




THE TRUTH ABOUT

LASER HAIR  
REMOVAL &  
DARKER SKIN  
TONES

  
VENUSCONCEPT  
delivering the promise



## In the United States, laser hair removal was the third most popular non-surgical aesthetic treatment in 2016 with more than a million procedures performed...

Aesthetic practitioners have witnessed explosive demand for hair removal as consumers favor a hair-free look and the lasting results of laser treatments. In the United States, laser hair removal was the third most popular non-surgical aesthetic treatment in 2016 with more than a million procedures performed, according to the American Society for Aesthetic Plastic Surgery.<sup>1</sup>

Strong growth is expected to continue, with compound annual growth in the global hair removal market is expected to average 9 percent through 2022 to \$1.35 billion, as forecast by Transparency Market Research.<sup>2</sup>

But one market segment offers even better growth opportunities for aesthetic providers—consumers with darker skin tones. Despite advances in device technology that now make dark-skinned individuals appropriate candidates for laser hair removal, many consumers are deterred by outdated information and myths that lead them to believe that there are no safe and effective treatments available for them. These patients represent various racial and ethnic groups, such as Latin Americans, Asians, Pacific Islanders, people of African descent, people of Middle Eastern descent, and the indigenous peoples of North America, as well as deeply tanned individuals of all backgrounds.

At Venus Concept, we are dedicated to helping you achieve both superior patient outcomes and dynamic financial results. In this report, we present the latest information on hair removal for patients with pigmented skin, and demonstrate how offering hair removal for a wider range of skin types can be a key tactic in growing your aesthetic practice's patient base.

<sup>1</sup> American Society for Aesthetic Plastic Surgery, *2016 Cosmetic Surgery National Data Bank Statistics*. Retrieved from <https://www.surgery.org/sites/default/files/ASAPS-Stats2016.pdf>

<sup>2</sup> Transparency Market Research (2017, October 18), *Hair Removal Market to Gain a Value of US \$1.35 Billion by the End of 2022 Globally*. Retrieved from <https://globenewswire.com/news-release/2017/10/18/1149031/0/en/Hair-Removal-Market-to-Gain-a-Value-of-US-1-35-Billion-by-the-End-of-2022-Globally-Transparency-Market-Research.html>

## UNDERSTANDING SKIN TONES & HAIR

Historically, laser hair removal entailed more risk for those with darker or tanned skin because of the potential for damage to the epidermis. Dark skin absorbs more of certain energy wavelengths and can act as a target for the laser. Some patients with darker skin tones experienced burns, and hyperpigmentation, and some even reported increased hair growth as a result.



## To understand why this happens, let's review the FACTORS THAT INFLUENCE SKIN COLOR

### MELANIN

Melanin is the most important component of pigmentation. It determines skin color for those with darker skin. Melanin is produced by cells called melanocytes. Melanin levels vary in different areas of the body, resulting in changes in pigment. For example, areas like the palms of the hands contain less melanin, so the skin appears to be a lighter tone.

Melanin plays a role in laser hair removal as the primary target of the laser light. When the melanin surrounding the hair follicle selectively absorbs the energy, hair growth is disabled.

### GEOGRAPHIC ORIGIN & UV EXPOSURE

Geography plays an important role in determining the level of pigmentation in a person's skin. People who live or have ancestors who lived close to the equator often have darker complexions, while those who are farther away from the equator tend to have lighter complexions. Ultraviolet (UV) radiation is stronger closer to the equator because the sun is closer. Even already dark-skinned people may become darker when they spend more time in the sun.<sup>3</sup>

Tanning and lifetime sun exposure also affect skin color. Any baby regardless of genetics is usually much lighter than its parents. Only when the child is exposed to the sunlight does darker skin develop. In fact, melanin production peaks only after a child has reached puberty.

### GENETICS

Genes play a strong role in determining an individual's skin color. Melanin presence is an inherited trait, and several genes regulate melanin production processes. Within racial groups, there is also a wide variation of skin tone. Children generally have skin tones between those of their parents.

On the other hand, skin also tends to become lighter with age and older individuals may have blotchy patches due to changes in pigment cells.

Skin color is most commonly classified by professionals using the Fitzpatrick scale, which evaluates how skin responds to UV light. The categories range from Type I (always burns, never tans) to Type VI (never burns, never tans).

<sup>3</sup> Barsh, G. S. (2003). What Controls Variation in Human Skin Color? Retrieved from *PLoS Biology*, 1(1), e27. <http://doi.org/10.1371/journal.pbio.0000027>



## FACTS ABOUT DARKER SKIN TONES & LASER HAIR REMOVAL

Lasers have been in use in medicine for decades, but their application for hair removal only took hold in the 1990s. Early laser treatments were typically very slow and painful, and they only worked on people with dark hair and fair skin.

Today, four types of lasers are generally used for hair removal, each employing a different medium to amplify optical power. Because hair grows in cycles, multiple sessions are needed to reduce hair regrowth, regardless of laser type.

Deep penetration of the energy improves melanin absorption and protects the epidermis. As the melanin chromospheres absorb heat, it destroys the follicle's root and blood flow, disrupting or disabling hair growth.

A comparative study in 2005 of different laser types for hair removal found the best results were obtained with diode laser technology using a sophisticated cooling system that increased safety.<sup>4</sup>

A 2015 comparative study of lasers for removing dark hair from darker skin tones in female patients who experienced male-pattern hair growth concluded that diode laser treatments offered optimal results (92 percent hair reduction after eight sessions) compared to Nd:YAG treatments (90 percent efficacy) and intense pulsed light (IPL) treatments (70 percent efficacy), a non-laser method. However, the study stressed the importance of pre- and post-treatment cooling treatment with diode laser treatments, and found fewer side effects with Nd:YAG treatments.<sup>5</sup>

The study found diode laser technology is most effective for mature, dark hair, though the results were less reliable when treating lighter, finer hair. Diode laser treatments also covered large areas and had a fast repetition rate, allowing for the quick treatment of larger body areas.

Long-pulsed Nd:YAG hair removal treatments can be used with all types of skin, including tanned skin. According to the same 2015 comparative study, these treatments can also be used on large areas with rapid repetition rates, but they entail more discomfort and were less effective when treating fine and light hair.

### RUBY LASERS

The ruby laser was the first type of laser used for hair removal. It has become less popular as more effective technologies have been developed. This laser is indicated for people with dark hair and light skin that falls within Fitzpatrick types I-III. Because ruby lasers have a narrow light beam, more and longer sessions are needed to obtain results.

### ALEXANDRITE LASERS

The alexandrite laser works on a wider combination of skin tones and hair colors and is also effective on coarse hair. Alexandrite lasers are among the fastest lasers available, with rapid pulses. This laser is most effective on people with light to olive-toned skin that falls within Fitzpatrick types I-III.

### DIODE & Nd:YAG

These remaining two laser types offer safe and effective results for light- and dark-skinned patients with Fitzpatrick skin types I-VI. This is because these lasers use wavelengths that penetrate more deeply into the skin, which reduces the amount of energy absorbed by the epidermis relative to the hair follicle.



Practical notes on

# DIODE & Nd:YAG HAIR REMOVAL

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Pulse duration is also an important consideration with laser hair removal treatments for patients with darker skin tones. A longer pulse duration, or pulse width, improves safety because the energy is delivered over a relatively longer period of time than a shorter pulse duration. The ideal pulse duration for hair removal is more than 10 ms to protect the epidermis but less than 100 ms to effectively target the hair follicle.<sup>6</sup>

Shorter wavelengths and pulse durations can damage the epidermal

layer and result in post-inflammatory hyperpigmentation (PIH), which appears as a darkening of the skin, or even hypopigmentation which refers to the lightening of the skin, as a response.

It's essential that treatment providers do a test spot on patients before performing a full treatment. Providers can use different levels of intensity to evaluate, but should always ensure that they remain within the parameters recommended by device manufacturers. Providers should take care to observe the

skin's reaction after 48 to 72 hours, as pigmented skin is often delayed in showing a response. Only after this initial test spot and delay can treatment providers be sure that they can safely begin complete laser hair removal treatments.

When treating darker skin tones, it may be necessary to employ a lower setting. In all cases, laser devices that are designed with cooling features, both pre- and post-treatment, are recommended to protect the skin from discomfort and excess heat.

<sup>4</sup> Saleh, N., et al (2005). Comparative study between ruby, alexandrite and diode lasers in hirsutism. *Egyptian Dermatology Online Journal*. 1:1-10

<sup>5</sup> Puri, N. (2015) Comparative Study of Diode Laser Versus Neodymium-Yttrium Aluminum: Garnet Laser Versus Intense Pulsed Light for the Treatment of Hirsutism. *Journal of Cutaneous and Aesthetic Surgery*. 8(2):97-101. doi:10.4103/0974-2077.158445

<sup>6</sup> The Dermatologist (2008, September 4), *Laser Hair Removal Challenges*. Retrieved from <https://www.the-dermatologist.com/article/2112>

# CONCLUSION

The advent of longer wavelength lasers is helping more patients obtain safe and effective hair removal. Many clients with darker skin tones may not be aware that, with the right laser and under the care of a knowledgeable practitioner, previous contraindications no longer need to be an obstacle to their treatment.

Individuals with tanned skin and with a wider range of Fitzpatrick skin types represent a significant expansion of the traditional hair removal market, and aesthetic practitioners should be prepared to serve this patient base. If you would like advice and support on how to position your practice to better serve the laser hair removal needs of your full market, we invite you to get in touch with Venus Concept.

**TO LEARN MORE,  
CONTACT US AT**

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