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Multi-Use Laser Systems Tackle Myriad Skin Concerns

Physicians are constantly exploring new and more efficient ways to innovatively apply their existing systems to achieve improved outcomes with less patient pain and minimal downtime. Recently, two well established non-surgical, laser-based devices — both time tested with numerous clinical studies proving their effectiveness — have been shown to work safely and efficaciously in combination, producing superior results for a wide-range of skin and pigmentary concerns.

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Energy-Based Solutions for All Skin Types
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Fraxel and Clear + Brilliant Treatments Yield Improved Outcomes

By Jeffrey Frentzen, Executive Editor

Over the past several years, only a handful of energy-based devices have consistently retained their value as non-invasive treatment options for patients seeking non-surgical solutions. Of that short list, top dermatologists and aesthetic practitioners have reported exceptional outcomes utilizing two systems from Solta Medical, a division of Valeant Pharmaceuticals North America (Hayward, Calif.). First is the venerable Fraxel® laser-based platform, which comprises a series of popular energy-based technologies and is widely considered the gold standard in aesthetic lasers. Second is the Clear + Brilliant® low-level laser for 'finish work' and ongoing skincare maintenance.

"Most patients try non-surgical procedures before considering surgery," expressed Roy G. Geronemus, M.D., director of the Laser & Skin Surgery Center of New York and clinical professor of dermatology at New York University Medical Center in New York City, N.Y. "There is significant, growing demand for these procedures, particularly when they are effective, safe and reproducible with manageable downtime."

Therapies that combine Fraxel and Clear + Brilliant procedures are popular with all age groups, Dr. Geronemus added. "We treat Millennials, Gen X and Baby Boomers seeking skin rejuvenation, fixes to acne scarring and surgical scar treatments, removal of wrinkles, fine lines, photodamage and some pigmentary disorders."

For instance, the Fraxel DUAL® system offers 1550 nm erbium fiber and 1927 nm thulium fiber lasers in a single platform utilizing both ablative and non-ablative techniques. The fractional laser resurfacing technology treats only a portion of the skin's surface, leaving most of the skin unaffected. Treatment creates tiny columns of injury in the skin, known as microscopic treatment zones (MTZs) due to the coagulation effect of the laser. Approximately 1,000 to 2,000 MTZs are created per each centimeter squared.

These zones retain an intact stratum corneum and are surrounded by untreated skin, which allows the safeguarding of melanocytes and stem cells in the papillary dermis. This results in a rapid healing of the treated sites with improvements in skin firming and tightening via reconstruction and contraction of collagen fibers.

By only treating a portion of the skin, the downtime and risks are decreased, but the treatment depths can actually be greater. For instance, the Fraxel 1550 nm, non-ablative Erbium "cold" laser can deliver pulse energy of up to 70 mJ per MTZ, but causes very little peripheral damage when creating those zones.

It is possible to customize the number of MTZs to each patient by adjusting the system's energy level and density settings, with a depth of penetration up to 1.4 mm. In this way, the 1550 nm wavelength can successfully treat the more severe signs of sun damage, mild to moderate wrinkles, surgical scars, stretch marks and pitted acne scars. Usually, multiple sessions are recommended, with some of the results visible soon after treatment. These improvements continue for approximately three to six months following the procedure.



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"We treat Millennials, Gen X and Baby Boomers seeking skin rejuvenation, fixes to acne scarring and surgical scar treatments, removal of wrinkles, fine lines, photodamage and some pigmentary disorders."



Before Tx



One month after third Fraxel 1550 Tx
Photos courtesy of Solta Medical Aesthetic Center

The 1927 nm wavelength produced by a thulium laser addresses uneven pigmentation, sun damage and other skin concerns. A combination of both wavelengths can be used for deeper penetration in order to repair scars and/or wrinkles, and superficial penetration to improve skin texture and tone. When the two wavelengths are used together the process is accelerated.

Another in this family of devices, the Fraxel re:pair, is FDA cleared for the treatment of wrinkles and fine lines, rhytides, furrows, textural irregularities, pigmented lesions and vascular dyschromia. It includes a Fractional Deep Dermal Ablation (FDDA™) handpiece with a 135 µm spot size, which allows for tissue contraction, tightening and collagen remodeling.

Fraxel re:pair SST is the latest iteration of the Fraxel laser system. In addition to the FDDA handpiece, it also offers the Fractional Micro-Dermal Ablation (FMDA™) handpiece, which yields significant improvement in texture, tone, pigment and fine lines. The Fraxel re:pair SST also includes two non-fractional handpieces for ablative and surgical needs.

"We use all of these Solta devices extensively on a daily basis," noted Dr. Geronemus. "With this variety of Fraxel lasers we can provide unique and reproducible outcomes for our patients."

Utilizing the same fractional laser technology as the Fraxel devices, but at lower energy levels, the non-invasive Clear + Brilliant diode-based system comes in two varieties. The Clear + Brilliant original handpiece is designed for proactive skincare and upkeep, delivering energy at 1440 nm with 140 µm spot sizes. A newer version of this system, Clear + Brilliant Perm a includes both diode and thulium lasers, operating at 1440 nm and 1927 nm, respectively, and was designed to be used in combination with topical cosmeceuticals and as part of an ongoing maintenance program.

All of these devices employ Solta's Intelligent Optical Tracking System™ (IOTS), a unique, patented fractional energy delivery modality that works to adjust the laser's various controls and parameters to ensure a uniform treatment.

Dr. Geronemus noted, "I had the first commercial Fraxel device in the world upon its release over ten years ago. I have performed clinical trials with the original Fraxel and the subsequent Fraxel DUAL, re:pair and the Clear + Brilliant lasers."

In Dr. Geronemus' view, the Fraxel DUAL is best for tightening. "You achieve a mild to modest tightening from this system, particularly on the neck. The Clear + Brilliant is for those patients looking for some freshening of the skin. We use it for melasma and post-inflammatory hyperpigmentation, as well," he said.

"Keep in mind that there are various types of Fraxel lasers," Dr. Geronemus continued, "both ablative and non-ablative, providing a variety of therapeutic options based on the device and wavelength chosen."

For Paul M. Friedman, M.D., a dermatologist and director of the Dermatology & Laser Surgery Center in Houston, Texas, "People with acne scarring or traumatic

scars, mild-to-moderate photo-aging, pore size issues, stretch marks, dyschromia, wrinkles, fine lines and certain pigmented birthmarks are best treated using Fraxel lasers."

The Fraxel DUAL platform is a very versatile system, Dr. Friedman added. "This is an essential laser in our practice. IOTS technology allows the delivery of consistent results and the addition of the 1927 nm wavelength has been particularly effective in treating enlarged pores and many types of dyschromias caused by sun exposure. I commonly utilize both 1927 nm and 1550 nm wavelengths during treatment sessions."

At Waldorf Dermatology & Laser Associates in Nanuet, N.Y., dermatologist Heidi A. Waldorf, M.D., has long considered Fraxel DUAL to be a game changer. "It continues to be one of the most used devices in my office," she reported. "Most of the women I see between 30 and 60 years old have significant sun damage of the neck and chest in addition to the face," she said. "They want to improve the color and texture. Obviously, we aren't distinguishing pigment in that way clinically, but that's the visual effect, and there's no obvious transition between treated and untreated areas."

In addition, Fraxel can improve hooding of the upper eyelids, "By a few millimeters," Dr. Waldorf stated. "Often times this will allow patients who are hesitant to undergo surgery, to postpone a blepharoplasty."

Using the Fraxel laser, Dr. Waldorf addresses mild-to-moderate solar elastosis, including lentiginos along with the common fine-to-moderate rhytides. "It does a good job with crêpey skin texture, particularly around the eyelids," she said. "I don't see medical dermatology patients so I don't use it specifically for actinic keratosis; however, it definitely reduces the number of those precancerous lesions in my patients that have photodamage."

The Fraxel 1550 nm laser improves acne scars and striae, "However, it takes a longer series of treatments than for the other indications I just mentioned, Dr. Waldorf pointed out. "It is also a last resort for melasma, even though there's a risk of hyperpigmentation with any procedural therapy for melasma."

Dr. Waldorf described a patient for whom she removed lower eyelid filler placed by another practitioner. "Afterwards, I was able to tighten and smooth the skin using Fraxel. With limited downtime and the ability to treat on and off the face with consistent results, using Fraxel was a no brainer. I frequently combine Fraxel with Q-switched Nd:YAG for very high patient satisfaction. Patients that have never considered themselves to have 'good skin' tell me they suddenly get compliments on their complexion. Then they send their friends and family."

Dr. Friedman found that the Fraxel 1550 nm wavelength allowed him to treat all skin types, including Fitzpatrick skin types IV through VI. "I lessen the laser's coverage in order to avoid post-inflammatory hyperpigmentation, for instance. This has been an advantage of the Solta technology, because we can now treat



Acne scars before Tx



One month after three Fraxel DUAL 1550 treatments
Photos courtesy of Paul M. Friedman, M.D.



Acne scars before Tx



One month after five Fraxel 1550 treatments
Photos courtesy of Z. Rahman, M.D.



Before Tx



One month after three Fraxel 1550 treatments
Photos courtesy of J. Ting, M.D.

a patient population that we haven't been able to safely perform resurfacing on in the past," he stated.

In addition, "Widespread Solta brand recognition is helpful," Dr. Friedman shared. "Most patients have a basic understanding of Fraxel laser technology prior to their consultation."

Patients are comfortable during the procedure, Dr. Friedman emphasized. "We use topical numbing cream, and the device itself features a built-in Zimmer Cooling system, which utilizes cold air to directly chill the skin where treatment is occurring."

Dr. Friedman was also an early adopter of Clear + Brilliant. "I've had extensive experience successfully utilizing both the Fraxel and Clear + Brilliant devices to safely treat a variety of indications in all skin types and across all body surfaces," he said.

Houston, where Dr. Friedman practices, "may be the most ethnically diverse city in the country," he said. "We see a lot of ethnic skin. It's not uncommon for those folks to suffer some kind of dyschromia, which has been a challenging condition to treat. With some resurfacing devices you might end up delivering too much heat, and for a patient with darker skin you could exacerbate their condition. Clear + Brilliant delivers reliable results. I've used it to treat people with melasma or post-inflammatory pigmentary changes associated with acne. In those cases, I don't want to apply too much heat to the skin. With Clear + Brilliant I can treat these patients more gently."

This system is also ideal for people who want to take proactive steps in maintaining healthy and rejuvenated looking skin, Dr. Friedman advised. "Clear + Brilliant targets only the surface dermal layers, which results in quicker healing time for patients that don't want the downtime they might experience with Fraxel treatments."

In Dr. Waldorf's office Clear + Brilliant occupies a prized position. "It fits in neatly with the Fraxel laser," she said. "It is ideal for the patient who doesn't have enough damage to warrant a full Fraxel treatment, or for the patient who has had a series of Fraxel treatments and now wants to maintain those results," she expressed.

This unit is also suitable for patients that need skin texture and color improvement, Dr. Waldorf continued. "Clear + Brilliant is not for skin tightening, though. Skin tightening is a great side benefit of Fraxel treatments, in which a single session can significantly tighten the eyelids, and a series of sessions can achieve overall tightening."

Even so, Dr. Waldorf refers to Clear + Brilliant as, "'Baby Fraxel.' Treatments take 15 minutes and rarely require topical anesthetic," she noted. "In my practice, patients should primarily receive a series of four to six treatments at two to four week intervals, or one to two month intervals as maintenance to continue improving the appearance of pores and fine lines."

Dr. Waldorf utilizes the Clear + Brilliant Perm ea handpiece, as well, to increase the skin's penetrability of cosmeceuticals and topicals. "This helps patients that

have plateaued on a skincare regimen. They can get more bang for their buck from the topicals that they use," she said.

According to Vic A. Narurkar, M.D., F.A.A.D., dermatologist and owner of Bay Area Laser Institute in San Francisco, Calif., who has used Fraxel lasers for over ten years, Clear + Brilliant has been a mainstay in his practice. "I find it to be a very safe and effective laser for all skin types," he said. "It widens the pool of patients for skin resurfacing, including people that want to follow a preventive approach, such as younger patients who have started to show signs of photo-aging that is not severe enough to warrant the Fraxel DUAL. Also, Clear + Brilliant is our go to laser for therapy resistant melasma."

The lower level power delivery is beneficial for patients with Fitzpatrick skin types IV and higher, Dr. Narurkar added. "Treating darker skin types with the Fraxel laser requires lower fluences and treatment densities; however, all skin types can be easily treated with Clear + Brilliant. Also, there is no need to pre-treat darker toned Clear + Brilliant patients with lightening agents."

While there may be no need for these agents, Dr. Friedman noted successful outcomes when combining topical skin lightening products with Clear + Brilliant treatments. "Typically, we do this to enhance results," he stated. "Also, I commonly employ the device in combination with a pulsed dye laser to target underlying telangiectases."

Combination therapies have also been successful for Dr. Narurkar. "I will often combine the Clear + Brilliant laser with BOTOX Cosmetic and fillers, except deep placed fillers, on the same day," he said. "Patients love the immediate effects of facial injectables, as well as the gradual improvements shown in skin rejuvenation. These modalities are truly complementary. Conversely, for Fraxel patients, I stage BOTOX and filler injections after the patient has completed their Fraxel treatments."

Beyond patient-related benefits, the Clear + Brilliant provides operator comfort, as well. "The handpiece is ergonomic and easily maneuverable," Dr. Narurkar added. "The preset treatment settings allow for simplicity during procedures, and it is transportable. Even patients like the sleek design."

Both Fraxel and Clear + Brilliant devices are best in class, Dr. Narurkar stated. "I have tried most of the competitive fractional lasers and the Fraxel brand is clearly the best for several reasons. The IOTS technology and random pattern scanning allows for even delivery of the laser energy, unlike stamping which can lead to skipped areas and uneven results. In addition, Fraxel has maintained its position in the market with enhanced patient comfort and the largest amount of FDA cleared indications, not to mention all the studies in peer-reviewed publications."

In Dr. Friedman's experience, Fraxel and Clear + Brilliant lasers have provided an exceptional return on investment. "The consumables are very affordable and unlike many laser companies that disappear after you have purchased a laser from them, Solta maintains the relationship with you, with excellent customer service and very reliable technology." ■



Before Tx



Two weeks after four Clear + Brilliant Perm a treatments
Photos courtesy of Solta Medical Aesthetic Center