Academic Appointments

- Assistant Clinical Professor
  - Department of Medicine, Division of Dermatology, Nashville, TN USA
  - Vanderbilt University School of Medicine, 2006 - Present
  - Meharry Medical College: 2013 - Present
  - School of Medicine, Nashville, TN USA

- Visiting Professor of Dermatology
  - Xinhua Hospital, Shanghai Medical University, Shanghai, China: 2006 - Present
  - The First Hospital of China Medical University, Shenyang, China: 2008 - Present
  - The First Affiliated Hospital of Zhejiang University, Hangzhou, Zhejiang: 2013 - Present
  - The People’s Hospital of Hunan Province: 2016 - 2019

- Adjunct Assistant Professor
  - Meharry Medical College: 2013 - Present
  - School of Medicine, Nashville, TN USA

- Visiting Professor of Plastic Surgery
  - First People’s Hospital of Foshan University, Guangdong, China: 2012 - Present
  - The First Affiliated Hospital of Zhejiang University, Hangzhou, Zhejiang: 2013 - Present

- Consultant to many pharmaceutical, cosmeceutical, laser and energy-based device companies
- Consultant, performs research and speaks on behalf of numerous pharmaceutical and medical device companies
- For the benefit of this presentation: consultant, investigator, speaker for Lumenis, Syneron-Candela, Aerolase, Advantix, Invance, Allergan (Kybella), Neotherics, Zeltiq, Zimmer, and Syneron-Candela

Conflict of Interest

- Laser/Light technology for the treatment of acne vulgaris
- Work typically for acne via 3 main premises:
  - Destruction of the P. acne bacteria
  - Destruction of the entire sebaceous gland and sebaceous output
  - Partial destruction of sebaceous glands -- ALA-PDT

Acne Vulgaris

- Laser/Light technology for the treatment of acne vulgaris
- Work typically for acne via 3 main premises:
  - Destruction of the P. acne bacteria
  - Destruction of the entire sebaceous gland and sebaceous output
  - Partial destruction of sebaceous glands -- ALA-PDT

Novel treatment options for severe inflammatory acne vulgaris

Acne vulgaris is one of the most common dermatologic disorders and can cause significant morbidity. Treatment options for this often psychologically-ridden disease are numerous and, for many individuals, provide relief from the disorder. However, factors such as cost, efficacy, and accessibility are known to affect treatment choices. In this presentation, we will explore alternative treatments for severe acne vulgaris, focusing on those that have proven effective in reducing inflammation and improving skin quality.
Acne Vulgaris

- Laser/Light technology
  - Lasers/light sources to reduce the P. acnes population
    - Blue Light Sources - Blu-U (Dusa)
    - Intense Pulsed Light Devices—Quantum/VascuLight/Lumenis One/M22 (Lumenis), Elipse (DDG), elos Plus (Syneron), BBL/joule (Sciton), Harmony XL (Alma), Lumecca (Invasix)
    - Vascular Lasers—Cynergy (Cynosure), V-Beam Perfecta (Candela), N-lyte (ICN), AdvaTX (Advantix)
    - Short-Pulsed 650 usec 1064 nm – Aerolase Neo

Blu-U Blue Light Photodynamic Therapy Illuminator Model 4170

- Blu-U device FDA cleared for inflammatory acne
  - Used originally for ALA-PDT therapy
  - Works for mild to moderate inflammatory acne vulgaris as well
  - Blu-U more effective in inflammatory acne lesions than 1% clindamycin solution
  - Safety and efficacy proved

Solta Isolaz

- Solta Isolaz (2002 ASLMS) – 50% inflammatory acne lesion improvement
  - 85% > 50% improvement; 15-20% non-responders
Solta - ISOLAZ
In Side Out Light Amplified Tx Zone

- Multi-Application Platform
  - Acne Therapy - iAC Therapy
  - Skin rejuvenation - iSR Therapy
- Only system to clear the pores from the dermis outward
- Only system FDA cleared to treat comedonal & pustular acne
- Proprietary iTM Technology
  - Accumulates 3x Energy in Deep Targets
  - No damage to the Epidermis
- Uses iMP Multi-Pulse technology for enhanced deep pore cleansing

Photopneumatic Technology:
The Mechanism

- Hand piece is placed on treatment area
- Targets elevated closer to skin's surface
- Blood concentration reduced
- Melanin concentration reduced
- Light applied to treatment area
- Targets are safely and painlessly destroyed


Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA

Aerolase Neo

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA
LightPod Neo®


- 650 microsecond technology for up to 255 J/cm² in a single pulse duration
- More than 50 FDA cleared medical aesthetic indications
- Ability to perform anesthetic, gel & skin-contact free treatment on all skin types
- Eliminates pain, burns or adverse effects of the previous generation of lasers
- No costly service contracts

Acne Vulgaris

- Laser/Light technology
- Lasers to reduce the sebaceous glands themselves
  - 810 nm diode laser with indocyanine green (Cynosure)
  - 1450 nm SmoothBeam laser (Candela-Syneron)
  - 1320 nm CoolTouch III laser (CoolTouch Corp-Syneron)
  - 1319 nm Sciton Profile laser (Sciton Corp)

Acne Laser – 1450 nm

Acne Treatment With a 1,450 nm Wavelength Laser and Cryogen Spray Cooling

Philip F. Matheskas, MD, J. Victor Ben-Eliezer, MD, Michael A. Shalit, MD, and Shari S. Kass, MD

UCLA Dermatology, 3000 Gracie Allen Drive, Los Angeles, CA 90095


Smoothbeam-Candela

Significant reduction in acne counts – 1.43 to 0.43 – destruction of sebaceous glands

Fractora by Invasix for Acne

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA
Fat Reduction

Kybella by Allergan

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center
Nashville, TN USA

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Gold Skin Care Center, Tennessee Clinical Research Center
Nashville, TN USA

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Gold Skin Care Center, Tennessee Clinical Research Center
Nashville, TN USA

KYBELLA™ Prescribing Information. KYTHERA Biopharmaceuticals, Inc. 2015.

KYBELLA™ (deoxycholic acid) injection is indicated for improvement in the appearance of moderate to severe convexity or fullness associated with submental fat in adults.

The safe and effective use of KYBELLA™ for the treatment of subcutaneous fat outside the submental region has not been established and is not recommended.

The most common adverse reactions are edema/swelling, hematoma/bruising, pain, numbness, erythema, and induration.

Please see complete KYBELLA™ (deoxycholic acid) injection Important Safety Information on slides 58 - 60.

Lipo 202 by Neothetics

Lipo 202 - Potential Best-in-Class Non-Surgical Procedure

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center
Nashville, TN USA

LIPO-202 Administration

• Salmeterol Xinafoate
• Long-acting beta-2 adrenergic receptor agonist
• Target Patients Are Not Obese
• Maintain stable weight and lifestyle
• Single 4 cm injection
• Once Weekly Injections for 8 Weeks
• Measurable results as soon as Week 4
• 30-gauge, ½ inch needle
• No numbing agent required
• Non-invasive or 'Smart Lipolysis'
• Favorable safety and tolerability profile
• Similar to placebo

LIPO-202: A New Injections for Fat Reduction
Well Understood, Targeted Mechanism of Action

• Triggers body’s metabolism of stored triglycerides via natural process of lipolysis
  • Resulting in reduction in size/volume of fat cells in treatment area

LIPO-202 shrinks fat cells without killing them

Key Highlights

- LIPO-202 Phase 3 - Ready
- Known Mechanism
- Compelling Data
- 505(b)(2) Regulatory Pathway
  - Phase 3 in 2015
  - Mimics endogenous process
  - Stimulation of lipolysis via β2-adrenergic receptor
  - No fat cell death or apoptosis
  - ~800 patients in 6 clinical studies
  - Statistically significant and clinically meaningful reductions
  - Safety equivalent to placebo
  - Referenceable safety profile of SX as SEREVENT DISKUS® ADVAIR® HFA and ADVAIR DISKUS®
  - Pivotal Phase 3 studies to be completed in 2015
  - 2 concurrent studies in the U.S. – 800 patients each (400 LIPO-202, 400 Placebo)

The Emerging market for Lipodissolving

• So this field is changing and changing quickly
• Use only FDA approved products

CoolSculpting System and Applicators

The next evolution of the world’s #1 non-invasive fat reduction treatment

Semin Cutan Med Surg 32; 31-34: 2013
Long-term efficacy follow-up on two cryolipolysis case studies
Journal of Cosmetic Dermatology, 15, 561-564

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA

CoolMini
Submental and Other Small Area Indications

CoolMini Applicator
- Designed for submental fat
- Ideal for smaller bulges
- Treat new areas of undesirable fat

Clinical Studies
- Submental Area
  - Mexico Feasibility Study – 32 Subjects (Q3 2014)
  - US Pivotal Study – 60 Subjects (Q1/Q2 2015)
  - Brian Zeilckson – Minneapolis
  - Suzanne Klimer – Sacramento
  - Jay Burns – Dallas
  - European Pilot Evaluation – 150+ Subjects (current)

- Distal Thigh (Above Knee)
  - Multi-Centered Study – 40 Subjects (current)
  - Brian Biesman – Nashville
  - Jeffrey Dover/Michael Kaminer – Boston
  - Roy Geronemus – New York
  - Leyda Bowes – Miami
Methods

- Multi-center study: Drs. Burns, Kilmer, and Zelickson
- Study population: n=60 male and female subjects
- Device: CoolMini small volume vacuum applicator (prototype)
- 60 minute cycle at -10°C
- 1 treatment cycle per visit
- Up to 2 treatment visits, 6 weeks apart
- Final follow-up 12 weeks after final treatment

Applicator Shapes

**Surface**
- Special purpose
- Non-pinchable fat
- Slow heat extraction

**Parallel Plate**
- General purpose
- Medium heat extraction

**Cup**
- General purpose
- Fast heat extraction
- Enhanced comfort
- The basis for the new CoolAdvantage Applicators

What’s Next?

- Let’s make a big CoolMini for the flanks and abdomen!
- Prototype machined metal insert modified a standard parallel plate CoolCore into a cooled, contoured cup applicator

Cool Advantage Family

3-in-1 Design
- Three different contours

Single Applicator Replaces Three Applicators
- CoolCore
- CoolCurve+
- CoolFit
Introducing the CoolAdvantage Applicator Series

• Contoured cup cooling surface
• Shorter treatment times
• Greater comfort
• Better patient experience

It Starts with... Years of Research

Improved Comfort

Greater Comfort
• New cup design
• Lower suction pressure for gentler tissue draw

It Starts with... Years of Research

Faster Treatment Time

Colder Temperatures → Shorter Time

Almost half the time!
(35 minute treatment time)

It Starts with... Years of Research

Better Patient Experience

Even distribution of cold
Greater versatility
More tissue is in contact with the cold surface

Study Objective

• Contoured cup, medium-sized applicator was developed to cool tissue more efficiently
• Increase tissue contact
• Reduce vacuum pressure
• Reduce treatment time
• Evaluate prototype CoolAdvantage vs. standard CoolCore applicator for safety, efficacy, and patient preference

Methods

• Study population: n=19 male and female subjects
• Randomized left / right flank treatments to compare applicators
• CoolCore applicator vs. CoolAdvantage (prototype)
  • CoolCore 60 minutes at -10°C
  • CoolAdvantage 35 minutes at -11°C
• 1 treatment cycle
• Final follow-up 12 weeks post-treatment
Equivalent Efficacy, Reduced Pain, Greater Patient Preference

- Equivalent Efficacy: Bilateral flank treatments showed similar efficacy by
  - Ultrasound fat layer reduction measurements
  - Independent photo review by 3 blinded physician evaluators
  - 45% reduced procedure discomfort compared to standard CoolCore
  - 85% preferred CoolAdvantage in patient surveys

Beyond Submental Fat

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA

Radial Pulsed Therapy

Z-Wave by Zimmer

Zimmer Z-Wave Shock Wave Technology

The Handpiece & Software

Major Use in US: Acceleration of Recuperation, Diminished Pain, Quicker Recovery and Improvement of Fat Reduction

- Cool Sculpt
- Vanquish
- Liposonix
- Thermo
- Liposuction

UltraShape and the new UltraShape Power

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA
Why USculpt Only?

- Best clinical outcome ever archived with UltraShape technology so far (even when comparing to multi-focus)
- Better user experience:
  - Lighter
  - Easier to move and maneuver on curvy areas
- Minimal impact on treatment time

User Interface & Usability

Proven Outcomes Through Clinical Publications

- 20+ Clinical Published Studies and Abstracts Presented
- Over 500 Study Subjects
- 220,000+ Patient Treatments performed worldwide
- Study findings conclude:
  - High safety profile
  - MRI images show reduction in fat layer
UltraShape Clinical Studies
Abdomen, Flanks and Thighs

<table>
<thead>
<tr>
<th>Investigator</th>
<th>Year</th>
<th>Patient Population</th>
<th>Average Circumference Reduction</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teitelbaum S. et al</td>
<td>2004-05</td>
<td>US, UK, Japan</td>
<td>2.0 cm</td>
<td>82%</td>
</tr>
<tr>
<td>Leal H.</td>
<td>2009</td>
<td>Monterrey, Mexico</td>
<td>3.0-3.4 cm</td>
<td>96%</td>
</tr>
<tr>
<td>Moreno-Moraga J</td>
<td>2006</td>
<td>Madrid, Spain</td>
<td>3.95 cm</td>
<td>100%</td>
</tr>
<tr>
<td>Ascher B.</td>
<td>2007-08</td>
<td>Paris, France</td>
<td>3.58 cm</td>
<td>83%</td>
</tr>
<tr>
<td>Leal-Silva H.</td>
<td>2007-08</td>
<td>Monterrey, Mexico</td>
<td>5.0 cm</td>
<td>100%</td>
</tr>
<tr>
<td>Ad El D.</td>
<td>2008</td>
<td>Beilinson Med, Israel</td>
<td>3.96 cm</td>
<td>90%</td>
</tr>
<tr>
<td>Mulholland S.</td>
<td>2008</td>
<td>Toronto, Canada</td>
<td>3.48 cm</td>
<td>86%</td>
</tr>
<tr>
<td>Inglefield C.</td>
<td>2005-06</td>
<td>London, UK</td>
<td>6.3 cm</td>
<td>93%</td>
</tr>
<tr>
<td>de Almeida G.</td>
<td>2007-08</td>
<td>Sao Paulo, Brazil</td>
<td>5.4 cm</td>
<td>100%</td>
</tr>
<tr>
<td>Benchetrit A.</td>
<td>2007-09</td>
<td>Montreal, Canada</td>
<td>4.5 cm</td>
<td>96%</td>
</tr>
</tbody>
</table>

Note: with UltraShape fat cell destruction is immediate and permanent

Summary
- Over 600 patients studied in clinical studies
- 3 treatment regimen
- Average circumference reduction ranges from 3.5 to 6.3 cm
- Average response rate ranged from 83% to 100%
- Average patient satisfaction rate 86% to 94%

Clinical Study to Evaluate the Performance of the UltraShape Device for Fat Reduction Treatment in the Flank Area vs. Control

Methods
- Multi-center study at 3 sites in the USA
- 3 non-thermal, focused ultrasound treatments with small transducer (Usculpt) at 2-week intervals to one randomized flank (contralateral flank served as untreated control)
- Measurements:
  - Fat thickness by ultrasound measurements
  - Fat thickness by skin caliper
  - Weight change
- Follow-up at 4-, 8-, and 16-weeks after the last treatment

Results at Single Site (Dr. Gold)
- 22 subjects (21 females) enrolled and received at least 1 treatment
- Skin Type II-V
- Age range: 21-60 years (Mean ± SD; 41.7±10.8)
- BMI range: 22-29 (Mean ± SD; 24.7±1.9)
- Weight range: 55-84 kg (Mean ± SD; 66.2±7.7)

Treatments
- 63 treatment sessions (20 subjects had 3 txs, 1 subject had 2 txs, 1 subject had 1 tx)
- Mean treatment duration of 11±6 min
- Mean focal treatment zone (FTZ): 2.0±0.6
- Mean discomfort with treatment: 2.4±0.6 (Scale of 0=no pain to 10)
- Mild erythema post-treatment (17% of treatments)
- Mild edema post-treatment (1% of treatments)
- No adverse events

Results at Single Site (Dr. Gold)
- Weight increase of 1.3% at the 8-week follow-up and 1.9% at the 16-week visit
- Significant fat reduction in ultrasound measurements of treated flanks
- Difference of 23.4% fat reduction between the treated and control flanks at 16 weeks
- Difference of 2.1mm fat reduction between the treated and control flanks at 16 weeks
Clinical Study

- Clinical Study Design
- Clinical Outcome
- Before & Afters

A Single-Center, Controlled Study to Assess the Effectiveness and Safety of the UltraShape Power System for Abdominal Non-Invasive Circumference Reduction

Study Site
In-house clinic – Dr. Ruthie Amir

Study Design
- 43 subjects enrolled (41 female, 2 male, Fitzpatrick Skin Types I-V; mean age 48±8 years, range 30-65 years) with mean baseline weight = 73±14 kg and body mass index (BMI) 27.36±4.21, range 20.64-38.06
- 3 biweekly treatments to the abdomen with a single pass, using the 12 gram transducer (660W/cm²)
- 6 biweekly assessments at 2-12 weeks after the 3rd treatment

Measurements
- Fat thickness by ultrasound imaging
- Abdominal circumference measurements
- Caliper fat thickness
- Weight
- Patient comfort & satisfaction

Results at follow-up
- All subjects (n=43) completed all 3 treatments
- Significant fat layer reduction (mean 32.3%) on ultrasound imaging (at 12wk FU)
- Significant circumference reduction (midline mean 2.62 cm at 12wk FU)
- 80% of clinical study patients reported an improvement already 2 weeks after the treatment phase
- Mean reported pain level of 0.68 on a scale of 0-10
- No adverse events

Clinical Trial Results Showed:
- 32% average fat layer reduction after 3 sessions
- 2.62 cm average abdominal circumference reduction after 3 sessions
- 3.36 cm average abdominal circumference reduction in patients with BMI>28
- Treatments were accompanied with none to minimal discomfort (mean 0.68 on 0-10 scale)
- No safety issues

Patient Satisfaction
- 100% of clinical study patients reported they felt comfortable during treatment
- No downtime or visible signs of treatment, unlike other fat destruction methods.
- The most painless treatment – Average reported pain level of 0.68 on a scale of 0-10.
- 80% of clinical study patients reported an improvement already 2 weeks after the treatment phase
- Customizable for each patient. The only fat destruction procedure that can be adjusted to individual body areas and shape, including BMI>28.
- Patient proven – More than 350,000 treatments worldwide

Fat Layer Measurement Example

Photos courtesy of Ruthie Amir, M.D.

Δ US reduction: -26%

Before Post Tx
Fat Layer Measurement Example

Δ US reduction: -27.2%

Before 6 wk FU after 3rd tx

6.71m 9.2mm
6.71m 6.7mm

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA

BodyFX & Mini FX
By Invasix

BodyFX & Mini FX
by Inmode

BodyFX

• ONLY non-invasive body contouring device proven in peer reviewed and published human studies to both permanently kill adipose tissue AND tighten skin.

• LSM February 2014
• Lask, Nelson, Dharia et al
• 30% adipose cells APAF-1 at 2.5cm depth
• 13.7% new collagen

BODYFX & MINIFX

BodyFX mechanism of action

A: Dual focused basic RF
B: ALT extended basic RF temperature controlled RF
C: Emission of high voltage ultrasound

Gold Skin

Presented by Michael H. Gold, MD
Gold Skin Care Center, Tennessee Clinical Research Center Nashville, TN USA
The BodyFx Mechanism

- How does it effect the Adipocyte?
  - RF #1 = Basic RF
    - Heats adipose tissue
    - Increases metabolic rate
    - Lowers IRE threshold
    - Makes electroporation easier
  - RF #2 = HVP
    - Electroporation
    - IRE
    - Apoptosis

Clinical & Experimental Dermatology Research

A Clinical and Biological Evaluation of a Novel, Non-Invasive Radiofrequency Device for the Long-Term Reduction of Adipose Tissue

Objective: A novel, non-invasive technology, utilizing suction-coupled radiofrequency (RF) heating and ultra-short pulse durations, high voltage electrical pulses was studied for its efficacy and safety on adipose tissue.

Method: 21 subjects underwent treatment of their abdominal fat once weekly for 6 weeks. Biopsies from the RF-treated and untreated sides were harvested during abdominoplasty and cultured; measurements of adipocyte size and shape, rate of apoptosis, collagen production, and dermal thickness were determined.

Results: Significant clinical improvements (P < 0.05) were observed for the reduction of abdominal circumference (113.4 – 110.7 cm). Within the adipose tissue of the treated areas, increased levels of adipocyte apoptosis were observed immediately following the treatment series, with approximately 20% of all adipocyte cells staining positive for APAF-1, a validated marker of apoptosis. At day 14 of culture, fat cell apoptosis had further increased (30% of adipocytes staining positive for APAF-1) within the RF-treated adipose tissue. Additionally, a significant increase in collagen synthesis (neocollagenesis) representing an average increase of 13.7% was observed after treatment by the RF device, with a mean collagen level of 57.6 mg/mg in the treated zone versus 49.7 mg/mg in the non-treated zone, as determined by the Spectrocolorimetric method.

FaceTite / BodyTite

- Deliver surgical results to patients without the scalpel or scars.
- Mini-facelift, neck-lift, brachioplasty like results using RFAL accessed through 16 gauge needle entry port.
- Significantly tighten abdominal area, flanks, bra-line, inner thigh and other areas with unheralded outcomes.
- Improve surgical outcomes with RFAL for a more complete and natural look in excisional procedures

InMode RFAL Intended Use

- InMode RFAL stands for RF Assisted Lipolysis by coagulation of soft tissue. FDA approval was based on fat coagulation data submitted by the company. Device can be marketed for any procedure where treatment outcome is a result of soft tissue coagulation.
- By-product of subcutaneous fat coagulation is heating of fibrous septa and papillary dermis surrounding fat clusters up to 70°C providing significant collagen contraction.

RFAL Technology: Directional Thermal Profile
Uniform Skin Temperature

Tissue Electrical Properties

<table>
<thead>
<tr>
<th>Tissue</th>
<th>Conductivity, S/m @ 1MHz</th>
<th>Conductivity, S/m @ 460KHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>0.221</td>
<td>0.175</td>
</tr>
<tr>
<td>Fat</td>
<td>0.025</td>
<td>0.025</td>
</tr>
<tr>
<td>Muscle</td>
<td>0.503</td>
<td>0.443</td>
</tr>
<tr>
<td>Blood</td>
<td>0.822</td>
<td>0.745</td>
</tr>
</tbody>
</table>

Clinical results

Objectives:
The author investigates the degree of skin contraction resulting from treatment with radiofrequency-assisted liposuction (RFAL) and attempts to determine whether, after long-term follow-up, the classification of upper arm deformities and their corresponding treatment protocols can be refined to offer patients with prominent skin laxity an alternative to traditional brachioplasty.

Results:
One year after treatment with RFAL, the mean surface area reduction in the volar upper arm region was 33.5% bilaterally. The mean degree of pendulous vertical "hang" shortening was 50% bilaterally. Statistical analysis showed a P value of >0.001 for both measurements.

Conclusion:
Treatment with RFAL achieved statistically significant skin contraction in the upper arm region. Patients in categories 2b and 4 were successfully treated with RFAL instead of traditional brachioplasty (which is recommended by the current classification system). Category 3 patients, however, did require a short-scar brachioplasty procedure to obtain satisfactory results.

Improving Outcomes in Upper Arm Liposuction: Adding Radiofrequency-Assisted Liposuction to Induce Skin Contraction

Abstract:
The use of radiofrequency energy to produce collagen matrix contraction is presented. Controlling the depth of energy delivery, the power applied, the target skin temperature, and the duration of application of energy at various soft tissue levels produces soft tissue contraction, which is measurable. This technology allows precise soft tissue modelling at multiple levels to enhance the result achieved.

Conclusion:
The mechanism of subcutaneous collagen contraction during RF-assisted liposuction is similar to that witnessed in other types of collagen, in that the contraction process has thermal thresholds in the range of 60–70°C. This RFAL thermal process and contraction can be effectively applied during a liposuction treatment in selected cases, improving patient satisfaction and extending liposuction procedures to higher-weight patients and patients with compromised skin conditions.

Three Dimensional Radiofrequency Tissue Tightening: A Proposed Mechanism and Applications for Body Contouring

Abstract:
Radiofrequency energy induces a complex thermal destruction process in tissue. Tissue heating leads to fluid loss and denaturation of proteins, followed by collagen cross-linking and contraction. This process initiates a visible and palpable tightening that results in skin tightening. The primary objective of this research is to study the contraction characteristics of the three-dimensional radiofrequency energy technique. The results suggest that the technique is effective in generating a visible contraction of the soft tissue.

Conclusion:
Three-dimensional radiofrequency energy induces a complex thermal destruction process in tissue, leading to fluid loss and denaturation of proteins, followed by collagen cross-linking and contraction. This process initiates a visible and palpable tightening that results in skin tightening. The technique is effective in generating a visible contraction of the soft tissue, potentially offering improvements in body contouring and skin tightening procedures.
Background: The purpose of this study is to report our experience using radiofrequency-assisted liposuction (RFAL) for neck and face contouring.

Methods: From November 2009 to November 2013, 55 patients who underwent RFAL treatment were enrolled in the study. Postoperative patient satisfaction surveys were conducted, and two independent plastic surgeons evaluated contour and skin quality with randomised preoperative and postoperative photographs at 6 months postoperatively. The procedures were performed using a combination of tumescent anaesthesia, 5,000 ml of solution, with a 1:1,000,000 epinephrine concentration, and a 3.5-mm cannula. The contour and skin quality were evaluated using a 6.5 cm grid system before and after treatment. The follow-up period ranged from 1 to 4 years.

Results: All patients were followed up for a minimum of 6 months. Eighty-five percent of patients were satisfied with their contouring result and degree of skin tightening (48/55 patients). Two independent plastic surgeons considered the improvement in contouring and degree of skin tightening good to excellent in 52 of 55 cases (94%).

Conclusion: In appropriately selected patients, RFAL neck and face contouring represent a safe procedure to achieve significant improvement of the skin laxity and fat deposits of the cervicomenatal zone and jowls.