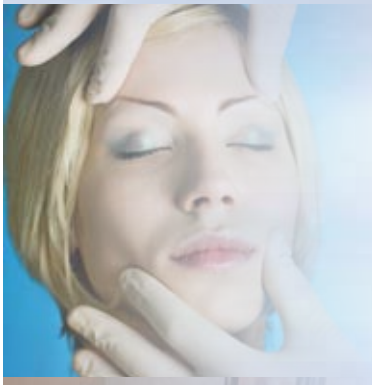
Aesthetics *Section*

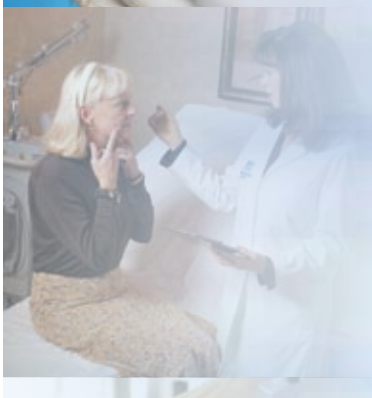
The Aesthetic Medical Industry has grown rapidly over the last few years and is predicted to continue to increase. As our population grows older, more individuals are seeking solutions to the signs of aging. As these consumers search for ways to erase time, they are turning to the health-care professionals they know and trust, such as their family physician, gynecologist, or even dentist. Studies have shown that fewer individuals are visiting plastic surgeons for non-invasive procedures but turning to physician run spas and other medical specialties. This has led to physicians seeking education and expertise in the area of Aesthetic Medicine.

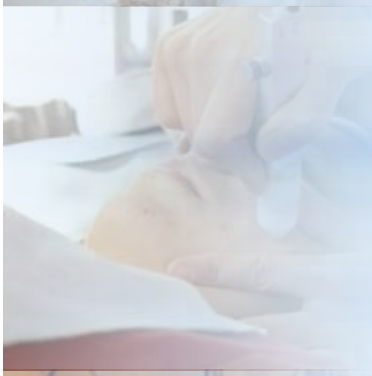
The American Academy of Anti-Aging Medicine has recognized this need and has responded by the creation of the Aesthetic Fellowship Program to educate our members on these new areas of patient service and practice income. In conjunction with this, we are pleased to present this addition to the Anti-Aging Medical News, "The Aesthetic Section". This section is devoted to the latest scientific and commercial information related to Aesthetic Medicine. You will find not only scholarly articles, but editorials by the leading aesthetic companies describing their latest breakthroughs in the field.

As we look towards the future, Aesthetic Medicine will only continue to grow, leading to advancements in technology, devices, products, and treatments. We can expect that the best is yet to come and the American Academy of Anti-Aging Medicine will continue to be at the forefront by providing its members with the most up-to-date, state-of-the art advancements in Aesthetic Medicine.

Thank you for your continued support,
A4M Marketing Staff







AESTHETIC ANTI-AGING Redefines the

AESTHETIC ANTI-AGING FELLOWSHIP & CERTIFICATION
Redefines the Practice of Aesthetic Medicine

The American Academy of Anti-Aging Medicine and The Ageless Aesthetic Institute proudly presents the Aesthetic Anti-Aging Fellowship, a comprehensive medical education series in Aesthetic Medicine theory and hands-on procedural clinical experience.

Six Part Series of Lecture, Live Demonstration, & Hands-On Procedural Training and Evaluation in the following aesthetic treatments:

- Botulinum Toxin A Injections
- Facial Filler Injections
- Aesthetic Laser and Light Treatments
- Aesthetic Venous Treatments
- Body Contouring Techniques
- Chemical and Mechanical Resurfacing
- Cosmeceuticals

Earn up to 115 AMA/PRA Category 1™ Credits plus Level 4 Certification in accordance with American Medical Association guidelines for continuing medical education in New Procedures and Skills. Participants leave program certified competent to perform aesthetic procedures without supervision.
Certification Process consisting of a written evaluation exam and an oral case study presentation.

Fellowship Attendees Enjoy:

- Non-biased, evidence-based medical curriculum
- Individualized hands-on procedural learning on live models
- Education and advice from leading experts in Aesthetic Medicine
- Practice development tools
- Best practices for patient selection, pre and post treatment precautions, informed consent, treatment alternatives, complication prevention and management, and the need for specialist referral

The Ageless AESTHETIC INSTITUTE
Defining & Elevating the Practice of Aesthetic Medicine

The Aesthetic AntiAging Fellowship

A4M AMERICAN ACADEMY OF ANTI-AGING MEDICINE

FELLOWSHIP AND CERTIFICATION
Practice of Aesthetic Medicine

Course Completion Guidelines and Curriculum

The three module lecture series will be held at the A4M World Congresses in Orlando, San Jose, and Las Vegas. Each module will feature a two-day or three day lecture, discussion, and live demonstration program:

Module I: Advanced Facial Sculpting and Contouring with Botulinum Toxin A and Facial Fillers
Module II: Aesthetic Treatments Utilizing Lasers and Light
Chemical and Mechanical Exfoliation
Cosmeceutical Additives
Module III: Aesthetic Venous Treatments
Body Contouring

The three module intensive hands-on clinical training series will be offered at The Ageless Aesthetic Institute locations throughout the US and Canada:

Module IV: Facial Injectables
Module V: Aesthetic Lasers and Light
Module VI: Sclerotherapy
Body Contouring
Chemical and Mechanical Exfoliation

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through joint sponsorship of the Foundation for Care Management (FCM) and The Ageless Aesthetic Institute (AAI). FCM is accredited by the ACCME to provide continuing medical education for physicians. FCM has verified that a physician may earn up to a total of *59 AMA/PRA Category 1 Credits™* by completing the Level 4 classification course, and is competent to perform the procedure without further supervision, in accordance with AMA guidelines for continuing medical education on new procedures and skills.
This activity has also been planned and implemented in accordance with the Essential Areas and Policies of the ACCME through joint sponsorship of the Medical Educator Consortium and the Aesthetic Anti-Aging Fellowship. MEC is accredited by the ACCME to provide continuing medical education for physicians. MEC has verified that a physician may earn up to *56 AMA/PRA Category 1 Credits™*

Become one of the first Fellowship Trained in Aesthetic Medicine by contacting
The American Academy of Anti-Aging Medicine at 800-558-1267
www.worldhealth.net • www.aestheticantiagingfellowship.com

The Body Sculpting REVOLUTION:

Sharon McQuillan, MD

More than ever, the public is bombarded with images of the perfect body. The effects of age, childbirth, sedentary lifestyles, poor eating habits, and stressful work schedules all contribute to the struggle to maintain the ideal figure. The desire for the perfect body has resulted in an explosion of products, devices, and procedures designed to eliminate cellulite, melt fat, and restore youthful body contours. The body contouring market, comprised of cellulite reduction, fat reduction, and skin tightening devices, was estimated at over $180 million in 2007.[1] It is estimated that this market will continue to experience continued growth as Americans continue to struggle with weight and obesity.

The gold standard for fat reduction continues to be body sculpture. The general public recognizes the effect of invasive intervention. According to the American Society of Aesthetic Plastic Surgeons 2007 Statistics on Cosmetic

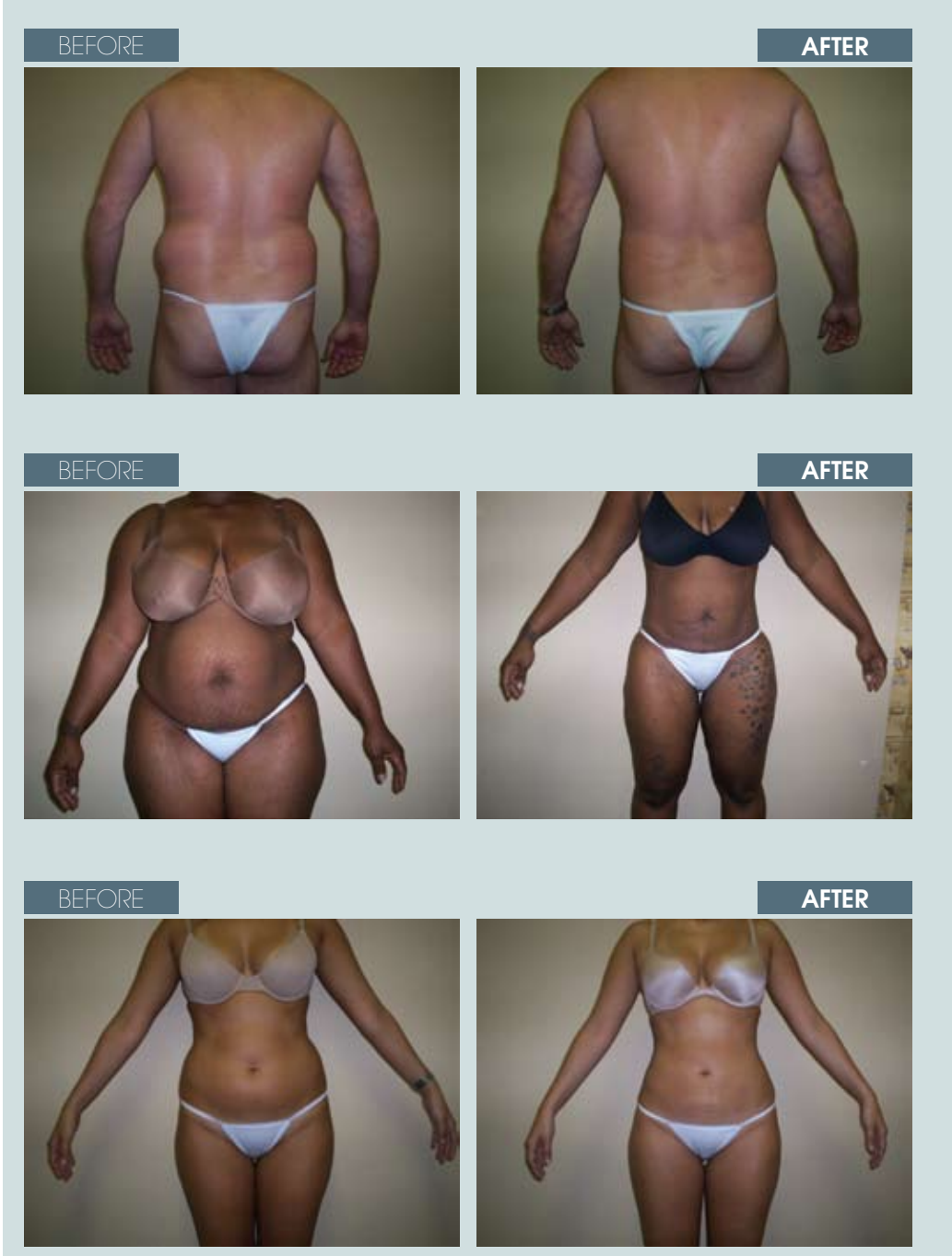
Surgery, lipoplasty was the #2 surgical procedure for women and the #1 surgical procedure for men. The fat reduction market currently offers many devices and methods including laser lipolysis, power-assisted liposuction, ultrasound-assisted liposuction, traditional (suction-assisted) lipoplasty, and syringe body sculpture.

Suction-assisted liposuction, better known as traditional liposuction in the US, is a procedure designed to remove unwanted fat deposits using a cannula attached to a suction device that "vacuums" the fat from the body. At the onset of liposuction, general anesthesia was used, which accounted for most of the adverse events reported. The procedure has since evolved from general anesthesia to the tumescent technique.

Power-assisted liposuction employs a motorized cannula, which allows the instrument to move in a back and forth vibration motion. Some of the noted benefits of power-assisted liposuction over traditional liposuction is an increased rate of fat extraction, decreased bruising and swelling, and faster recovery.[2] It also results in less control of the sculpting for the physcian. It is recommended that the basic technique of body sculpture is mastered before moving forward with a power-assisted device.

Laser assisted lipolysis utilizes a specific laser wavelength (1064 nm, 1319 nm, or 1320 nm Nd:YAG) that targets either the red blood cells or water in the fat cell. The laser energy dissolves the fat, which may or may not be then suctioned out of the body using a cannula. Laser lipolysis is indicated for small, localized fatty deposits and is recommended as an adjunctive procedure to liposuction. It is imperative that the physician be a skilled liposuction surgeon prior to utilizing laser lipolysis.

Ultrasound-assisted liposuction utilized ultrasonic energy to disrupt the fat cells and liquefy the fat, which is then suctioned out of the body. This technique has been associated with complications such as seroma, burns, and tissue necrosis.[3] It is recommended that ultrasound-assisted liposuction be used as an adjunct to liposuction for fibrous tissue areas or as a touch-up mechanism.[4]



The experts in the field agree that for the best results, these device driven techniques need to be utilized in combination and that before offering these procedures to patients, some form of body sculpture technique must be mastered. In order to better understand the evolution of body contouring, body sculpture should be examined in its purest form.

BACK TO BASICS: BODY SCULPTURE IN ITS PUREST FORM

According to Pierre Fournier, MD, one of the founding fathers of body sculpture, "bodysculpture is a modeling of the contours, a real artistic job of architecture bound to restore the juvenile and harmonic forms of the face or body by working with the hypodermic fatty tissues." Tumescent bodysculpture combines

the local anesthetic infiltration of dilute lidocaine and epinephrine (developed by Jeffrey Klein, MD) with subcutaneous fat removal via a small cannula or syringe. This technique is shown to be the safest method of BodySculpture with the fewest complications. Dr. Fournier used the suction technique for a short time period but discovered that his results were better utilizing the syringe technique and has done so since 1985.

The safety and benefits of performing bodysculpture utilizing the tumescent technique include: minimal blood loss, long-lasting anesthesia that allows the patient to remain awake during the procedure, fewer infections due to the antibacterial properties of the tumescent solution, and less risk of adverse events such as pulmonary embolism or hemorrhage.[5]

There are many benefits of utilizing syringe BodySculpture over procedures utilizing a device. "The use of the syringe allows for more control and precision in sculpting the body," said Dr. Alberto Sant Antonio, developer of the SA BodySculpture technique. Dr. Sant Antonio has performed over 2500 syringe body sculpture procedures. "The use of the syringe allows accurate measurement of the fat removed resulting in better aesthetic results. Additionally, this technique results in less trauma to the adipose tissue, lessening the amount of bruising and recovery time than experienced with device assisted liposuction." This method also enable physicians to perform serial debulking procedures for patients who normally are not candidates for traditional liposuction. "The serial debulking procedure empowers the patient and gives them the motivation to exercise and work toward maintaining their new figure'" comments Dr. Sant Antonio.

BodySculpture can be performed safely and performed on most areas of the body including the abdomen, thighs, hips, waist, flanks, arms, calves, ankles, neck and facial areas. By utilizing the tumescent technique, patients are awake, but comfortable during the procedure. BodySculpture is performed in a sterile, in-office operatory procedure room utilizing proper surgical protocols and precautions. Patients undergo a physical examination, medical history, laboratory work, and photographs as part of the consultation process. The procedure itself takes approximately two hours. Post procedure, patients experience a short recovery period of 24-48 hours in which walking and light activity are encouraged. Patients are seen 3-5 days post procedure. After BodySculpture, patients receive a series of lymphatic drainage/suction treatments using the Synergie device in order to enhance results and promote tissue tightening. Patient satisfaction is extremely high with this technique, as it offers a permanent solution to targeted fat reduction.

LEARNING BODYSCULPTURE

The mechanical technique of BodySculpture itself is not difficult to learn. There is, however, a learning curve from simply learning the mechanics to mastering the results. BodySculpture is an artistic, three-dimensional body contouring technique requiring a thorough understanding and visualization of ideal body form. It is not a technique that can be mastered by observation or at a weekend course.

It was these issues that caused Sharon McQuillan, MD, founder and medical director of The Ageless Aesthetic Institute, to search for a procedure and develop a program that would allow physicians the opportunity to master the technique. The Institute has been training medical professionals for over ten years in cosmetic procedures and is known for its commitment to educational excellence and competency certifications that the Institute provides for all the courses offered. "In developing a BodySculpture course, it was very important that we utilize the safest techniques with the best aesthetic outcomes. We also wanted a way for physicians to gain competency in the procedure with a qualified preceptor following initial training."

Drs. McQuillan and Sant Antonio have accomplished this in the Ageless SA BodySculpture program. The program is a multi-faceted innovative program designed to address all areas of procedure implementation, including education, operations, and marketing.

The education portion of the program consists of three educational modules. Unlike most programs, which only offer weekend training and no support, Ageless SA BodySculpture has implemented a preceptorship program whereby a preceptor will be provided on-site at the attendee's practice. "The proprietary method allows for the sculpting of the entire body to restore youthful contours, as opposed to many other body sculpting methods, which are limited or best suited for specific areas. The education and preceptoring program will allow for attendees to extend their practice scope easily and effectively," comments Dr. McQuillan.

The operational aspect of the program includes a detailed forms and protocols package. A complete equipment and supply list is provided, and an on-site visit by compliance experts is provided to determine what steps are necessary to perform BodySculpture in the physician's location according to corresponding state and federal agencies.

Marketing support consists of website a trademarked-named procedure (PureLipo) which will provide patients and medical professionals with information regarding the procedure, as well as a listing of all the trained providers. Also included are patient brochures, print advertising templates, seminar presentation kit, and marketing calendar.

The Ageless SA BodySculpture program is open to physicians of all specialties meeting specific selection criteria. For more information regarding the Ageless SA BodySculpture program, please contact 800-420-2689 or visit www.purelipo.com or www.agelessaestheticinstitute.com. ◆

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The Fellowship in Aesthetic Anti-Aging Medicine

The American Academy of Anti-Aging Medicine (A4M) recognizes patient desires to merge optimal health with image enhancement in an overall plan for healthful living. For that reason, on Oct. 1, 2007, the A4M announced the establishment of a Fellowship in Aesthetic Anti-Aging Medicine. This fellowship was created in recognition of the need to establish best practice standards in aesthetic medicine. Completion of the fellowship will enable medical professionals to learn the theory of aesthetic health and procedures, to receive individualized, hands-on training in these procedures, and to be evaluated on competency to perform the procedures according to standards set by the Board.

The fellowship certification process will consist of a written exam and an oral exam of case studies, complete with before and after photos to ensure accurate evaluation. Potential patients searching for a highly competent physician to perform non-invasive aesthetic medicine can rest assured that a physician who has acquired this status is fully qualified to perform aesthetic medicine services.

DEVELOPMENT OF THE AESTHETIC ANTI-AGING FELLOWSHIP

The Aesthetic Anti-Aging Fellowship was developed to help define, elevate and standardize the practice of aesthetic medicine, primarily through an extensive evidence-based course curriculum, and hands-on procedural training courses offered to physicians and their medical staff in minimally invasive cosmetic procedures.

Currently, these procedures are not taught consistently in most residency programs. Aesthetic Fellowships are available for dermatologists and plastic surgeons; however, these fellowships cannot produce enough providers to meet the demand.

Due to the popularity and the revenue potential surrounding aesthetic medicine, many individuals are offering aesthetic procedures in non-medical settings with untrained, unqualified, and often unsupervised personnel. In some cases, this has resulted in adverse events for patients and legal troubles for the treatment providers involved.

At this time, the commercial vendors of these many devices and products provide most of the education in these procedures. Many of these training programs occur without proper physician supervision, appropriate licensure, liability insurance coverage, and patient follow-up. By establishing a formalized educational standard for aesthetic medicine, the A4M hopes to promote public awareness and safety.

WHY ATTEND THE AESTHETIC ANTI-AGING FELLOWSHIP?

Aesthetic medicine is receiving enormous attention. Many of the pharmaceutical companies are participating in direct-to-consumer marketing, the press is focusing on its potentials, and mainstream and cable television shows are touting its benefits. As a result, prospective patients are becoming more savvy and asking questions concerning the training and skills of the physicians they chose for these services. This course allows these practitioners to attain the needed training to practice safely and to perform quality care. It provides the appropriate skill training for the physician and medical professionals so no matter what other specialty training has been achieved, they will be educated in the many elements of quality aesthetic medical care including patient selection, pre- and post-treatment precautions, informed consent, treatment alternatives, and complication prevention and management for the most commonly performed aesthetic procedures.

"This is a great educational opportunity for treatment providers to successfully transition into performing high-quality procedures via a standardized, licensed, structured, non-biased, CME program that will be overseen by a board of physicians who are aesthetic practitioners," says Sharon McQuillan, MD, founder of the Ageless Aesthetic Institute in Columbus, Ohio, and course director. "Additionally, it supports patient confidence in the care of a physician through knowledge of his or her board certification in this specialty."

The Aesthetic Anti-Aging Fellowship is offered by the A4M in conjunction with the Ageless Aesthetic Institute. The A4M is a not-for-profit medical society that seeks to disseminate information concerning innovative science, research, and treatment modalities designed to prolong and enhance the human lifespan. Since the A4M's inception in 1992, founders Drs. Ronald Klatz and Robert Goldman have tirelessly promoted the subspecialty of anti-aging medicine and other cutting-edge developing medical subspecialties. The addition of the Aesthetic Anti-Aging Fellowship is a natural progression in the A4M's commitment to medical excellence and educational programs for medical professionals and their patients.

COURSE COMPLETION GUIDELINES AND INFORMATION

The Aesthetic Anti-Aging Fellowship is a six-part series consisting of a three-module lecture series and a three-module intensive, hands-on clinical training series in the following aesthetic treatments:

- Botulinum Toxin A Injections
- Facial Filler Injections
- Aesthetic Lasers and Light
- Aesthetic Venous Treatments
- Body Contouring Techniques
- Chemical and Mechanical Resurfacing
- Cosmeceutical Additives

TRAINING LOCATIONS

The lecture modules (I-III) will be taught at the Academy World Congresses in Orlando, San Jose and Las Vegas. The clinical portions (Modules IV-VI) will be conducted at Ageless Aesthetic Institute facilities in Columbus, Ohio, Seattle, Wash., and Sarasota, Fla.

CONCLUSION

Aesthetic medicine must be brought into conventional medicine first and foremost for the protection of the patient, but also to prevent and resolve areas of conflict and discussion. The lack of delineation of a clear body of knowledge, skills, training and an accompanying certification has led to many problems, such as turf wars, patient safety issues, threats of legislative regulations, and more. This fellowship, with its vision of uniform excellence and safety in the care of patients, brings to availability standards and qualifications that every aesthetic medicine professional should desire to achieve. ◆

810 nm Wavelength Optimized for Hair Removal in Soprano XL Laser Platform

By Kevin A. Wilson

The management of unwanted hair is one of the most popular aesthetic procedures. Women especially may feel their overall appearance will be enhanced with the removal of undesirable or excess hair from a variety of body locations including the upper lip, legs, underarm, and bikini area. And hormonal shifts due to aging may also stimulate hair growth, or promote hair growth in places where it was once virtually absent, such as the ears or nose or chest.

People traditionally turn to painful, time consuming, temporary solutions such as waxing, tweezing, depilatory chemicals, or electrolysis for hair removal. Laser- or light-based therapies do a better job, according to Edward M. Zimmerman, M.D., a Las Vegas based aesthetic practitioner and president of the American Board of Laser Surgery. Dr. Zimmerman's entire practice is based around laser- and light-based therapies. "According to the theory of selective photothermolysis,[1] some chromophores absorb particular wavelengths of light better than others, which means you can destroy unwanted tissue with wavelengths of light best suited for that chromophore without excessively harming nearby tissue." Laser energy targets melanin in the hair shaft and surrounding follicular epithelium more specifically. As a result, laser hair removal was the third most popular nonsurgical aesthetic modality in the United States in 2006.[2]

Light-based hair removal can be long term or even permanent, but hair and follicles are only vulnerable to this sort of attack during the growth phase. "Cells gearing up for growth or gearing down might die or be stunted, which isn't bad, but those outside of the growth phase won't be killed," said Dr. Zimmerman. Only a small percentage of hair is growing at any given time (depending on the body area) so permanent hair reduction requires several treatments over the course of one or two years. Because other techniques are more temporary and less effective, this isn't a major drawback.

Dr. Zimmerman stated that there are four major laser- and light-based hair removal technologies: intense pulsed light (IPL, which is broadband), 755 nm alexandrite laser, 1064 nm Nd:YAG laser, and 810 nm diode laser. "The 810 nm wavelength is the best and most flexible of the group," he explained. "The lower-wavelength alexandrite doesn't penetrate as deeply but they're better for lighter hair colors, because the cells we're trying to kill are usually within a millimeter or two of the surface, whereas darker hair tends to go much deeper, so the 810 nm diode and 1064 nm Nd:YAG which go deeper (4-5 mm), where those stem cells reside, especially in the groin and axilla where the hair follicles run deeper, they are better overall."

Broadband IPL is middle-of-the-road, effective but very painful because of the high peak energies involved, according to Dr. Zimmerman. "A more comfortable version of the IPL has a suction assist that pulls tissue up into the treatment tip, and that's okay but the treatment head is huge and there are disposables involved, and that always jacks up the price, especially when dealing with large areas. Ideally you'd have an alexandrite for lighter hair and the Nd:YAG for darker hair, but unless you're a big university center that's awfully expensive."

Additionally, treatment pain—a serious issue with IPL, alexandrite laser, and Nd:YAG laser treatments—may be prohibitive, and the spot size of the alexandrite and Nd:YAG laser is small, increasing treatment time. "It's like having a furniture rubber band snapped on your skin over and over again, which keeps many patients away or drives them away after one treatment," said Dr. Zimmerman. "You have a long, painful treatment with mediocre results, which is expensive and only buys time until you need it done again. And again."

The Soprano XL™ 810 nm Diode Laser Platform.

The ideal device for laser hair removal is effective, safe, reproducible, painless, comfortable, and doesn't require expensive disposables. The Soprano XL™ (Alma Lasers, Ltd., Caesarea, Israel) 810 nm diode laser platform is just such a device, according to Dr. Zimmerman. "It gives us fabulous results comfortably, so clinical successes are much higher. I've had two 810 nm devices previously and Soprano XL™ is by far the best and most

Photo Courtesy: Kyle Holmes, M.D., Davis Laser Center, CA, USA

Before and after photos of results with Soprano XL™ on the axilla of a female of indeterminate age. Courtesy of Kyle Holmes, M.D., Davis Laser Center, CA., USA

flexible. A lot of research has gone into successfully optimizing the hair removal settings of this device, and patients are satisfied with the results."

A number of features set Soprano XL™ apart from the competition, including ergonomic handpiece design, built-in epidermal cooling, and a large 12 mm x 10 mm spot size of the device that decreases treatment time considerably—a huge plus when dealing with large areas such as the back. "The device also has a rectangular or square spot, which is essential because it promotes complete coverage while avoiding potential overlap," Dr. Zimmerman added.

According to Dr. Zimmerman, Soprano XL™ is without peer among competing devices where adjustability of treatment parameters is concerned. Pulse width is a good example. "Thermal relaxation time of hair varies by its thickness," he said. "Thinner hair has a shorter thermal relaxation time than thicker hair. Adjusting the pulse width allows the user to effectively target different hair types while sparing surrounding skin."

Best of all, thanks to IN-Motion technology, which involves keeping the handpiece in constant motion as the energy pulses are delivered, treatment with Soprano XL™ is virtually painless without anesthesia or numbing gel. Less energy is delivered per pulse, but the rapid delivery of energy pulses combined with the motion of the handpiece allows the user to safely and comfortably deliver greater energies overall. As a result, Soprano XL™ is safe for pigmented hair on all skin types, including tanned skin. "Treatment is very comfortable, and has been likened to being licked by a cat," Dr. Zimmerman noted. "It's heads above competing devices."

And there is also a bonus benefit: skin tightening. "Any laser device will cause some tightening because of the thermal effect," said Dr. Zimmerman, "but Soprano does it more noticeably because of the IN-Motion technology. More energy is delivered overall, stimulating neocollagenesis more effectively."

Some patients should not undergo laser hair removal treatment. Those with light skin and light-colored hair cannot be effectively treated by light-based hair removal therapies. "We avoid treating patients who are pregnant, breast feeding, and those who are photosensitive or are taking photosensitizing medications," said Dr. Zimmerman. "Also, tattoos in the treatment area might be irrevocably altered or absorb too much energy and cause injury."

Learn more about Soprano XL™ at www.almalasers.com. ◆

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AUTHOR BIOGRAPHY

Kevin A. Wilson has written dozens of articles on a variety of topics and devices in aesthetic medicine. He has also helped prepare scientific literature for numerous aesthetic device companies and practitioners around the world.

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What to look for when choosing a Fractional CO_2 Device

There are four cornerstones that a discerning physician should consider before purchasing any CO_2 device: Power, Ablation time, Spot size variability and Pulse characteristic. Additionally, the manufacturer's experience and reliability can make a big difference once the system is purchased. The UltraPulse® with ActiveFX™, DeepFX™ and TotalFX™ from Lumenis offers the appropriate balance of all of these features.

Currently fractional CO_2 devices can be grouped into three main categories:

1. Small spot, deep dermal treatments
2. Small spot, mid-dermal treatments
3. Large spot, superficial epidermal treatments

(See Table 1)

Spot Size Diameter	Depth	Typical Indications
Less than 1 mm	Greater than 700 µm	Deep dermal stimulation, scar revision and wrinkle reduction
Less than 1 mm	Less than 700 µm	Superficial lines and wrinkles
Greater than 1 mm	Less than 200 µm	Dyschromia, uneven texture, fine lines and wrinkles

Table 1: Fractional CO2 Devices Categories

When determining which device is most suitable for a practice, it is important to understand the breadth of patient types to be treated as well as the indications that will be treated. Small spot, deep dermal treatments are typically used for deep dermal stimulation, scar revision, and deep wrinkle reduction. Mid-dermal treatments target superficial lines and wrinkles; and large spot, epidermal treatments are ideal for treating dyschromia and uneven texture of the skin.

The UltraPulse system with FX fractional laser treatments is the only system that offers the complete spectrum of treatments, while other systems only are limited to a smaller range. This is due to its unsurpassed power and variable spot sizes.

The power of a CO_2 system is crucial in determining its ablation efficiency and its ability to support both large and small spot sizes. According to Dale Koop, PhD, "With 240 watts of power to tissue, the UltraPulse has the most power of any aesthetic CO_2 system available. This allows the system to ablate with maximum efficiency." In addition, this powerful device is the only system capable of offering ActiveFX for the treatment of unwanted pigmentation, fine lines and wrinkles.

According to R. Rox Anderson in the book *Cutaneous Laser Surgery* "The thermal relaxation time of pulse CO_2 laser heated tissue is about 0.8 ms. In effect, for the CO_2 laser wavelength, we must deliver the necessary 5 j/cm^2 in at most, a 0.8 ms pulse, preferably less, if we expect to minimize injury to the underlying tissue[1]." Many low-cost systems on the market today fail to take this important feature into their design considerations. In contrast, the Lumenis UltraPulse system is specifically designed to have short pulse durations in order to minimize pain and possible complications from over exposing tissue to irradiation which greatly increases the chance of incurring collateral damage and char.

It is also important to understand how CO_2 energy is delivered by a system. Superpulse systems produce a burst of energy at the beginning of the pulse, then tail off throughout the duration of the pulse. With UltraPulse delivery, energy output is evenly distributed throughout the duration of the pulse. According to Dale Koop, PhD, innovator of the UltraPulse laser, "UltraPulse is the only CO_2 laser specifically designed to efficiently ablate while maintaining hemostasis." In a paper published by Tina Alser, MD, it was also found that the UltraPulse resulted in more new collagen formation than the superpulse laser[2].

Finally one must consider the history and knowledge of the device manufacturer. Many low-cost CO_2 systems are first generation devices made by companies with little to no experience in the field. Lumenis, a trusted name in lasers since 1966, has manufactured thousands of CO_2 systems with power ranging from 20-240 watts. This experience is what makes Lumenis the leader in CO_2 fractional resurfacing and why physicians have long considered the UltraPulse the gold standard in skin resurfacing.

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Author:
Amy Leah Easterly is the UltraPulse Product Manager at Lumenis.

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The UltraPulse platform delivers 240 Watts of power to tissue—**six times more power** than competitive systems for the optimum ablation efficiency and control. Because of this, only UltraPulse can offer you the TotalFX™ package, with ActiveFX™ for superficial treatment of fine lines and dyschromia, and DeepFX™ for deep wrinkles and scars. The new 4x upgrade is the **fastest system in the market** for the fractional treatment of large areas. UltraPulse Fractional Treatments enable you to treat the **widest range of patients**.

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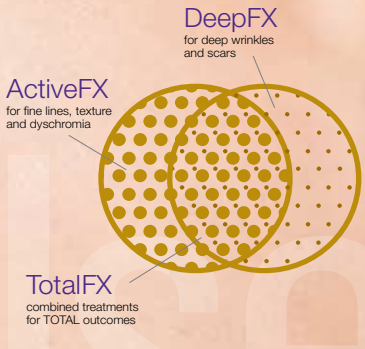

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HOYA ConBio Launches The V-Raser: A Compact Solution For Vascular Lesions

NEW LASER – ONLY 4 LBS – OFFERS TARGETED TREATMENT, NOVEL DESIGN

HOYA ConBio,™ a global leader in dental and aesthetic lasers, have launched in the U.S. the V-Raser diode laser for treatment of vascular lesions. The extremely compact V-Raser was unveiled at the 28th Annual Conference of the American Society for Laser Medicine & Surgery, offering physicians an effective solution for common red and blue blood vessels, including facial telangiectasias.

"The V-Raser is uniquely suited to be an integral part of any aesthetic medical practice," said Timothy S. Gehlmann, President & CEO, HOYA ConBio. "The targeted design of the V-Raser complements other laser and light-based therapies for comprehensive treatment of photodamaged and photoaged skin. Because facial spider veins are so common, physicians will be able to use this laser on virtually every one of their cosmetic patients."

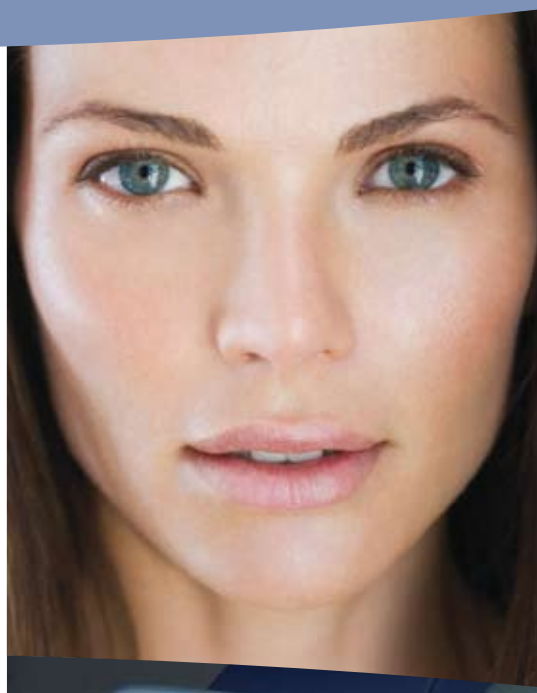
The 980 nm wavelength of the diode laser offers safe, effective treatment of high-flow blood vessels, including red and blue vessels, especially on the face. Variable spot sizes allow physicians to reach small, hard-to-treat areas such as the crevices and sides of the nose. Resolution is achieved in one to three treatments, depending on the size of the vessel.

"The V-Raser is a revolutionary new vascular lesion laser that's different from anything else out there," said David Goldberg, MD, Director of Skin Laser & Surgery Specialists of N.Y./N.J. and Clinical Professor of Dermatology at Mount Sinai School of Medicine. "The ideal patient is that individual who has photodamage and a variety of blood vessels, including telangiectasias, on his/her cheeks and nose. The V-Raser is uniquely successful in removing a variety of facial vessels with minimal patient discomfort. And, it's the smallest laser I've ever seen."

Weighing only 4 pounds, the V-Raser is extremely compact and can fit anywhere in a physician's clinic. Priced at $29,950, the V-Raser is a cost-effective tool introduced by Hoya ConBio, developers of the MedLite and RevLite Q-Switched Nd: YAG lasers, widely regarded as workhorses of the aesthetic industry.

About HOYA ConBio: HOYA ConBio designs, manufactures and markets sophisticated laser systems used in dental and aesthetic medical practices worldwide, widely recognized by practitioners as "The World's Most Reliable Lasers.™" The company's innovative technologies are highly versatile, clinically effective, and offer rapid return on investment. Headquartered in Fremont, Calif., HOYA ConBio maintains a worldwide product and service distribution network. For more information, call 800-532-1064 or visit **www.conbio.com**. ◆

The anti-aging market has more than one face, more than one type of skin.



RevLite's PhotoAcoustic Technology Pulse

Imagine one laser for all patients who want to treat the pigment, wrinkle and texture problems of photodamaged skin. The RevLite Q-Switched Nd:YAG harnesses sophisticated PhotoAcoustic Technology Pulse for a superior collagen rebuilding effect different from photothermal systems. Waves of energy safely, gently, vibrate the collagen fibers, reorganizing the skin's scaffolding and stimulating new collagen growth.

It's a revolutionary approach to a more refreshed appearance, even tone, smoother texture, tighter skin and smaller pores. Comfortably. Regardless of age, gender or skin type.

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Eclipsemed's SmartXide DOT Therapy Laser

DOT THERAPY OFFERS MINIMAL DOWNTIME FOR PATIENTS AND REQUIRES LITTLE OR NO ANESTHESIA

Eclipsemed's SmartXide DOT Therapy laser manufactured by DEKA is pioneering a new method of skin resurfacing with exceptional benefits for both doctors and patients. Dermal Optical Thermolysis (DOT) Therapy yields outstanding results with minimal downtime. DOT Therapy is ideal for the treatment of dyschromia, skin laxity and texture, wrinkles, dermal lesions, photoaging, acne scarring and acne reduction.

By creating thousands of tiny perforations or "dots"; the procedure induces immediate skin tightening and stimulates new collagen growth. The epidermis heals from the edge of these tiny holes very rapidly, improving the overall complexion and results. The foundation of DOT Therapy is the optimal laser spot size of 350µm, which results in a controlled DOT ablation, while thermally injuring tissue deep within the epidermis. The "bowl-shaped" thermal footprint created by the DOT maximizes healing and new collagen formation.

Some lasers generate computerized patterns of spots up to 1.3mm in diameter. These spots are characterized by a large "saucer-shaped" thermal footprint. Such spots can often cause a large zone of vaporization in the epidermis resulting in extended healing times. These larger spots also have a very shallow thermal zone. When high energy is applied to tissue, there is potential for undesirably wide epidermal wounds with significant overlapping of thermal zones in the epidermal layer.

In contrast, other lasers use tiny spots (<200µm in diameter), which are too narrow and create deep columns of ablation. These spots have a "column-shaped" footprint, characterized by a thin zone of thermal injury deep within the dermis. These tiny columns are compromised in their ability to stimulate optimal neo-collagenesis. Further, due to the deep ablative effect of these tiny spots and lack of coagulation, patients experience bleeding, pain and increased risk for complications.

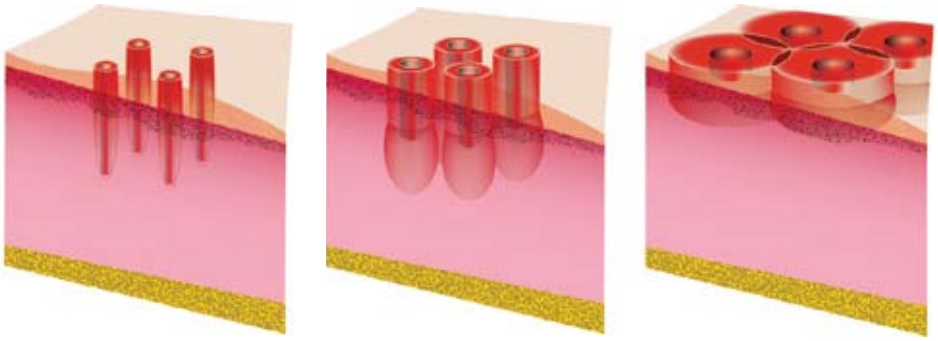

Figure 1: Some CO_2 lasers produce tiny, column-shaped (left) or large, saucer-shaped (right) thermal footprints. The SmartXide laser for DOT Therapy (center) produces a bowl-shaped footprint.

DOT Therapy with the SmartXide CO_2 laser offers the optimal "bowl-shaped" thermal footprint which results in outstanding patient results, rapid healing, minimal downtime and reduced risk.

IT'S ABOUT CHOICE

Figure 2: SmartXide DOT CO_2 laser

The versatility of the SmartXide laser makes it easy to customize treatment for each patient's unique skin challenges. For some patients, traditional CO_2 laser resurfacing may be more feasible in order to effectively treat significant wrinkles or advanced photodamage. Using the SmartXide DOT laser's standard DOT mode, doctors can also perform fully ablative treatments. Multiple treatment modes are available for a combination of options including traditional laser skin resurfacing, tissue coagulation and tissue ablation. The SmartXide DOT CO_2 laser can even be used for incision and excision of various soft tissues in a wide range of dermatology, plastic surgery and general surgery using the alternative hand piece.

IT'S ABOUT CONTROL

The SmartXide DOT CO_2 laser system can provide Infinite Delivery Options, where the user can select from a wide range of power, dwell time and scan density settings to fine tune the laser output to the exact parameters needed to treat each patient's unique condition. The user can select the scan geometry, including shape, size and ration instantly with the Hi-Scanner hand piece. The

BEFORE

AFTER

Figure 3: Before DOT Therapy and After DOT Therapy

Figure 4: DOT Therapy treatment on patient

adjustable DOT spacing (pitch) ranges from 2-40% per scan; or 100% ablation in standard mode.

Dr. Robert Troell offers the DOT Therapy procedure to his patients in the Las Vegas area. "What's amazing is that you can change the pattern's size and shape in just a few seconds with one finger on the hand piece, which is a unique advantage. You don't have to stop, turn to the machine, make adjustments and so on. This contributes to a better overall treatment experience for both the physician and patient."

The SmartPulse technology featured in the SmartXide DOT CO_2 laser allows for uniform distribution of the laser emissions in the tissue, creating the basis for a new operating experience. It is, therefore, easier to operate in facial photoaging and other skin defects with a higher guarantee of success. In addition, it activates a homogeneous and normalized epithelial reconstruction without any photoaging alterations or dyschromias. SmartPulse offers control of ablation depth and thermal damage while ensuring surrounding tissue remains intact.

IT'S ABOUT THE DOT

DOT Therapy offers minimal downtime for patients and requires little or no anesthesia. Desired results can often be achieved in a single treatment. "With SmartXide DOT we finally have a treatment option that combines efficacy, minimal downtime and rapid recovery, which patients are much more receptive to. Patients have been reluctant to undergo traditional ablative resurfacing, so this opens up that segment of the potential patient base," said Dr. Troell. ◆

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1-800-759-6876
sales@eclipsemed.com
www.dottherapy.com
www.eclipsemed.com

Kevin O'Brien – author
Kevin O'Brien is President of Eclipsemed, located in Dallas, TX.

I've got a secret…

…it's about the DOT!

DOT THERAPY

DERMAL OPTICAL THERMOLYSIS

DOT Therapy™ that is…. the latest innovation for skin resurfacing!

DOT Therapy is performed using the SmartXide DOT CO_2 laser system, featuring the unique DOT Scanner with *Infinite Delivery Options* for ablative skin resurfacing with rapid healing.

DOT Therapy is ideal for treatment of pigment, skin laxity/texture, wrinkles and acne scars.

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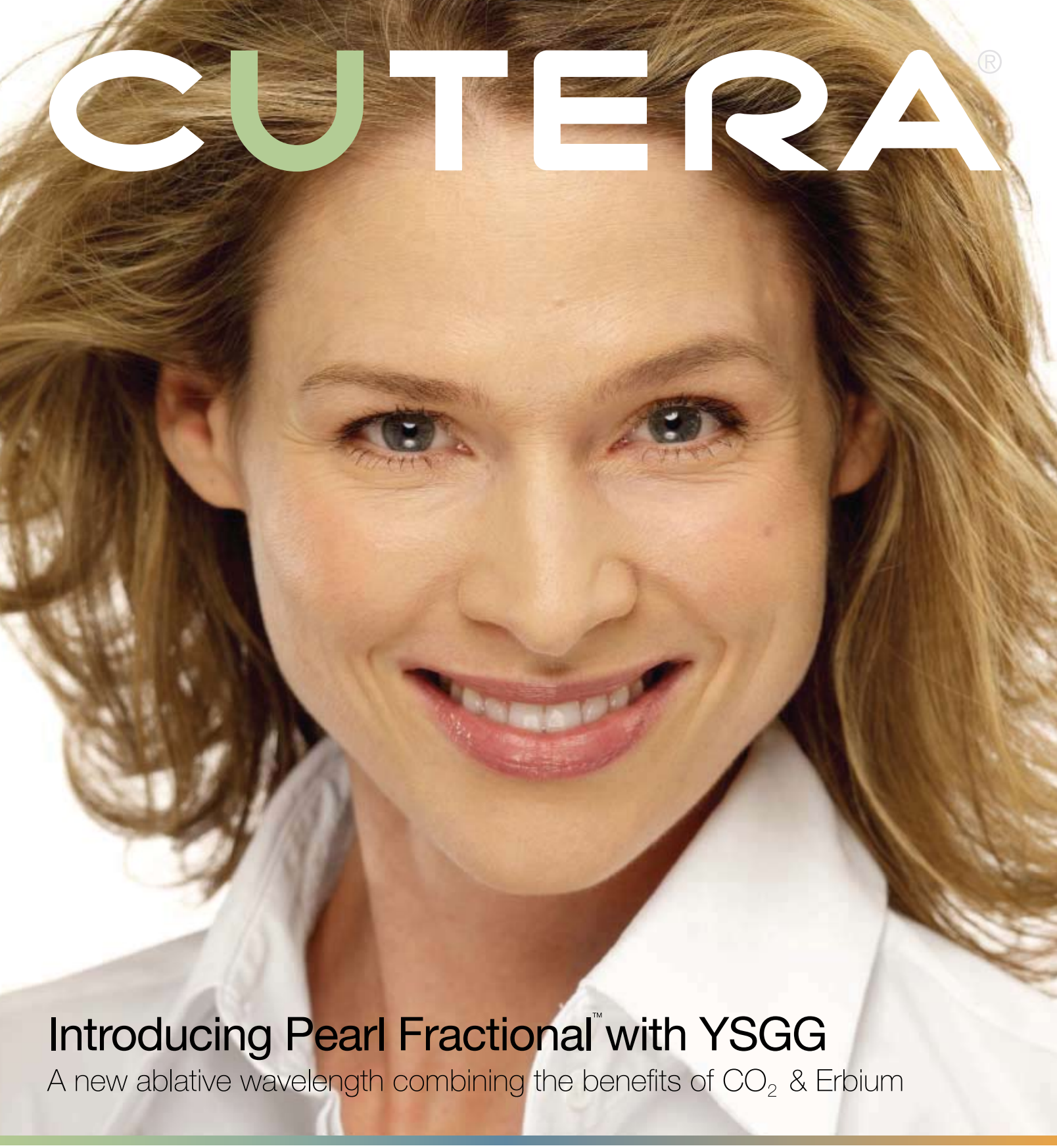


Introducing Pearl Fractional™ with YSGG

A new ablative wavelength combining the benefits of CO_2 & Erbium

- **Exclusive YSGG 2790 nm wavelength**
- **Uniform, controlled thermal zone**
- **Maximizes results, comfort & healing times**
- **Deep ablation (1+ mm)**
- **Results in a single treatment**

We Have Beauty Down to a Science.

Live Pearl Fractional Demo with Leonardo Rasi, MD
December 13, 6-7 pm at the show

Find out how you could win a Pearl Fractional, visit Cutera in booth 6028.

Syneron Introduces the Matrix RF Resurfacacing Tunable Ablation Device

FDA CLEARED

As patients learn more about fractional skin resurfacing, they are increasingly requesting this procedure from their physicians. The minimal downtime, reduced cost of the procedure compared to traditional skin resurfacing, and pleasing results all make it a procedure that continues to grow in popularity.

Syneron has recently received FDA clearance for the Matrix RF applicator. Matrix RF is the worlds-first RF only fractional resurfacing tunable ablation device, simulating the effects of different types of skin resurfacing lasers used for a range of aesthetic applications. During treatment with Matrix RF, each pulse delivers conducted radio frequency energy via a grid of 64 matrix spots.

The RF energy induces a skin injury which is maximized in the region of the matrix spots with an accelerated healing process supported by the tissue surrounding the matrix spots. The system's SelectPulse technology allows customized treatment, enabling various degrees of overlap of the affected skin areas to treat a range of skin conditions and skin types safely.

After treatment with Matrix RF, physicians in early studies also reported that 87% of patients treated for skin laxity and photo damage experienced improvement in these indications.

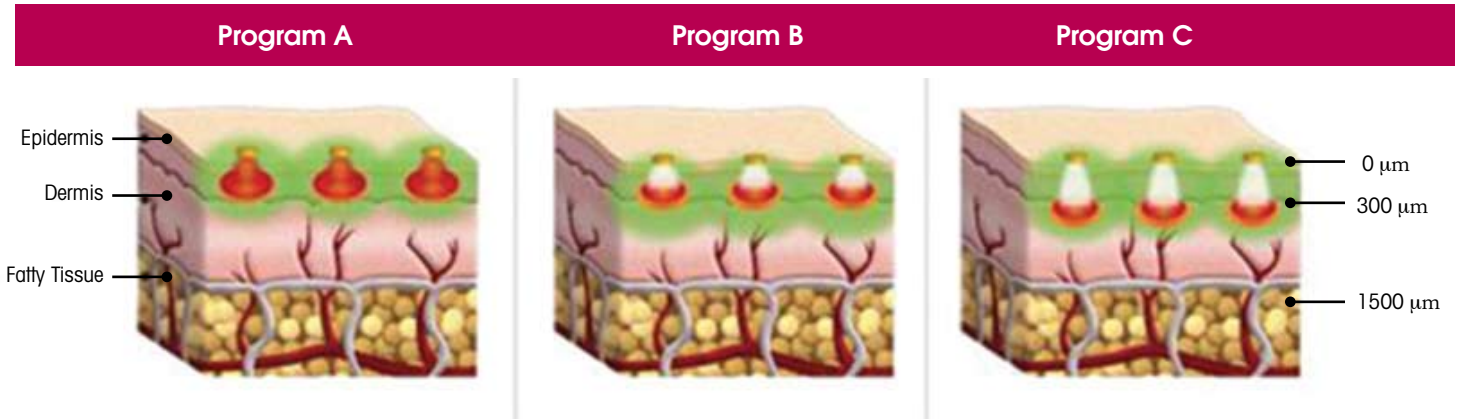
"In my trials, I have found that Matrix RF results in a unique combination of skin rejuvenation, wrinkle reduction, skin tightening and even lifting with less downtime than traditional skin rejuvenating treatments. My patients are pleased with the fast, visible results of smoother, brighter and tighter skin, without having to sacrifice time from their busy schedules. I think Matrix RF is a winning technology that can compete favorably with fractional CO_2."

– Amy Taub, M.D.
Dermatologist, Illinois

Matrix RF is equipped with SelectPulse to enable customization of the depth of ablation and degree of skin resurfacing based on your patient's needs. Choose from three programs to emulate the most common treatments found in most stand-alone fractional systems.

- **Program A** Mild ablation and skin resurfacing, shallow impact Resembles the skin improvements achieved with fractional Er-Glass devices which rely on coagulative resurfacing for improvements in overall tone and texture.
- **Program B** Moderate ablation and skin resurfacing, mid-level impact Resembles the impact of fractional Er:YAG ablative devices that are used for color correction and texture irregularities.
- **Program C** Intense ablation and skin resurfacing, deepest impact Resembles the impact of fractional CO2 devices that provide high levels of ablation and partial resurfacing for treatment of rhytides.

The Matrix RF applicator is upgradable to the eMax™, eLaser™ and eLight™ platforms, allowing you to achieve low-cost entry into the expanding fractional skin treatment market. Your success is important to us – Matrix RF enables an in-demand new procedure for your existing Syneron product. ◆



Matrix RF™

Visibly Better Fractional Skin Resurfacing.

New Matrix RF with SelectPulse™ Energy Control

Introducing the only fractional radio frequency device with SelectPulse technology to control the depth of ablation.

- Safely treat most skin types and a range of conditions.
- Treats wrinkles, superficial skin lesions, textural irregularities and skin laxity.
- Upgradable to Syneron eSeries platforms – providing low-cost entry into the expanding fractional skin resurfacing market.

Visit Syneron at A4M, Las Vegas
December 12-14, Booth #7005

SYNERON WORKSHOPS:

VelaShape™ Your Practice by Dr. John Shieh
Thursday, December 11 - 7:30 p.m.

triniti™ Facial Rejuvenation by Dr. Tess Mauricio
Saturday, December 13 - 3:00 p.m.

CME PRESENTATION:

Treatment of Ethnic Skin by Dr. Tess Mauricio
Saturday, December 13
1:00 – 1:30 p.m.

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Beyond Bio-identical Hormones

Ongoing Research on A New Potential Treatment for Adult Onset Diabetes

Xanya Sofra-Weiss, Ph.D

INTRODUCTION:

Individual phenotypic differences result in a variation of T4 to Free T3 conversion. Free T3 stimulates lipolysis. This leads to polymorphic and individualized lipid deposition patterns. Hyperthyroidism is associated with weight loss via an increase in metabolic rate and lipolysis. Hypothyroidism, on the other hand, is associated with weight gain via a decrease in metabolic rate.

A literature review by Guillermo et al (2003) has shown that the risk of thyroid dysfunction in Diabetic patients is two- to threefold higher than in the general population. A number of studies have shown that thyroid hormones represented by serum total T3 and T4 concentrations and serum Free T3 and T4 concentrations were significantly lower in obese non-insulin-dependent diabetics than control subjects. Low T3 is also a strong predictor of mortality in cardiac patients and may be directly implicated in the poor prognosis of cardiac patients.

Although the benefits of intensified insulin treatment in insulin-dependent Diabetes Mellitus are well recognized, a meta-analysis of 14 randomized controlled trials revealed the risk of severe Hypoglycemia, Ketoacidosis and mortality from acute metabolic causes with intensified insulin treatment. These 14 trails contributed 16 comparisons with 1028 patients allocated to intensified and 1039 allocated to conventional treatment. A total of 846 patients suffered at least one episode of severe hypoglycaemia, 175 patients experienced ketoacidosis and 26 patients died.

We are investigating an alternative treatment for Diabetes with no side effects. This involves the enhancement of endogenous production of Free T3 and IGF-1 via an electronically designed ionic signal. The mechanism of this therapeutic signal delivery was invented by Pollock, (1990-2008), in Innovations Science, a European Community-funded research center. Using the Pacemaker technology this ionic signal produces the physiological responses associated with strenuous exercise. Pollock's ionic signal (image 1) initially targets the motor neurons resulting in rhythmical muscle contractions equivalent to performing high resistance physical activity. Once the process is initiated by Pollock's bio-identical electronic signal, the motor neurons signal the brain via the spinal cord. This is a physiologically reversed process, like traffic being driven the opposite way, where the strenuous exercise signal does not originate in the brain traveling down the spinal cord to the motor nerve. Instead, the process is initiated at the peripheral motor neuron, then the circuit is completed by outgoing CNS neuron emission.

This CNS emission causes the ultimate production of Free T3 and GH/IGF-1, which in turn cause lipolysis and muscular hypertrophy. The enhanced production of Free T3 and GF/IGF-I will temporarily cause hyperglycemia. However, the hyperglycemia will resolve once the glucose has been utilized for metabolic purposes including increased cellular energy and muscular hypertrophy. The aim of this study is to test the hypothesis that the use of ionic currents may reduce or eliminate adult onset Diabetes.

Goals and Objectives

(1)To compare and contrast some of the diverse data on the effects of hormones.
(2) To point out that the body has the mechanisms to balance out hormonal levels either by excreting excess hormones or by inhibiting further secretion of hormones.
(3) To bring into focus the complications resulting from individual differences, and therefore the inevitable variability in the effects of bio-identical hormones.
(3) To point out the advantages of a device with bio-identical ionic characteristics as those inherent in the nervous system, that creates the conditions for the natural secretion of biological hormones..
(4) To discuss the necessary specifications of such a bio-identical device based on the research initially conducted in London University and presently continuing at the European Union funded Innova Science Park.

Mortality In Growth Hormone Deficient Individuals

Stochholm et al (2007)analyzed mortality rate in 1,794 Growth Hormone Deficient (GHD) patients and 8,014 controls matched on age and gender. Stockholm et al (2007) found a significantly increased mortality in GHD patients when compared with controls, possibly due to their hypopituitary status. Mortality was increased in Adult Onset female patients when compared with males.

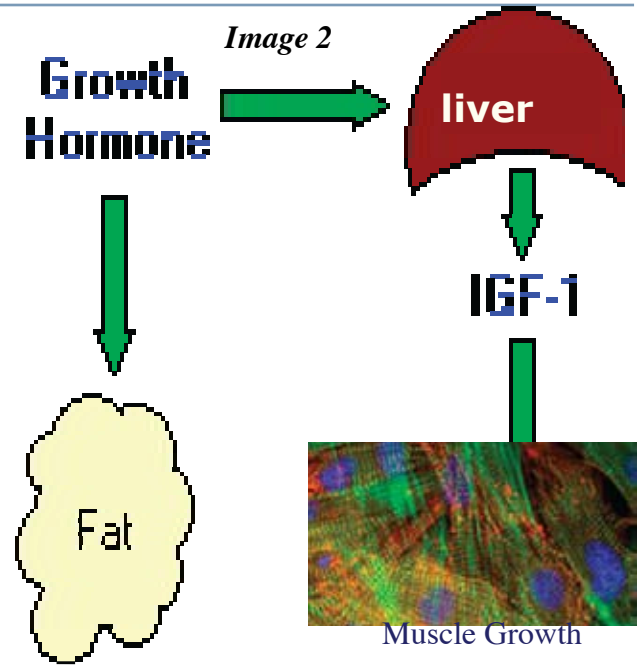
Growth Hormone and Cancer

Nuclear-localised growth hormone (GF) receptors have been reported in a number of cancers (Waters et al, 2007). GF triggers cellular proliferation. But if the cells multiply too quickly and aggressively, it can be dangerous for the body. Waters et al (2007) sent growth hormone receptors into the nucleus of cells and found that cells multiplied at a greater rate and tumors began to appear.

The dramatic contrast in the results of the two studies cited above, indicates both the necessity for hormone replacement therapy and problems with excess hormones that are the result of abnormally excessive hormonal levels, causing a biological imbalance.

The biological functions of GH are carried out by Insulin-like Growth Factor 1 (IGF-1). IGF-1 is the key determinant of somatic growth. It regulates puberty and gonadal function, and influences body composition as well as structural and functional maintenance of adult tissues (Image 2). Loss of skeletal muscle mass, increased adiposity, and other unwelcome accompaniments of aging have been linked to age-related decline in pituitary GF secretion. On this basis, administration of GH is often advocated as an "anti-aging" therapy. However, administration of GF has a number of adverse side effects such as Diabetes, Carpal Tunnel Syndrome, joint and muscle pain, fluid retention, High Blood Pressure, etc. (Hintz, 2004). In addition, mutant GF deficient animals have demonstrated prolonged longevity (Corpas et al, 1993). Recent research in humans (Hoeijmakers et al, 2008) has shown that GF and IGF-1 may be associated with aging as a result of the system's tendency to focus on growth, which diminishes its capacity to invest in maintenance and repair, i.e. "the survival response." It would appear that when GH is given in the appropri

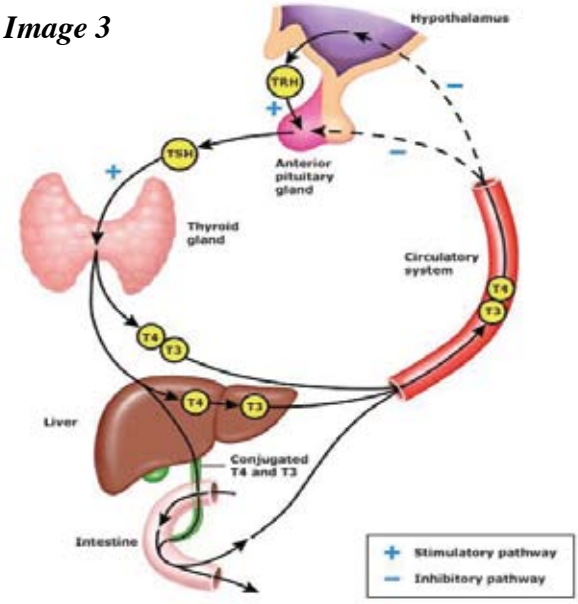
Image 2



ate dosage to replace inadequate production, side effects are minimal or none. In contrast, when GH is administered to patients with adequate GH production, arthritis, due to joint overgrowth, entrapment of nerves, such as carpal tunnel syndrome, excessive sweating, hyperglycemia or overt diabetes, and edema, may all occur.

A normal body balances out the hormonal levels by either excreting the excess hormones or signalling the pause of further secretion. An example of this process is illustrated in the diagram in image 3 below: Thyrotropin-releasing hormone (TRH) increases thyrotropin (TSH). TSH stimulatethe synthesis and secretion of trioiodothyronine (T3) and thyroxine (T4) by the thyroid

Image 3



gland. T4 is converted to T3 in the liver and many other tissues. Some T4 and T3 is excreted in the bile, and partially hydrolyzed in the intestine. Some T4 and T3 formed in the intestine may be reabsorbed by the circulatory system directly inhibiting the secretion of TRH as well as inhibiting TSH indirectly, to avoid a potential excess of thyroid hormones and maintain hormonal balance. Bio-identical hormone therapy is necessary to replenish hormonal deficiencies and re-establish balance. However: Two questions are never asked by most medical professionals: (1) are bio-identical hormones truly identical with any given body considering individual differences? (2) How well are hormones absorbed and utilized by a given body that is used to functioning with a reduced number of hormones, confined by the resistance of its pathological state? The body is not a passive entity, but a dynamic whole designed to resist anything that forces it to change its habitual state. A healthy body resists illness and a sick body resists health. The easier way of getting around resistance is creating the conditions that requires secretion of the body's own hormones, initiating the process of hormonal increase from the inside. When the body is in hormone secretion mode as a result of initiating an endogenous hormonal secretion, bio-identical hormone therapy will encounter significantly less resistance.

Growth Hormone and Insulin

The insulin and growth hormone (GH)/insulin-like growth factor-I (IGF-I) axis are two endocrine systems that are interlinked at many levels. GH is one of the glucose counter-regulatory hormones, rising in response to hypoglycaemia. It has both intrinsic hyperglycaemic actions and causes insulin resistance. Both IGF-I and its receptor have high structural and functional homology to insulin and its receptor. Insulin can regulate IGF-I production, acting on the GH receptor or at a post-receptor site. Conversely IGF-I is thought to have a permissive effect on the pancreatic insulin response to glucose. Growth is compromised in poorly controlled Diabetic children. Insulin-dependent diabetes clearly causes derangements in the GH/IGF-I axis. In poorly controlled Diabetics GH levels are invariably raised while normal or low levels of IGF-I are found, indicating a dissociation between the two factors. In diabetics the derangements to the GH/IGF-I axis, caused by poor metabolic control, leads to aggravation of the metabolic problems (Holly et al, 1988).

Insulin and Lipolysis:

Insulin inhibits fat lipolysis. Free fatty acids increase insulin resistance by inhibition of glucose transport. (See image 4 below) Additionally fatty acids result in approximately 50% reduction in both

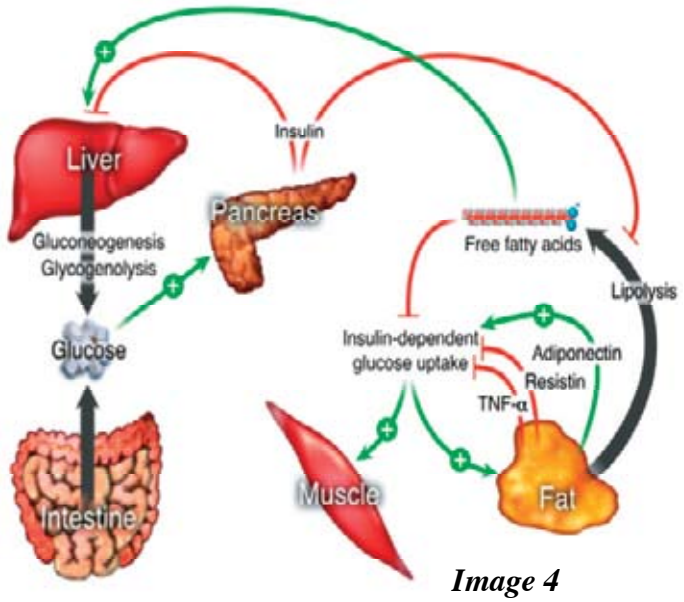


Image 4

the rate of muscle glycogen synthesis + glucose oxidation. (Roden, 1996). Diabetics dependent on insulin will most likely become overweight as a result of insulin inhibiting lipolysis. The more overweight they grow the more resistant to insulin they will become. Hence they will need a greater dosage of insulin which will further inhibit lipolysis.

Insulin and Obesity

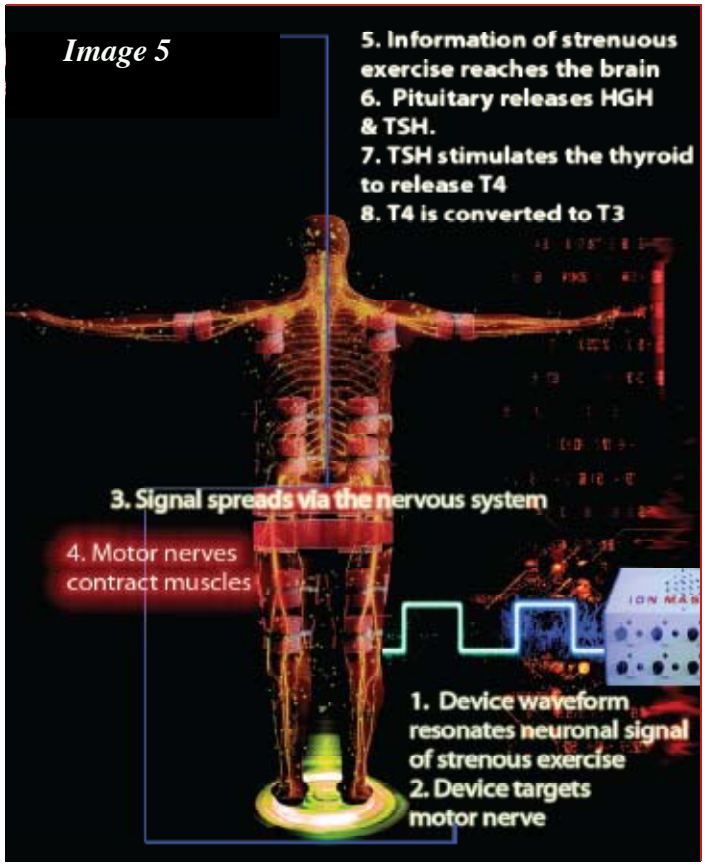
Gunter et al (2008) studied 205 obese subjects and found that insulin was positively related to endometrial cancer. IGF-1 levels were inversely associated with endometrial cancer. These results suggest the health advantage present in the utilization of energy that occurs in the process of IGF-1 building muscle while the growth hormone causes lipolysis. On the other hand, processes that force the system to slow down and inhibit its energy production have the tendency to be pathological. Exercise and healthy diet are admittedly the obvious solution. However, appetite suppressants are notoriously unreliable and exercise / diet programs are often abandoned before obtaining any significant results. Due to insulin inhibiting lipolysis, Diabetics must place a greater amount of effort in exercising to obtain mediocre results. Due to their excess weight they will have a hard time in both initiating exercise and sustaining a regular exercise program,

Increase of T3 and IGF-1 as a Treatment for Diabetes

Diabetes is a condition of hyperglycemia or excessive blood glucose due to insulin resistance. Insulin is a treatment for Diabetes because insulin transmits glucose from the circulation to adipose cells, where glucose is stored. The thyroid hormone causes lipolysis. Lipolysis releases the glucose in the blood so it can be utilized as energy source to produce ATP via oxygen. Glucose increase in the blood will temporarily increase Diabetic symptoms, until utilized by IGF-1 for muscle hypertrophy, thus alleviating Diabetic symptoms. Lipolysis and muscle hypertryphy are naturally the results of exercise. Exercise can potentially increase T4, T3, GF and IGF-1. Strenuous exercise is quite cumbersome to a healthy body but it is a lot more laborious and patience testing with respect to the body of a Diabetic. Diabetics have difficulty losing weight as a result of their inherent hormonal imbalance that causes their hypothyroidism, and derangements in the GH/IGF-I axis. Diabetics who are treated with insulin have additional difficulty losing weight because insulin inhibits lipolysis.

Effortless Exercise

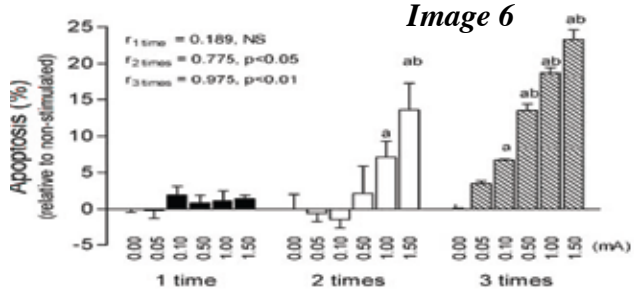
Gerry Pollock, co-inventor of the pacemaker developed a device (1990) to improve muscle tone and act as a bypass mechanism to re-establish the disrupted neur-communications of Multiple Sclerosis patients. Seventeen years of empirical research was invested in composing a neuro-communication signal designed to resonate the body's biological signals. The device is programmed to give the signal of strenuous exercise to motor nerves stimulating a sequence of events that starts from the motor nerve, and transfers the strenuous exercise signal to the brain via the spinal cord. On the basis on the strenuous exercise signal received, the brain gives the demand for pituitary release of HGF and TSH, leading to the conversion of T4 to T3 resulting in lipolysis. HGF stimulates adipocytes to break down, and triglyceride HGH stimulates the liver and other tissues to secrete IGF-1. IGF-1 stimulates the differentiation / proliferation of myoblasts, amino acid uptake & protein synthesis in muscle and other tissues (image 5). This sequence of events resembles the biological events involved in regular strenuous exercise regime that most obese individuals are either unwilling or unable to sustain.



Device Specifications

Research has repeatedly shown that devices in the miliamp range (one over a thousanth of an amp range) deplete ATP which dives down to zero at values of 1.5 miliamp (Cheng et al, 1972; Santos et al 2004). Yi-lo Lin et al (2005) used tissue cultures of tendon fibroblasts or tenocytes (the principal cellular components of tendon tissue and found that apoptosis rate did not alter after the first microcurrent application. However after the third application apoptosis rate significantly increased with increasing current intensity, so that the highest rate of apoptosis occurred at 1.5miliamp as the chart below indicates (image 6).

Image 6



Current operated devices increase the signal by increasing current eventually reaching the miliamp range. Voltage operated devices are better programmed to remain within a biologically beneficial range which has been shown by research to increase DNA and protein content, includ-

ing collagen and elastin (Cheng et al, 1972; Chi et al 1999, 2002; Santos et al 2004; Yi-lo Lin et al, 2005); and build tissue (Nucciteli 2005). However, voltage operated devices are compromised by Ohm's law of Physics that connects Current, Voltage and Resistance. As voltage steadily increases, current also increases, depending on each individual's resistance. Therefore, Gerry Pollock designed a compact analogue waveform out of several frequencies to control the resistance. Pollock's waveform expands when Resistance increases and shrinks when Resistance decreases to stabilize the Ohm's Law equation and keep the current relatively stable and within the desired range necessary to increase cellular energy (ATP). Pollock built his waveform on the basis of ongoing empirical research of approximately twenty years. Empirical is an atheoretical method of scientific investigation where each frequency is combined with the next because there is proof that the combination of the two frequencies increases the resonance of a particular signal. Image 7 below depicts a set of damaged neurons where communication is disrupted isolating that area from the nervous system network.

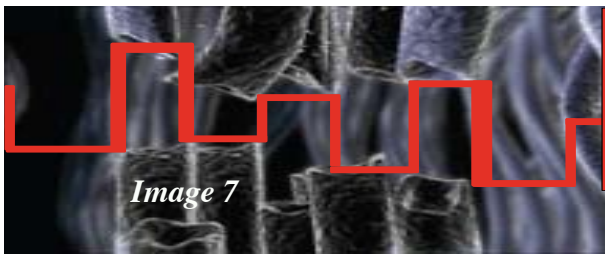


Image 7

The less access the brain has to the neuron cells in the traumatized area, the greater the difficulty in directing biological agents necessary to heal the neurons. The empirical experimenter adopts a set of neurons in vitro and disects them into two sets of neurons, A and B so that a signal initiated in neurons A cannot be transmitted to neurons B. Then a set of frequencies is tried one by one to determine which one of them can act as a bypass transmitting the signal from neurons A to neurons B. Once the first "transmission" frequency is found, a second set of frequencies is examined by combining each one of them with the "transmission" frequency to decide which combination will enhance the transmission of the signal. Hence a third frequency is combined to the other two and so on until a large combination of up to 1,000 frequencies has been formed at which point the compact waveform is ready to be tried in vivo. Composing a waveform is like formulating a language where the sounds are stringed in certain sequences and the sound sequences are governed by the laws of grammar and syntax. Grammar and syntax in this case are represented by the shape of the waveform and its inherent rhythm that is in synch with the endogenous electrical signals of the nervous system. A neuronal synapse activated out of sync with the other inputs to the neuron stands out as odd and is eliminated. .Neuronal synapses that are activated in synch with other inputs to the neuron are strengthened. In conclusion, a waveform can only act as a bypass mechanism re-establishing the communication of damaged neurons, if and only if it is in synch with all the other biological inputs to the neurons, or in other words, if it is resonant with endogenous ion signals emitted by the nervous system. By the same token, a waveform will be only capable in stimulating secretion of hormones such as THS and GH if and only if it is in synch with the neuronal signals that normally stimulate the secretion of TSH and GF, i.e. neuronal signals taking place in the body during strenuous exercise. Therefore, even if the device is sophisticated enough to solve the law of Ohms' puzzle, it will not be able to accomplish the hormonal secretion required to potentially reduce Diabetic symptoms unless it has a complex waveform that is in synch with the inherent rhythm of the nervous system. The empirical research for Pollock's biologically resonant compact waveform was initially performed in London University and presently continues at the European Union funded research park, Innova Science.

2008 Diabetes Study Outline

Hypothesis: Ion Magnum treatments will result in increased levels of t3 and igf-1 leading to lipolysis, hypertrophy and blood sugar reduction.
Subjects: 4 males and 4 females ages 35-50 diagnosed with Diabetes Mellitus 2, non-insulin dependent. Subjects bmi: 24-28
Other pathologies: high cholesterol, hypertention that was medically under control. None of the subjects ever had a heart attack, cardiac arrest, angina, cancer, hiv positive, aids, or any other life threatening condition.
Procedure: all subjects will receive 18 Ion Magnum treatments and weekly maintenance treatments after the 12 treatments.
Testing: full baseline testing / full testing after treatments are completed and full testing after 60 days of the study. These include include hormones: free T3; IGF-1; Testosterone; Estrodiol;
Diabetes parameters: Fasting glucose, fasting serum insulin, hemoglobin ALC and blood PH.
Experimenters: Xanya Sofra-Weiss, Ph.D, Ali Mohamed, MD

For more information on this study and all references please visit: www.arasysperfector.com

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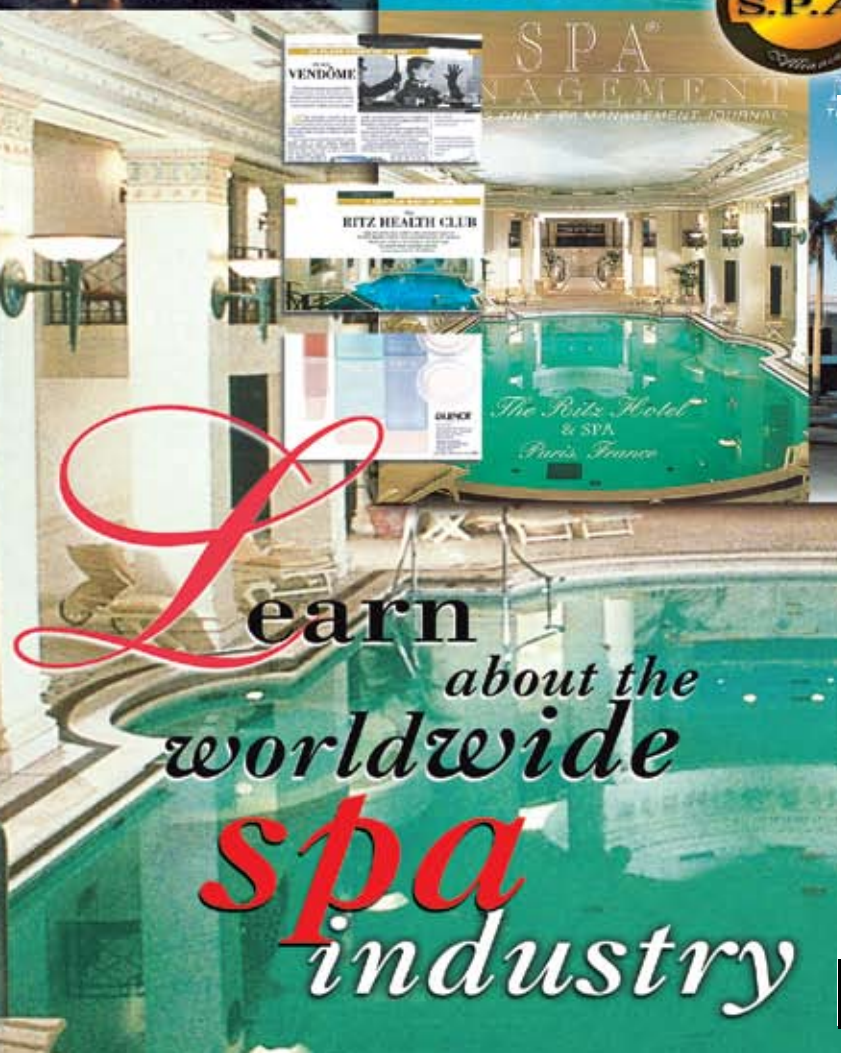

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