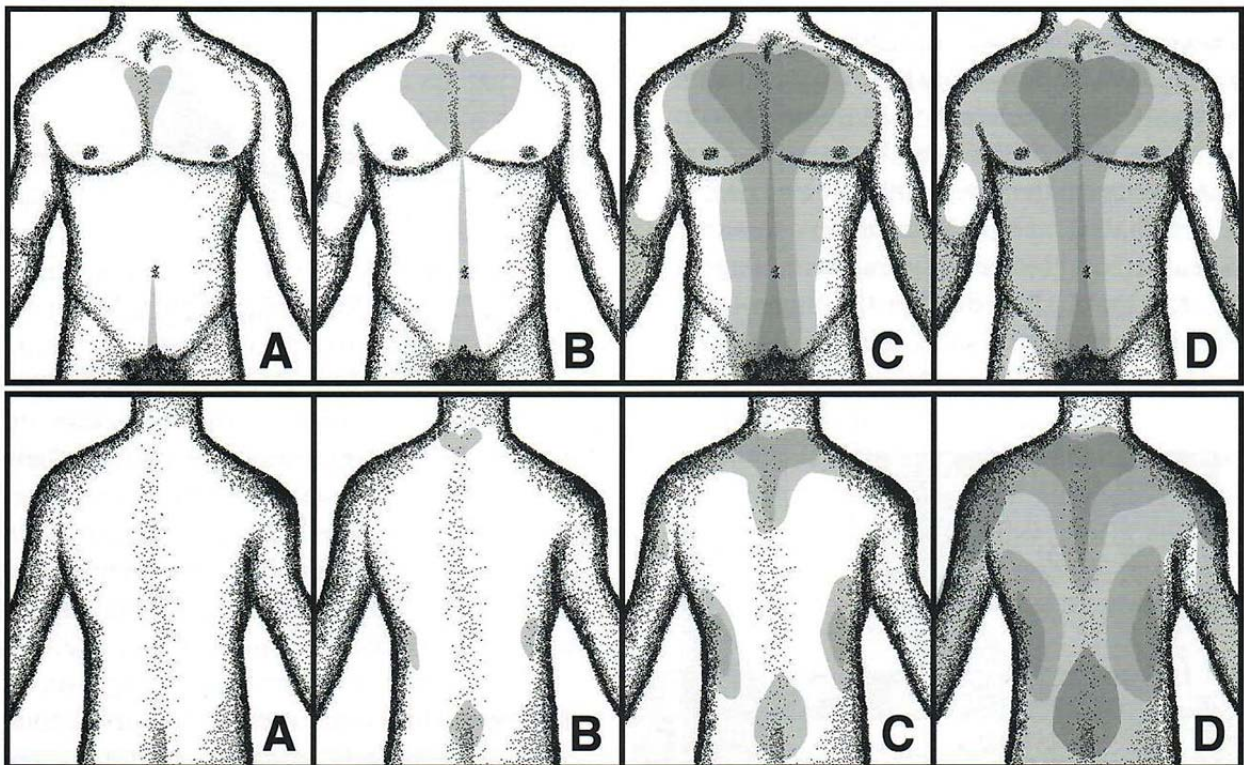
The potential for hair growth, on the face and body, is limited to specific areas. Consider the hair growth in a male **adolescent**. Even though male hormones have flooded his entire **circulatory system**, he does not grow hair "from nose to toes!" Instead, his hair growth follows a predictable pattern starting from **axillary** and **pubic** areas; to his emerging beard, and eventually the chest (and possibly the back and shoulders). The areas prone to hair growth are said to be **hormone-sensitive areas**. Similarly with women experiencing a hormone imbalance, these identical areas are the first to show an increase in hair growth. Other areas, such as the forehead, palms of the hands and bottoms of the feet are devoid of follicles and will never grow hair; even with maximum hormone stimulation.

## Male Beard Development

A woman's hair pattern development, undergoing hormone stimulation, follows the same hair patterns as men's.



## Male Body Hair Development



**Photomicrographs** (photographs made through a microscope) of any hairy area show that each hair-growing follicle is surrounded by sebaceous glands that have no hair. Apparently, some unidentified factor makes one set of germ-cells (in a sebaceous gland) more **hormone-sensitive** than in other sebaceous glands.

Photomicrographs also show that in areas of heavy hair growth, say, the beard or underarm, there are still large numbers of vellus hairs. Many of these fine hairs are **hormone-insensitive** and will never become large terminal hairs. Transgender beard removal, once completed, sometimes reveals a substantial amount of very fine colorless hair. A softer and more natural appearance is created by the fine hairs.

## Congenital, Topical and Systemic causes of excess hair

**Congenital:** Everyone is born with a pre-existing pattern for hair growth. These patterns are **inherited** from your parents and ancestors. Congenital growth patterns may also be a characteristic of your race. The combination of both parent's congenital patterns can create modified hair patterns in their descendants. The way a person's hair pattern naturally grows is called a **congenital hair growth pattern**. This is a "born with" ability for growing hair, and does not come about from any outside influences. Abnormal hair growth, called **inherent hypertrichosis**, can likewise be inherited.

Normal growth patterns on various parts of the body serve as protection from the environment. Hair also helps maintain body temperature, reduce friction, add sensory perception (your sense of touch) and stimulate sexual attraction. The following are normal hair patterns seen on all humans:

**Cilia** (eyelashes) prevent dust and dirt from entering the eye and also help to shade the eye from sunlight.

**Supercilia** (eyebrows) filter dust and dirt to a minor degree, and help shade the eye from sunlight. Eyebrows channel sweat away from the eyes, and form a protective cushion for the ridges of the eye socket.

**Vibrissae** (nostril hairs) filter dust and large particles that might otherwise collect in the lungs.

**Capilli** (scalp hair) provides protection from head injury and retains body heat by shielding the head from rain, snow and cold weather. Head hair is also a focus of beauty, health and sexual attraction.

**Body hair** including **hirci** (underarm hair) and **pubes** (pubic hair) protects against friction. Patches of hair are located in places where the skin is continuously irritated.

Some **anthropologists** have speculated that, through evolution, prehistoric humans were covered with hair to provide warmth. If this evolutionary adaptation were true, why is it that people from warm Mediterranean areas are more **hirsute** (hairy) than cold-weather Scandinavians? It's difficult to conclude that body hair is intended for warmth. Indeed, hair distribution varies from one ethnic group to another with no apparent correlation to climate. Nordic and Anglo-Saxon ethnicities (Scandinavians, Germans, and British) are less hairy than the Mediterranean and Semitic peoples (Syrians, Hebrews, North Africans, Greeks, Italians and Spaniards). In general, Caucasians (Whites) are hairier than people of African descent (Blacks). Least hairy of all are Asians and Native Americans.

The concept of beauty depends on cultural norms. The facial hair of Mediterranean women is not terribly bothersome to their male counterparts. For example, before the 1960s, a



Spanish or Italian woman with some delicate upper lip hair was not a problem ... some say, even seen as “sexy!” In the United States a woman's hairy legs are seen as unattractive. In other cultures, a woman’s hairy legs or unshaved underarms is not seen as appalling, as in the USA.

Thus, whether one's hairiness is considered an adornment or an eyesore depends on the culture. It is only in a society with diversity and many **ethnicities**, such as the United States, that a normally **hirsute** person can become embarrassed or even ashamed of a natural condition that might be attractive in the person's place of origin. This is another reason why electrologists must not consider herself a practitioner who treats abnormal conditions. Many of her clients will have hair patterns which are perfectly normal for their **heredity** and ethnicity.

Every once in a while, the electrologist will confront a case of **congenital hypertrichosis** (inherited hairiness). This condition afflicts the person who has had the misfortune of inheriting a tendency to grow excessive hair. Congenital hypertrichosis may appear at birth, or it may emerge later in life. Sometimes, although rare, the person with congenital hypertrichosis is covered from head to toe with a heavy growth, lacking hair only in those areas that normally would have no hair at all, such as the palms of the hands, bottoms of feet or the forehead. Researchers who study these cases find no unusual hormone imbalance. The excessive hair is the result of an unusual genetic characteristic. Such cases require years of treatment.

**Topical** (the top of the skin). Increased hair growth can occur when a stimulant is applied to the skin. Such stimulates include: rubbing, abrasion, X-ray, a burn, and chemical irritation (cosmetics/medications). Irritation from these agents causes an increase in the blood supply to the area. When this happens, follicles receive more nourishment from the blood and grow deeper and coarser. Apparently, the hairs increase in size to protect the skin from the irritation.

We all have microscopic vellus hairs on the top of our noses. Frequent sunburn can cause those nose hairs to grow larger. Athletes and people who work outdoors often have repeated sunburn on the nose. The sunburn causes inflammation and more blood flow. The UV from the sunlight probably contributes to the hair stimulation. After years of sun exposure, the vellus hairs can become larger. This condition is sometimes called **construction worker’s nose**. It’s safe to perform electrolysis on the external skin of the nose.

Bandaging or having a cast (e.g., broken leg) commonly causes local hair growth. The rubbing of the cast or bandage causes irritation, increases blood-flow and nourishes the follicles. Usually, the growth disappears shortly after the cast or bandage has been removed. Electrolysis on this temporary hair growth is not necessary. Healing wounds and scar tissue (increased blood flow) can sometimes generate hair growth. This growth may be temporary, but if not, these hairs are safe for electrolysis.

**Moles (Nevus, plural: Nevi) and birthmarks** (classifications: **vascular birthmarks** or **pigmented birthmarks**) typically have clusters of coarse hairs. Although moles and birthmarks are not something applied to the skin, they are sometimes classified as topical causes. Moles and birthmarks have a dense network of blood vessels. Therefore, more blood in the mole or

birthmark causes increased hair growth. Note: there are many medical classifications of moles and birthmarks.



Moles and birthmarks are a special problem for electrologists. So far, there are no documented cases of electrolysis *causing* cancer on a mole or birthmark. However, authorities caution against working on moles and birthmarks without a physician's written authorization. Even with authorization, many insurance companies exclude treatment of moles, warts and similar structures from their liability coverage. Certain types of pigmented marks can become cancerous. It's best to leave this hair removal procedure to medical specialists.

Tweezing hairs sometimes causes *increased* hair growth. Typical areas where women tweeze are the eyebrows, chin and upper lip. Tweezing is popular because the hairs stay away longer than from shaving. However, the long-term effects of tweezing often make matters worse. Repeated tweezing eventually causes hairs to regrow darker, coarser, distorted and more firmly rooted.

Note from Bono: We have all heard reports of eyebrow hairs being permanently removed by tweezing the hairs. This might actually be the case. However, to date there are no published reports on this subject.

An increased blood supply is the cause of the accelerated growth of tweezed hairs. Each time a hair is tweezed out of its follicle, a good portion of follicle is torn out. The damage is not sufficient to prohibit future growth but it is enough to cause the follicle to reconstruct itself a little sturdier with a better developed capillary system each time. Eventually what may have been a few annoying small hairs can eventually become full-grown terminal hairs. Occasionally when a hair is plucked (tweezed), the resulting hole becomes infected with microorganisms ... usually **staphylococci** ... which normally inhabit the follicular pore. Deep pustules that result may leave a pitted scar. [Click here to see video.](#)