

## Information on Fractional Resurfacing with the PEARL™ FRACTIONAL Laser

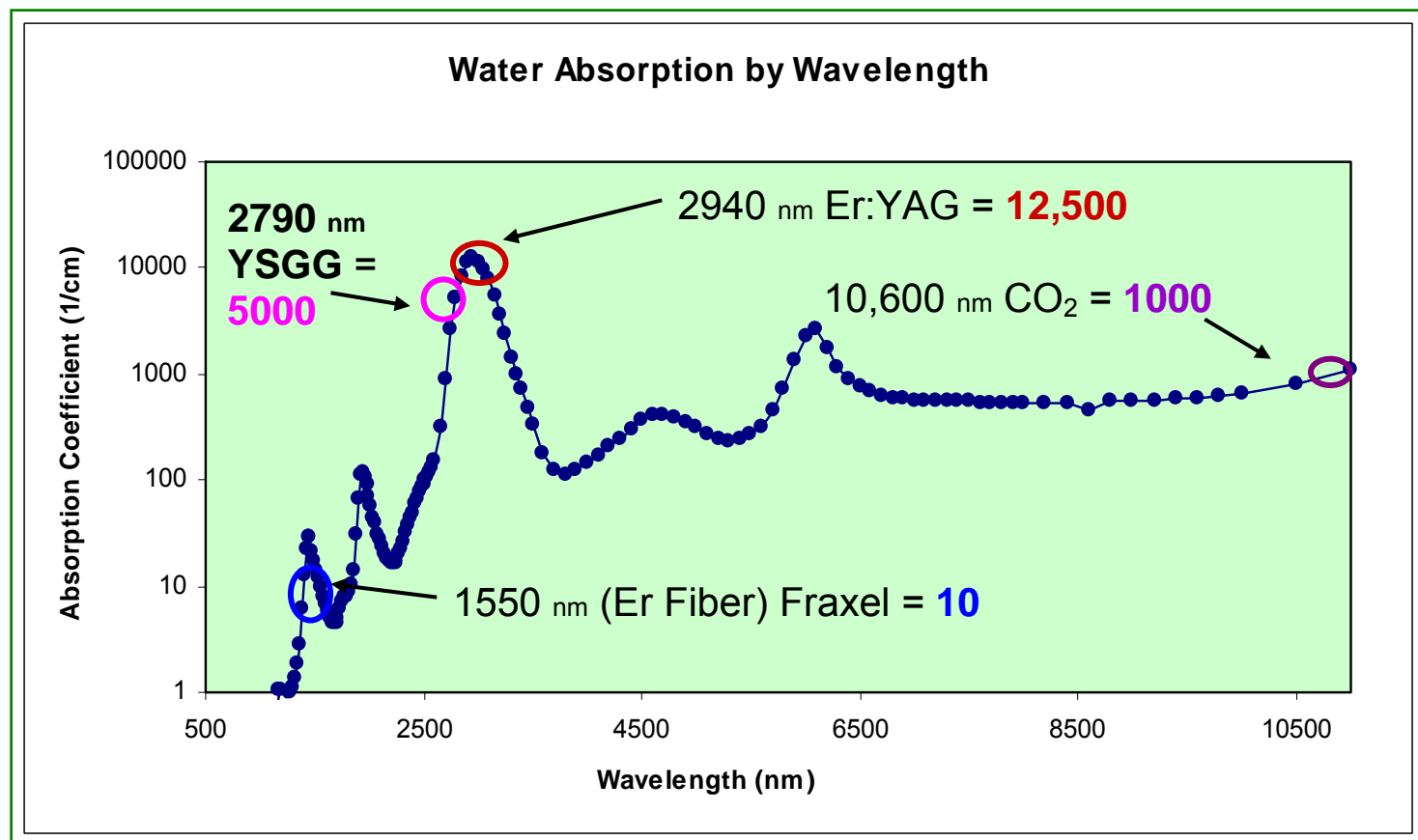
There is a growing demand among patients and practitioners for a more effective treatment to address wrinkles and uneven texture while minimizing the recovery time. Utilizing a unique (2790nm) wavelength the Pearl Fractional laser provides the technology to meet these demands – maximizing the cosmetic benefit while reducing the downtime. The *brand new* Cutera® Pearl Fractional laser is a fractional, single treatment solution for the improvement of a variety of skin conditions, including dyspigmentation, photoaging, lines and wrinkles, enlarged pores, irregular skin texture, and acne scarring.

### **Ablative vs. Non Ablative Resurfacing**

Until recently, two types of light sources have been available for resurfacing: “Ablative” and “Non-ablative”. Ablative laser resurfacing is achieved by a controlled vaporization of the epidermis and/or dermis, using water as the target chromophore. The evolution of ablative laser treatments began with the CO<sub>2</sub> laser which demonstrated dramatic improvements in skin texture, skin tightening, and wrinkle reduction. The CO<sub>2</sub> laser creates a significant zone of thermal damage in the epidermis and dermis, providing aggressive tissue ablation and collagen remodeling, but requires involved post-treatment wound care, prolonged redness and downtime, and the risk for pigmentation changes. The desire for a treatment with less downtime led to the development of the Erbium:YAG laser. This technology offered an improvement in the recovery, but demonstrated only superficial ablation and little thermal benefit for collagen remodeling.

Non-ablative lasers and light sources, such as the pulsed dye laser, intense pulsed light (IPL™), and the Nd:YAG laser, treat skin conditions without removing or disrupting the skin surface. The healing response in the thermally injured dermis produces new collagen and repairs tissue defects associated with photoaging. Non-ablative treatments may improve skin texture, fine lines and wrinkles, dyspigmentation, dilated capillaries, redness and rosacea. These treatments have very few side-effects and involve minimal downtime, but require numerous treatments over many months to achieve only modest results.

The objective of Cutera’s Pearl technology is to develop a synergy between ablation and thermal impact -- maximizing the benefits of tissue ablation while minimizing the downtime. The goal is to provide an effective treatment to address lines and wrinkles, uneven skin texture, discoloration, and acne scarring with a shorter recovery period.

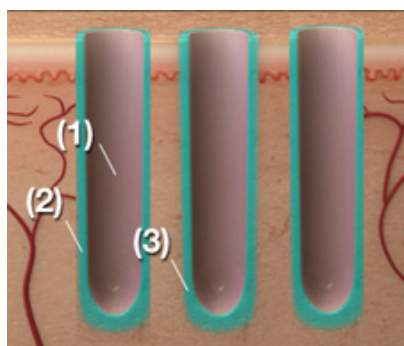


The Cutera Pearl Fractional is a mid infra-red Er:YSGG (Erbium:Yttrium Scandium Gallium Garnet, 2790nm) laser. The 2790nm wavelength of light is strongly absorbed by water and water-bearing tissue, such as the skin. Applying this specific wavelength of light by way of a laser pulse can easily heat and ablate tissue, making the YSGG laser effective for aesthetic procedures. The unique YSGG crystal generates a wavelength (2790nm; Abs. = 5000) which has a water absorption coefficient between that of the Erbium:YAG (2940nm; Abs. = 12,500) laser and the CO<sub>2</sub> (10,600nm; Abs. = 1000) laser. And the Pearl Fractional's water absorption coefficient is 500 times that of the non-ablative Fraxel laser (Erbium fiber, 1550nm; Abs. = 10).

### “Fractional” Resurfacing

The Pearl Fractional employs the new concept in laser resurfacing known as “fractional” photothermolysis. Fractional photothermolysis means a portion of the skin is treated by the laser, while a portion of the skin remains untreated. This fractional laser treatment selectively removes columns of tissue leaving the surrounding skin intact. In this manner, only a portion, or “fraction”, of the skin is treated in any given session. This treatment shortens healing time and stimulates the body's own natural process for creating new collagen, plumping the skin from below and reversing photo aging and other imperfections.

The Pearl Fractional creates a matrix of thousands of microscopic laser spots, each 300µm (microns) in diameter, surrounded by untreated normal skin. These laser spots are deep microscopic columns of ablated tissue extending through the epidermis into the dermis.



YSGG Micro-columns

- [1] Deep dermal ablation ( $\leq 1$  mm)
- [2] Thermal coagulation reduces operative bleeding and helps with collagen production and remodeling
- [3] Controlled thermal damage and minimal necrotic tissue, combined with fractional treatment, improves healing time

Just as important, however, are the areas of skin that are left untreated. For every column of ablation the Pearl Fractional laser creates, it leaves the surrounding skin unaffected and intact. This “fractional” treatment allows the skin to heal much faster than if the entire skin surface were treated at one time. The process removes sun-damaged tissue and then stimulates the growth of healthy, new skin, full of fresh collagen. In most areas, dermal collagen remodeling occurs to depths of 700 microns or more. By design, each Pearl Fractional laser treatment session usually targets between 16% and 24% of the skin's surface.

Whereas conventional ablative laser resurfacing treats the entire skin surface (removes the entire epidermis and varying thicknesses of dermis) and creates a full open wound, the Pearl Fractional laser does not disrupt the entire skin surface -- providing the benefits of less discomfort and downtime, faster healing without prolonged redness, an extremely low risk for infection, scarring, and hypopigmentation, and no need for general anesthesia. The Pearl Fractional laser is a safer device that is well tolerated, but still achieves long term results.

The Pearl Fractional simultaneously targets the epidermis for pigment, texture, and tone; and the dermis for pigment, collagen remodeling, and resulting dermal thickening. Pearl Fractional treatments have shown significant improvements in age spots and sun damage, skin texture, acne scarring, and lines and wrinkles. Patients with light-to-medium skin tones (skin types I – III) and skin imperfections due to aging, sun damage, and acne scarring will benefit from a Pearl Fractional treatment. Pearl Fractional allows us to treat patients we could not help as effectively before -- particularly those with acne scarring and deeper lines and wrinkles. We can now treat the textural changes of facial aging that are not adequately addressed with surgery, Botox<sup>®</sup>, or soft tissue fillers.

There has long been a need for a short downtime, single-treatment approach that *effectively* treats diffuse facial photoaging, especially the perioral (around the mouth) and periorbital (around the eyes) areas; these areas often show the first signs of aging and can be the most challenging to treat. This is the strength of the YSGG 2790nm wavelength. The Pearl Fractional can safely and predictably treat the sun damage, dermal imperfections, and lines/wrinkles in the perioral and periorbital areas with an expected recovery time of less than one week.

## **Pearl Fractional® Treatment**

Treatment is accomplished with the use of topical anesthesia and an external air cooling device for patient comfort; supplemental oral medication and local anesthetic is sometimes required. Studies demonstrate that an effective treatment regimen is one (or two) Pearl Fractional treatments. Results are immediate and progressive. Improvement continues over weeks and months as your skin continues to produce new collagen in the treated area, producing longer beneficial changes associated with a healthy, youthful appearance. Many patients have a Pearl Fractional treatment in combination with other cosmetic therapies, such as intense pulsed light (IPL), Laser Genesis, Botox and soft tissue fillers.

The Pearl Fractional laser is FDA approved for soft tissue coagulation, skin resurfacing procedures, the treatment of acne scarring, the correction of periorbital lines and wrinkles, and for pigmented lesions, including age spots, sun spots and skin discoloration.

Fractional resurfacing cannot quite treat deep lines and wrinkles as well as ablative laser resurfacing or the deepest peels; but what the Pearl Fractional does accomplish is a smart approach to resurfacing without the risk and "downtime" that is associated with these other treatment modalities. The limited downtime is very favorable, but is not zero.

- Following treatment, patients will experience a mild to moderate windburn or sunburn sensation and swelling. Most swelling is gone in several days and most redness subsides over 5-7 days.
- Cleanse the treated area with a mild soap and lukewarm water twice daily, and blot dry. Follow with a light application petrolatum. Reapply the petrolatum dressing to maintain continuous coverage. Continue this treatment until healing has occurred.
- Soak the treated area with a dilute acetic acid solution 4 to 8 times per day to reduce redness and oozing, and to speed healing.
- After healing has occurred, you may apply a light moisturizing and healing lotion several times per day to avoid dry skin and provide additional protection.
- Make-up may be applied after the majority of the treated skin has sloughed, and as long as the skin is not broken or crusted. Women are usually able to apply makeup about five or six days after treatment.
- Please do not expose the treated area to the sun. Sun exposure may cause additional skin irritation and significantly increases the risk for post-treatment hyperpigmentation. Be sure to use sunscreen (broad spectrum UV-B and UV-A SPF 30) to protect your skin from sun exposure during both the healing phase and for several months after treatment. For added protection, use wide-brimmed hats and protective clothing when in direct sunlight.
- If you have a history of cold sores we recommend prophylactic treatment with Valacyclovir [Valtrex®] 1000mg 1 tab orally for five days, beginning two days prior to the Pearl Fractional treatment and continuing until two days after the treatment.
- One (sometimes two) treatments are necessary to achieve the desired reduction in pigment, redness, sun damage, scarring, and wrinkles, and individual results will vary. Healing time also varies from person to person. We are confident you will see improvement of your skin texture shortly after the first treatment.

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If you have any questions please feel free to contact our office at **414-443-0033**. Learn more about the Pearl Fractional by visiting our website.



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