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## GentleYAG™ Hair Removal for All Skin Types

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### Introduction

Removal of unwanted hair has been a challenge from almost the beginning of time. Over the years, a number of methodologies have been developed to address this universal problem, including shaving, depilatories, electrolysis and lasers. These methods have been met with varying degrees of patient and provider satisfaction in terms of safety, efficacy, cost, convenience and permanency. The popularity of laser hair removal has grown significantly in recent years, primarily due to its ability to indefinitely delay hair re-growth. Unfortunately, while the problem of unwanted hair is common enough, the advantages of laser hair removal have not always been available to all, given the limitations of single wavelength lasers to optimally treat all skin types.

Because of the relatively high concentrations of epidermal melanin in dark skin (melanin is the target chromophore of the hair follicle), laser hair removal has proven challenging in Fitzpatrick skin types V and VI. Failure to protect the skin from the epidermal absorption of the laser energy can result in adverse reactions such as burning, blistering, pigmentary alterations and scarring.

The purpose of this paper is to report on the safety and efficacy of using the GentleYAG 1064 nm wavelength laser with the Dynamic Cooling Device™ (DCD™) to remove hair on both light and dark skin type patients, with equal efficacy and convenience.

### Method

Having been pleased with the clinical results achieved using the GentleYAG in Fitzpatrick skin types V and VI, I decided to investigate the potential for successful hair removal in lighter skin type patients. I have treated several patients with Fitzpatrick skin type I-III with the GentleYAG, using a 3 ms pulse duration, 12 mm spot and typical settings of 50-60 J/cm<sup>2</sup>, and a DCD setting of 40 with a delay of 50. Typical treatment parameters for darker skin patients with the GentleYAG range from 20-40 J/cm<sup>2</sup>, 3 ms pulse duration, 12 mm spot, and DCD settings of 40-60 spray duration/40-60 spray delay.

### Results

During treatment, patients reported a moderate degree of pain, which was alleviated by application of an instant cooling pack. Immediately after laser impact, hair was observed to be vaporized. In treatment of the beard area, this vaporization was so brisk that vaporized hair was observed to be completely removed from the follicle in many areas and many extruded hairs were observed on the patient's shirt. Perifollicular edema and erythema followed a brief time interval after laser impact and was observed to become more prominent post-treatment.

The degree of perifollicular edema in lighter skin type patients was prominent and similar to the degree seen in dark skin type patients; however, perifollicular erythema was clinically more visible in the light skin type patients.

Clinical results at early follow-up show significant growth delay and hair reduction. These patients will be followed to determine long-term clinical outcome.

## Discussion

The challenge of laser hair removal in pigmented skin is to maximize follicular and perifollicular melanin absorption of the laser energy while avoiding epidermal injury. Ideally, lasers of different wavelength are used to treat varying skin tones. A single wavelength laser is inherently limited in its ability to treat all skin types, as optimal treatment parameters to treat lighter skin are decidedly different than those used for darker skin types.

Despite an FDA clearance to do so, the GentleYAG laser from Candela is not typically promoted for treating “All Skin Types.” Candela’s original GentleLASE alexandrite laser has long been considered the “gold standard” in laser hair removal, with a parameter set clearly optimized for skin types I–IV; the GentleYAG was introduced recently to facilitate treatment of darker skin types, particularly types V and VI.

Therefore, I was pleasantly surprised at the efficacy noted with the GentleYAG on my light skinned patients as well as my darker patients. GentleYAG efficacy on darker skin types has been well documented and the results reported in this paper for skin types V and VI individuals are typical. However, I was impressed with the amount of perifollicular erythema and edema achieved

with the GentleYAG on the lighter skin type patients reported on here (albeit at higher fluences than could be tolerated by a darker skin type patient). Discomfort was noted to be greater with the GentleYAG in these patients but was well tolerated without a topical anesthetic.

In fact, because wavelength, pulse duration and spot size are fixed on the GentleYAG, adjusting the treatment parameters for dark skin patients versus light skin patients is straightforward—only the fluence needs to be changed to maximize treatment efficacy. Further investigation is required to determine the optimal fluence in lighter skin type patients. It is possible that lower fluences than described in this paper will be equally effective, thus reducing discomfort of treatment.

An important part of the GentleYAG’s ability to treat “all skin types” is Candela’s proprietary cryogen cooling device (DCD) that works to prevent any temperature increase in the skin as a result of laser energy absorption by the epidermal melanin. The advantage of using of DCD is that this protection is delivered consistently and uniformly with every laser pulse, not only providing additional protection to the skin but also increasing the patient’s comfort.

The GentleYAG with DCD has been shown to be effective in removing hair in dark skin type patients as well as a light skin type patients at the parameters indicated in this study.

*Light Skin*



**Figure 1—Immediate Post-treatment**



**Figure 2—4 Weeks Post-treatment**

*Dark Skin*



**Figure 1— Immediate Post-treatment**



**Figure 2—4 Weeks Post-treatment**

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