

Lasers in Facial Esthetics and the Center for Advanced Rejuvenation and Esthetics Part 2 of 2

by Drs. Richard Miron and Michael Kanter

The use of lasers for facial esthetic procedures has seen a long history of use since the 1960s.¹ While originally clinical procedures and indications were limited to ablative therapies, over the past decade widespread use has been observed owing to technological advancements. Today, over 150 commercially-available lasers exist on the market for various indications including scar revisions, pigmented lesions, vascular lesions, hair removal, facial resurfacing, facial rejuvenation, fat ablation and laser lipolysis. This article does not aim to provide in-depth knowledge on the topic but instead wishes to present uses of laser therapy in facial esthetics. Much like platelet concentrates, laser therapy offers an all-natural regenerative strategy to facial tissues.¹

While CO₂ lasers were first utilized as extensive ablative therapies with long downtimes, modern developments of newer and more frequently utilized wavelengths have seen widespread. In the 1990s, the Erbium:YAG laser (Er:Yag) was introduced demonstrating a positive role in skin resurfacing, especially for mild skin pigmentation, facial wrinkles and acne scarring.² Furthermore more recently, their use as non-ablative fractional lasers have been developed with much shorter recovery periods. The use of the Neodymium:YAG laser (Nd:Yag) is a deeper penetrating laser that may be utilized to stimulate tissue regeneration and or ablate/attract to pigmented lesions. Several indications for laser therapies are reported below.



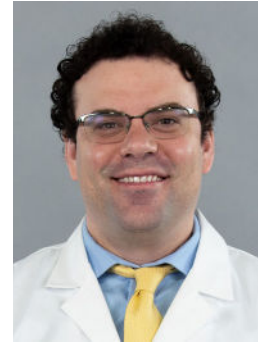
Figure 6 Laser peel with the Fotona laser system; see QR code.

Laser peels³

While chemical peels have been utilized for decades as a resurfacing agent aimed at removing the upper epithelium, the use of laser peels offers a much more controlled and precise ablative therapy whereby a peel can be obtained very simply in a controlled and precise manner. These have been the basis of a growing trend towards resurfacing treatments using the Er:Yag laser. **Figure 6** demonstrates a video of a laser peel being performed with the Fotona laser system, which offers the only Er:Yag/Nd:Yag dual wavelength laser system available on the market to date.



Dr. Kanter



Dr. Miron

Pigmented Lesion/Mole Removal

To effectively treat pigmented lesions, a good diagnostic and histopathological classification of the lesion is necessary. With this information, the lesion can effectively be categorized according to the depth of the target pigment distribution: epidermal, dermal, or a combination of both.⁴ The success of the Q-switched (QS) lasers in the realm of pigmented lesions is based on the ability of these lasers to selectively target melanosomes situated within melanocytes and keratinocytes. The melanosome-specific damage is due to the absorption of high-energy, nanosecond laser pulses.^{5,6} Long-pulsed lasers in the millisecond domain can also be used to target epidermal and dermal pigment found in larger clumps such as those in nested melanocytes or confluent melanin in the epidermis.⁷ Alternatively, for superficial lesions, the Er:Yag can be utilized to ablate superficial age spots as presented in **Figure 7**.

Hair and Vein Removal

In 1996, Grossman et al. described hair removal with a laser by selective photothermolysis of hair follicles using a normal-mode ruby laser. As with other laser therapies, novel laser sources were thereafter introduced.⁸ The target is the melanin pigment present in the hair bulbs. The purpose is to destroy the bulb that leads to permanent epilation. Only the bulbs that are in the anagen phase are destroyed. In the catagenic and telogenic phase, the hair gradually detaches itself from the bulb. For this reason, the melanin chromophore cannot serve as a selective leader to atrophied target cells. Similarly, the Nd:Yag can be utilized to target veins. **Figure 8** demonstrates the use of the Fotona laser targeting both hair and vein removal.

Intraoral rejuvenation of deep nasolabial folds and Marionette lines

Within the past decade, advancements in laser therapy, largely pioneered by Dr. Harvey Shiffman in Boynton Beach Florida, have revolutionized the ability to treat deep nasolabial folds and Marionette lines via intra-oral laser rejuvenating procedures. Thus, the Smoothlase, Necklase and Liplase protocols have been developed as mainly intraoral laser rejuvenating procedures, which take advantage of the benefits of both the Er:Yag and Nd:Yag wavelengths to tighten skin, improve elasticity, skin tone and texture in a minimally invasive manner (**Figure 9**). Most recently this concept has even been extended for the shrinkage of the soft palate for sleep apnea treatments.⁹ First, the Nd:YAG laser is utilized to tighten collagen and pre-heat the tissues to 40 degrees centigrade. Thereafter, the Er:YAG laser using a proprietary "Smoothmode" pulse technology (Proprietary to Fotona) is used as a burst of pulses offered in a short series of time creating deep heating, conversion and immedi-

ate tightening of collagen. The advantages of sending these bursts of energy via intra-oral applications include the better ability for the laser energy to penetrate into nasolabial/Marionette tissues owing to the thinner mucosal tissue when compared to the epithelial of skin. Furthermore, intraoral application offers fast downtimes with no visible notice of any treatment having been performed.



Figure 7: Mid 40-year old woman with apparent sun damage living in Florida. Treatment was done with an Er:Yag laser to remove sites of hyperpigmentation. Note the pronounced improvements before and after treatment (QR code demonstrating age spot removal using the Fotona Lightwalker).

Adapting Facial Esthetic Procedures in a Dental Practice*

One of the key questions commonly asked has been the ability to adapt facial esthetic procedures within a dental practice. Owing to our perceived need to separate both dental and facial esthetics components within our practice, we have successfully re-branded our facial esthetic procedures under the “Center for Advanced Rejuvenation and Esthetics” (CARE Esthetics) to support our growing marketing effort towards the community specifically in facial rejuvenation as opposed to our standard dental office name “Lakewood Ranch Dental.” By doing so, greater efforts could be placed on understanding the procedures with a dedicated website and marketing material describing their regenerative potential. Owing to the growing success within our practice in Sarasota, many colleagues have shadowed within our office where we have training programs geared towards teaching/facilitating other dentists and colleagues who wish to adapt similar procedures within their offices (www.prfedu.com/followtheexperts). Following completion of adequate training, dentists in other cities are able to join CARE Esthetics and perform similar all natural and safe facial esthetic procedures within their cities and join our national branding efforts at www.care-esthetics.com/locations.

*Paragraph reprinted from the July 2021, issue.

References and CE Questions are on page 19.

Figure 6



Figure 7



Figure 8: QR codes highlighting the use of laser therapy for (A) vein removal and (B) hair removal. Both can be achieved using laser therapy with ease.

Figure 8A



Figure 8B



Figure 9



Figure 9: Image of an intraoral laser rejuvenating procedure, which take advantage of the benefits of both the Er:Yag using a PSo4 handpiece (Fotona). Advantages include better ability to penetrate into the nasolabial fold region, reduced downtime and non-apparent therapy since the entire procedure may be performed intraorally (QR code demonstrating Smoothmode application intraorally).



Dr. Richard Miron is currently lead educator and researcher at Advanced PRF Education and an Adjunct Visiting Faculty in the department of Periodontology in Bern, Switzerland. He has currently published over 300 peer-reviewed articles and lectures internationally on many topics relating to growth factors, bone biomaterials and guided bone regeneration. For the past 5 years, Dr. Miron has been recognized by *Dentistry Today* as being one of the top 100 CE providers in the country and the youngest to ever make the list. He has recently been awarded many recent international prizes in dentistry and is widely considered as one of the top contributors to implant dentistry, having won the ITI Andre Schroeder Prize and the IADR Young Investigator of the Year in the field of Implant Dentistry, as well as the IADR Socransky Research award in the field of Periodontology (2020). He has written 5 textbooks widely distributed in regenerative dentistry, including his best-seller in 2019 titled: “Next Generation Biomaterials for Bone and Periodontal Regeneration” and “Understanding Platelet Rich Fibrin” in 2021. Dr. Miron is in practice at Lakewood Ranch Dental and the Center for Advanced Rejuvenation and Esthetics in Sarasota, Florida.

Dr. Michael S. Kanter was born and raised in Miami, FL. After completing his tour of duty in the armed services, he received a Bachelor of Science degree in chemistry from the University of Florida and graduated from the UF College of Dentistry in 1982. Dr. Kanter subsequently completed his residency training at the Jacksonville Health Education Programs. He opened his first dental practice Sarasota, FL in 1984, and later established a second practice in Bradenton and his newest state of the art office in Lakewood Ranch, FL. Dr. Kanter is a graduate and fellow of the prestigious Misch International Implant Institute and has also been awarded Diplomate Status in the International Congress of Oral Implantology.

Dr. Kanter has extensive training in bone grafting, dental implants, cosmetic restoration, and facial esthetics. Currently, under the name “CARE” Esthetics (Center for Advanced Rejuvenation and Esthetics), Dr. Kanter works with Dr. Rick Miron training other doctors in the use of lasers and PRF (platelet rich fibrin). These cutting-edge treatments are setting the standard for 100% all-natural facial rejuvenation.

Florida Focus Self-Instruction Exercise 09212, 1 CE Credit Esthetics, Subject 780

1. The use of lasers for facial esthetics began in the _____.

- A. 1960's
- B. 1970's
- C. 1980's
- D. 2000's

2. Indications for the use of lasers in facial esthetics include all the following except _____.

- A. facial resurfacing
- B. removal of pigmented lesions
- C. tissue augmentation
- D. fat ablation

3. The Erbium:YAG laser is a non-ablative fractional laser which requires longer healing times. The Neodymium:YAG laser allows more superficial penetration to stimulate tissue regeneration.

- A. Both statements are true.
- B. The first statement is true; the second is false.
- C. The first statement is false; the second is true.
- D. Both statements are false.

4. Characteristics of laser peels compared to chemical peels include greater _____.

- A. precision
- B. speed
- C. healing time
- D. ablation

5. In the treatment of pigmented lesions, Q-switched (QS) lasers selectively target melanosomes within _____ and _____.

- A. erythrocytes, endothelial cells
- B. melanocytes, cyanosomes
- C. keratinocytes, melanocytes
- D. eukaryotes, keratinocytes

6. In hair removal, the target is the hemoglobin pigment present in the hair bulbs. The purpose is to destroy the hair bulb, leading to permanent epilation.

- A. Both statements are true.
- B. The first statement is true; the second is false.
- C. The first statement is false; the second is true.
- D. Both statements are false.

7. During hair removal, only bulbs in the _____ phase are destroyed.

- A. catagenic
- B. anagen
- C. anakin
- D. telogenic

8. The Smoothlase, Necklase, and Liplase protocols allow deep nasolabial folds and Marionette lines to be treated as _____ procedures.

- A. ablative
- B. intraoral
- C. mesotherapeutic
- D. fractional

The 10 questions for this exercise are based on information in the article, "Lasers in Facial Esthetics." Reading the article and successfully completing this exercise will enable you to:

- understand the contemporary use of lasers for facial esthetic procedures;
- recognize the advantage of an all-natural regenerative strategy; and
- appreciate the variety of esthetic procedures which can be performed with lasers.

Please email your answers with your name and AGD number to flaggeditor@gmail.com. 80% of the answers must be correct to receive credit. Answers for this exercise must be received by December 31, 2021.

9. Advantages of the Smoothlase, Necklase, and Liplase protocols include all the following except one. Which is the exception?

- A. They require only the Er:YAG laser.
- B. They have better penetration into the nasolabial fold region.
- C. They require a shorter healing time.
- D. There is no visible evidence of treatment during healing.

10. More than _____ types of lasers are commercially available today.

- A. 50
- B. 100
- C. 150
- D. 200



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