Beneath the skin during a laser hair treatment

Hair removal with light can sound simple: a beam touches the skin, and hair grows back more slowly. The real process is more specific. A laser sends a controlled pulse into the skin, where pigment in the hair absorbs energy. That energy becomes heat, and the heat affects the follicle that produces the hair. Understanding what happens at that depth helps explain why timing, skin tone, hair colour and aftercare all matter.

What the laser is aiming for

A hair is not just the strand visible above the skin. It grows from a hair follicle, a small structure set within the skin. The shaft is the part that emerges, while the follicle sits deeper and supplies the cells that let hair grow. Permanent reduction depends on affecting follicles that are capable of producing new hair, not simply cutting or pulling out the strand you can see.

The main target is melanin, the pigment that gives hair and skin much of their colour. Melanin absorbs particular wavelengths of light. In a session, the laser energy travels through the outer skin and is taken up more strongly by pigment in the hair shaft and follicle. The surrounding skin also contains melanin, so the balance between hair pigment and skin pigment is a key part of treatment planning.

This is why dark, coarse hair often responds more clearly than very fine, pale, grey or white hair. Less pigment means less absorption, so there may be less heat delivered to the follicle. Skin tone matters too. When there is less contrast between the hair and the skin, the light has a harder job reaching the right target without also being absorbed near the surface.

What happens during a pulse

During laser hair removal, a short pulse of light is delivered to the treatment area. The exact settings depend on factors such as skin type, hair thickness, the area being treated and the device used. Cooling may be applied before, during or after the pulse to help protect the skin surface and keep discomfort manageable.

Once the light reaches the hair shaft, pigment absorbs energy and converts it into heat. That heat travels along the shaft toward the follicle. The goal is follicle damage sufficient to reduce or stop future growth from that follicle. It is not instant removal of every hair. Some hairs in the area may be untouched because they were not in the right phase at the time.

Hair grows in cycles. A follicle may be actively producing a hair, resting, or preparing to shed and regrow. Treatments are usually spaced out because light-based reduction works best when hairs are in an active growth phase. At that stage, there is more hair structure connected

to the follicle to absorb energy. Other hairs may appear later from follicles that were less active during an earlier session.

Why more than one session is normal

No single session can catch every follicle at the ideal moment. Some follicles are dormant when a pulse is delivered, and some hairs may be too fine or too light to absorb enough energy. Over a series of sessions, more hairs are treated during their active growth phase. This is why a reduction in hair density tends to develop gradually rather than after one visit.

It also explains why shedding can happen in the days after treatment. A hair that has been heated may loosen and fall out, which can look like the laser simply burned the strand. The more meaningful change is beneath the surface, where the follicle may be less able to produce a new hair. What appears on the skin after a session is only part of the story.

Results vary. Some areas respond faster than others, and hormonal influences can affect whether hair returns. Facial areas, for example, may be more responsive to hormonal changes than some body areas. A treatment plan may need adjustment if hair becomes finer, if patches remain, or if the skin shows signs of irritation.

What is felt and what is visible

Sensations differ from person to person and from one area to another. Many people describe a warm pinching feeling or a snap against the skin, followed by short-lived warmth. Sensitive areas may feel more uncomfortable than areas with thicker skin. Cooling, pulse settings and the skill of the person delivering the treatment all affect comfort.

Immediately afterward, the skin may look red or feel tender, similar to mild sunburn. Small bumps around follicles can appear, especially where hair is coarse or the skin has been stressed. These responses are usually temporary, but they are a sign that the skin needs a calmer approach for a short period. Heat, friction and harsh products can make irritation more likely.

Aftercare is less mysterious than it sometimes sounds. Keep the treated area clean, avoid picking at shedding hairs, and follow the advice given with the treatment. Sun protection matters because recently treated skin can be more reactive, and darkening or irritation can complicate later sessions. Fragranced products, scrubs and tight rubbing clothing may also be unhelpful while the skin settles.

Safety depends on the skin response

The same heat that can reduce hair growth can also affect the skin if settings are poorly matched. Too much energy, too little cooling, recent sun exposure or sensitive skin can raise the risk of burns, blistering, swelling or changes in pigmentation. Dark skin and tanned skin need particular care because pigment near the surface can absorb light before it reaches the intended target.

Certain medications and skin conditions can increase sensitivity to light or affect healing. A history of keloid scarring, active infection in the area, unexplained hair changes, or a condition that influences hormones may call for medical advice before treatment. During pregnancy, many clinics avoid treatment as a general precaution, even though the skin itself may not be in danger from the light.

Eye protection is another practical part of safety around light-based procedures. The treatment area is usually chosen carefully, and people with implants, pacemakers or other medical devices should raise this before any session. A qualified professional can decide whether treatment is suitable and which settings are appropriate. Attempting to copy professional settings with consumer devices carries a higher risk of uneven results or skin injury.

What the process means in practice

The useful way to think about the treatment is not as a single blast that removes hair forever. It is a repeated process of aiming light at pigment, heating selected follicles and reducing their ability to grow over time. Hairs not caught at the right stage can appear later, which is why patience is part of the plan.

For a general reader, the main points are straightforward. Hair colour, skin tone, growth phase and aftercare all shape the outcome. Some redness and shedding can be normal, while blistering, strong pain or lasting colour change is not something to ignore. A sensible plan starts with an assessment of skin type and hair pattern, then uses settings that protect the surface while reaching the follicle.

Beneath the skin, the change is gradual and selective. The visible hair may fall, the area may look smoother, and over time fewer strands may return. That happens because the treatment works on the growth system under the surface, not just on the strand above it. Knowing this makes the need for multiple sessions, careful timing and steady aftercare much easier to understand.