THE JOURNAL OF ANTI-AGING AND COSMETIC INNOVATIONS

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Widespread consumer interest in aesthetic procedures is on the rise, as innovations continue to enter the market making treatment options safer, more effective, and with less downtime to meet consumer demands. There is no question that consumers are more motivated to seek

they want a combination of customizable treatments that may include neurotoxins, dermal fillers, skin rejuvenation, peels and lasers, in addition to more invasive

When analysts look at the aesthetics market around the world, they divide it

order of importance. Injectable Products (neurotoxins, dermal fillers) are the largest

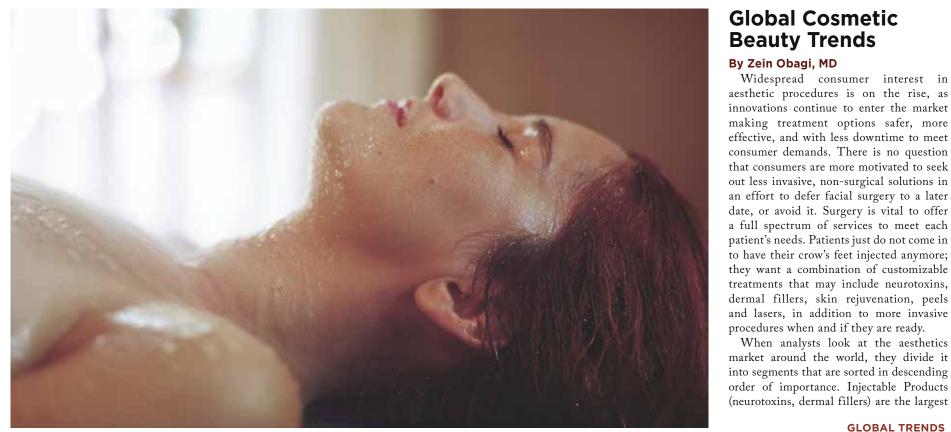
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Innovative technologies, topical agents and delivery systems are attracting consumers

## **Breakthroughs in Noninvasive Medicine Reshaping Aesthetics Practice**

By Robert Stephen Mulholland, MD, FRCS

The Aesthetic medical space in the United States alone has grown to become a \$15 billion dollar industry, driven by our patients' desire to look good and feel good. This unique world of aesthetic medicine is driven by excellent patient outcomes, in turn driven by the talent, experience, judgment and excellence of physicians and cosmetic extenders that comprise the aesthetic providers. The combination of artistic skill with a scalpel and a needle has been coupled with technology, the kind of technology that has allowed patients to reshape their figures, enhance their skin, remove or restore their hair, all without surgery. This is the space of noninvasive medicine and scalpel-free

enhancements that have opened the door for all consumers to look and feel their best with minimal risk, recovery or downtime. In this article, I will outline some of the most exciting technology breakthroughs of the past two years.

#### **INJECTABLES**

Injectable therapy, the use of Botox<sup>™</sup> and its sisters  $\mathsf{Dysport}^{\textsc{tm}}$  and  $\mathsf{Xeomine}^{\textsc{tm}},$ heralded in a revolution of minimally invasive facial enhancement. The recent approval of the soft tissue Juvederm Voluma<sup>™</sup>, in a new area with Botox<sup>™</sup> and fillers combined, can provide long-term control of facial animation and volume loss. The 3 D's of aging (deflation, descent and deterioration) have brought fractional lasers, radiofrequency (RF) tighteners, Intense Pulsed Light (IPL) and Botox to the forefront of the treatment Dr. Robert Stephen Mulholland

of descent and deterioration; however, long-term correction of deflation, the loss of youthful fullness had lacked longterm, "off-the-shelf" options that could easily be offered by providers, who are

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**GLOBAL TRENDS** 

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## insights

#### BREAKTHROUGHS continued from page 1

both surgically and nonsurgically trained. Juvederm Voluma<sup>™</sup> has changed all of that. A simple hyaluronic acid gel, with unique cross linking, this filler is neatly packaged with local anesthesia and can be injected into multiple deflated facial zones to provide volume corrections lasting up to two years. Injected with blunt microcannulas, Voluma<sup>™</sup> can be deployed with little bruising, swelling or pain and provide excellent longterm improvement. Combined with Botox, lasers and RF, properly selected patients can look five to seven years younger without surgery.

#### **BODY CONTOURING**

The permanent reduction of unwanted fat, can now be treated with modest success without liposuction. The



Figure 1. Juvederm Voluma™ is used to volumize the brow rolls, cheeks and jawline, combined with Botox<sup>™</sup> and Fractional CO<sub>2</sub>

appearance on the market of nonsurgical "fat killers" now allows patients the opportunity to permanently reduce 11/2 inches (4 cm) or more of localized unwanted fat without a painful surgical procedure. Zeltiq<sup>™</sup> or Coolsculpting<sup>™</sup>, which freezes localized fat of the abdomen and hips, was one of the first technologies to enter the US market. Most recently, the painless UltraShape<sup>™</sup>, which uses gentle, pulsed, focused high frequency ultrasound waves to melt fat of the tummy, hips and outer thighs, was also approved, as was the BodyFx<sup>™</sup>, which uses high voltage electrical current to accomplish the same goals. Most successful practices will use one, or increasingly a combination or two of more of these technologies, to shape the figures of



Figure 2. The use of the new UltraShape™ (HIFU), BodyFX<sup>™</sup> (Electroporation) and Zeltiq<sup>™</sup> can now permanently reduce unwanted localized fat, like the tummy and hips above, to improve contour and shape without liposuction.

patients who desire modest and permanent localized fat reductions without liposuction surgery.

#### HAIR REMOVAL

The laser management of unwanted hair, remains the most commonly performed cosmetic laser procedure in the United States. Permanent reduction has now been coupled with speed and a near painless experience with the introduction into the United States of the Vectus™ high speed 810 nm diode laser, the Diolaze<sup>™</sup> 810 nm scanned diode laser and the more established Light Duet<sup>™</sup>, allowing patients with light skin and dark hair to achieve permanent reduction of large zones (e.g., a full woman's legs or a man's back) in as little as four minutes. After five treatments, permanent reduction of unwanted hair or up to 50-75 percent can be achieved. Total body laser hair removal can be performed in 30 minutes!



Figure 3. High-speed laser hair removal with the new generation of Diodes can remove hair very quickly-on large zones like this back in under 5 minutes-relatively painlessly and with great efficacy

#### HAIR TRANSPLANTATION

With laser hair reduction has come "scarless" hair transplantation. The advent of high speed automated robotic hair transplant systems, such as the ARTAS® and the NeoGraft® allow physicians to harvest individual hair families, called follicular units with high speed, accurate, automated and robotic, rotary punches that leave no linear scar at the back of the scalp. These robotic and automated follicular unit extraction (FUE) systems are accurate and efficacious, and offer both men and women full, natural hair without the stigma of a visible strip graft scar at the back of the head. This linear "scarless" technique is rapidly replacing strip grafting as the procedure of choice.

#### **TATTOO REMOVAL**

There has been an exponential growth in the US of young adults getting tattoos. It has been estimated that more than 40 percent of young people in the US now have a tattoo and over 60 million Americans now sport "ink". Studies also show that approximately 29 percent of these patients have regret, which is spawning a huge laser tattoo removal industry. The problems with laser tattoos have been multiple treatments (often 8 to 14 treatments), incomplete removal of multicolored and dark tattoos and "ghosting" or lightening of the skin left behind after the tattoo has been treated. The advent of the  $\mathsf{Picosure}^{\text{TM}}$ has ushered in a new era of tattoo removal, where nearly complete tattoo removal (85 percent or better) can be accomplished in 50 percent fewer treatments, including multicolored ink and with less probability of "ghosting." The Picosure<sup>™</sup> uses a pulse duration that is 500-750 picoseconds, a trillionth of a second, which is so short that the photon creates an almost purely photomechanical effect on the skin, shattering any color or size of tattoo particle in digestible small fragments, allowing 85 percent comparable clearance of the tattoo in four to six treatments-less than the current long pulse duration nanosecond technologies-hence more than photothermal and photomechanical effects accomplish in twice the number of sessions. The more photothermal nanosecond Q-switched systems also appear to have a higher risk of hypopigmenation of the tattooed skin.

#### WRINKLE REDUCTION

The treatment of wrinkles and lax skin has become one of the fastest growing aesthetic markets and radiofrequency (RF) energy has led the charge. The advent of fractional-radiofrequency resurfacing systems, such



Figure 4. The use of automated and robotic FUE hair transplantation systems, such as ARTAS<sup>®</sup> and NeoGraft<sup>®</sup> is redefining the gold standard of hair transplantation. Patients can now get results without the deforming strip graft scar at the back of their donor occipital hair.

## insights



**Figure 5.** The Picosure<sup>™</sup> tattoo removal laser, with revolutionary picosecond pulse duration, now allows patients to get near complete recovery in half the number of treatments as existing tattoo lasers.

as the Fractora<sup>TM</sup> provide the wrinkle reduction of CO<sub>2</sub> as well as the tightening of the nonablative RF systems. These procedures are performed under topical and local anesthesia and can now take years off the appearance of the skin, with a modest degree of downtime. The advent of nonablative RF systems, such as the VenusFreeze, Exilis and the temperature controlled Forma<sup>TM</sup>, can now provide nonablative, no downtime skin tightening to be performed. Internal radiofrequency, also called "Injectable RF," has also been introduced into the US market. The product, called ThermiRF<sup>TM</sup>, uses temperature controlled, small silicone coated RF needles to deliver discrete RF energy to coagulate localized structures, such as the nerve to the glabellar corrugators for long-term reduction of frown lines.

Recent developments, which afford the capability to put laser fibers or small radiofrequency probes under the skin that can heat the deep surface of the reticular dermis while measuring and controlling skin temperature, allow us to stimulate profound skin contraction. Peer-reviewed articles show up to 17 percent contraction and then the skin can be simultaneously treated with fractional resurfacing leading to significant skin tightening and results similar to excisional procedures in selected patients.

#### IN CONCLUSION

It is an exciting time to be an aesthetic physician and never before has the marriage of technology, dexterity and artistry been more important! New technologies have afforded aesthetic physicians the opportunity to offer their patients elegant solutions to formerly difficult to treat cosmetic problems. The total US aesthetic market has now reached a staggering \$15 billion per year in procedural fees and fully 82 percent of this money is spent on nonexcisional aesthetic procedures. High tech devices and injectables are leading the way in this "aesthetic renaissance," making the access to cosmetic enhancement more democratic-no longer the domain of the uber wealthy-and allowed physicians many diverse backgrounds, most nonsurgical, to offer an array of services and compete effectively with the more traditional excisional procedures and physicians. With 83 million North American baby boomers and anticipated doubledigit growth in the aesthetic market place, it is a good time to be a doctor offering these services! 🔊



**Figure 6.** New radiofrequency resurfacing technology, such as the Fractora<sup>M</sup> can deliver Fractional CO<sub>2</sub> type wrinkle reduction as well as skin tightening, which can lead to very significant single treatment results for aged, sun damaged, wrinkled, and lax skin.



**Figure 7.** Patient treated with a temperature controlled, subdermal heating system (Facetite<sup>™</sup>) under the neck and jawline skin and a simultaneous fractional radiofrequency resurfacing (Fractora<sup>™</sup>) on top of the skin, for now excisional inside out and outside in skin tightening and rejuvenation.

**R. Stephen Mulholland, MD, FRCS**, is a board certified plastic surgeon, who has a private practice in Toronto, Canada. Dr. Mulholland is one of the world's leading authorities on aesthetic technology innovations in aesthetic medicine and he hosts cosmetic technology workshops around the world.

**EDITOR'S NOTE:** This article by Dr. Stephen Mulholland serves as an introduction to key noninvasive treatments, including injectables, body contouring, hair removal, hair transplantation tattoo removal and wrinkle reduction. In future issues, we will explore each of these topics in greater depth. We seek both related case histories and technology stories. Contact, Sherry A. Boyd, sherryb@pcinews.com or 303-476-1336.

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### UPCOMING EVENTS

**Seminar** - Transform Your Practice - Chicago, IL: Saturday August 16 2014 | 8:30am to 5:30pm

**Dinner**– Transform Your Practice - Houston, TX: Thursday August 21 2014 | 6:30pm – 9:30pm

**Seminar** – Transform Your Practice - Dallas, TX: Saturday October 18 2014 | 8:30am – 5:30pm

The Aesthetic Show - Las Vegas, NV: July 10-13 2014 | The Wynn Resort - Booth #539/541

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