

Non-invasive Body Contouring

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Disclosure

- Research Grants: Syneron, InMode

Approaches

- Radiofrequency
- Ultrasound
- “Cold”

- Facial
- Body Contouring (?Cellulite)
- Body Shaping

Facial Approaches

- Radiofrequency
- Ultrasound

RF

- Monopolar (Solta Thermage and BTL Exelis)
- Bipolar (Velashape, Accent Vshape, etc)

Types of RF

- Monopolar (Solta Thermage and BTL Exelis)

Monopolar RF

- Monopolar systems deliver current by using one electrode that contacts the skin and another that acts as a grounding pad.
- The skin tightening effect is based on the principle of volumetric heating. The electrode contacting the skin delivers the electric current to the skin. A reverse thermal gradient is created by cooling of the epidermis.

Monopolar RF

- The dermis is then heated uniformly and volumetrically, sparing the epidermis. Partial collagen denaturation occurs as a result of this heating, which leads to collagen contraction and thickening.
- Some contraction of the collagen framework may occur immediately due to the fibril denaturation. More tightening follows due to a natural inflammatory wound healing response that triggers neocollagenesis and further skin contraction.

Bipolar

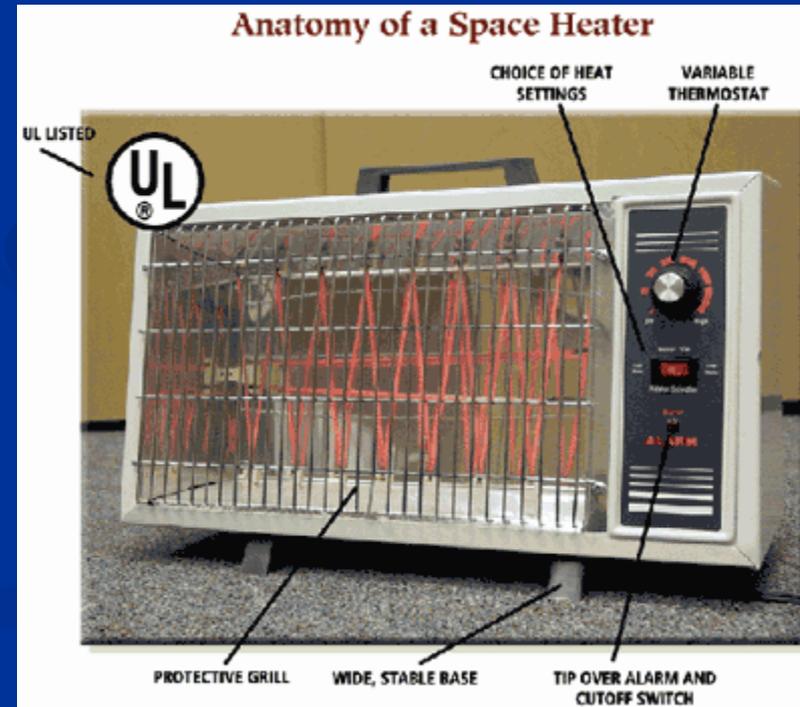
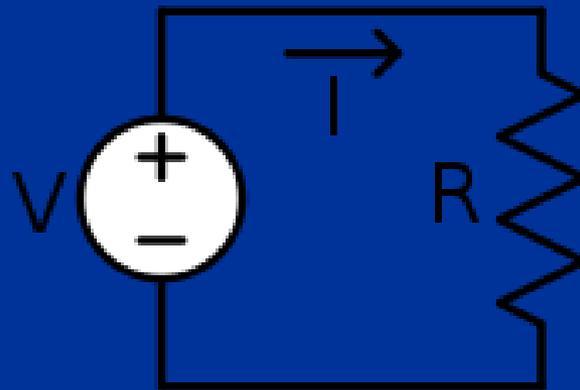
- Monopolar RF has one active electrode on the skin and a grounding pad
- Bipolar RF has 2 active electrodes placed short distance apart

Bipolar

- Current flows between the 2 electrodes
- More superficial penetration when compared to monopolar RF

How Bipolar Works?

- The Bipolar handpiece applies both electrodes at the treatment site. Electrical energy and the heat caused by the displacement of charged particles, are localized in a small area. **Bipolar energy only penetrates superficially (up to ~6 mm) and effects only the area between the electrodes.**



Clinical Results

- Bipolar RF used for superficial skin tightening

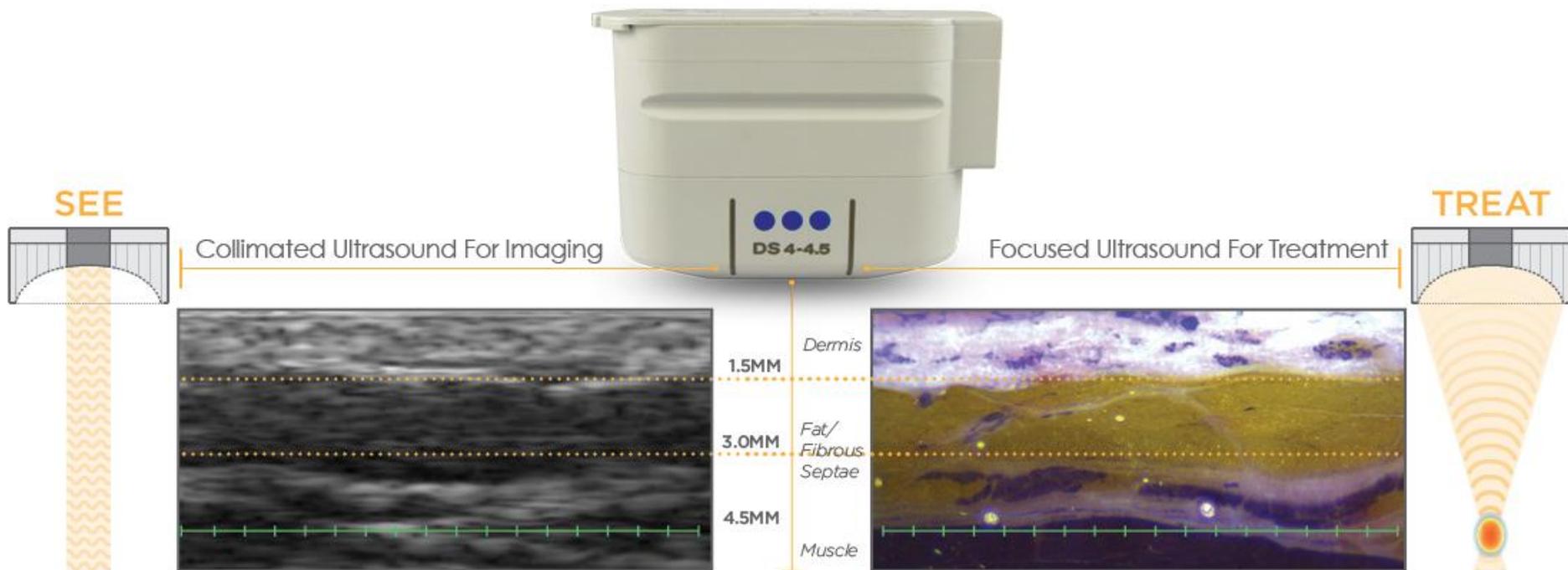
Approaches

- Ultrasound

Ultherapy



Surgical Precision in a Non-Invasive Device



Ulthera® DeepSEE® image of the lateral neck and histology of the same tissue.

The patented imaging capability of Ulthera transducers let's you see where you're treating

Ulthera transducers micro-focus ultrasound energy below the skin to non-invasively denature collagen

Body Contouring

- Radiofrequency
- Ultrasound
- “Cold”

Types of RF

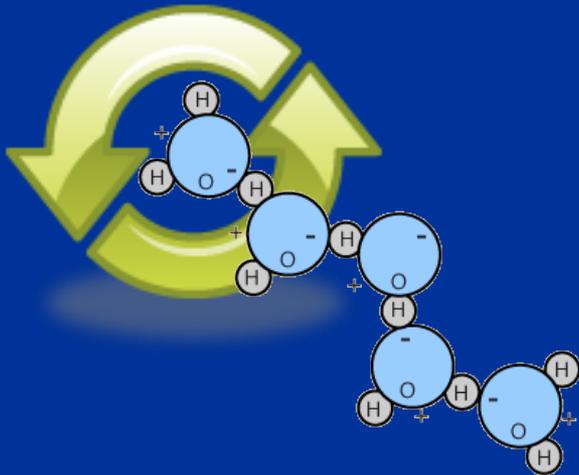
- Unipolar (Accent V shape)

Unipolar

- No electric current to the skin
- High frequency EMR at 40MHz to induce rotational oscillations in water molecules
- Action akin to microwave energy
- Production of heat to depth of 15-20mm

How Unipolar RF Works

- Polarized molecules try to line themselves up with the electrical field, like compass needles trying to point at North.
- But because the electrical field is changing 40 million times a second, the molecules don't quite have time to line up one way before they have to try to line up the other way!
- The rapidly oscillating **electromagnetic field** causes movement (a rotation) of water molecules within the tissue. **The resistance to this movement creates friction and deep heat.** This is similar to your microwave oven at home.



Body Contouring-Ultrasound

- Ultherapy (Ulthera)
- Liposonix (Valeant-Solta)
- Ultrashape (Syneron-Candela)

Body Contouring-Ultrasound Dermatol Surg 2014

- Ultherapy (Ulthera)

Study Design

- Prospective, single-center clinical trial
- Split-body
- Single-blinded (masked assessments)
- N=30
- Skin laxity in buttocks and thighs

Study Design

- Each subject was treated on one buttock using micro-focused ultrasound with visualization.
- The contralateral side was an untreated control.
- Treatment was undertaken using 7MHz (3 mm focal depth) and 4 MHz (4.5 mm focal depth) transducers.

Focused Ultrasound

- Liposonix (Valeant-Solta)
- Ultrashape (Syneron-Candela)

UltraShape

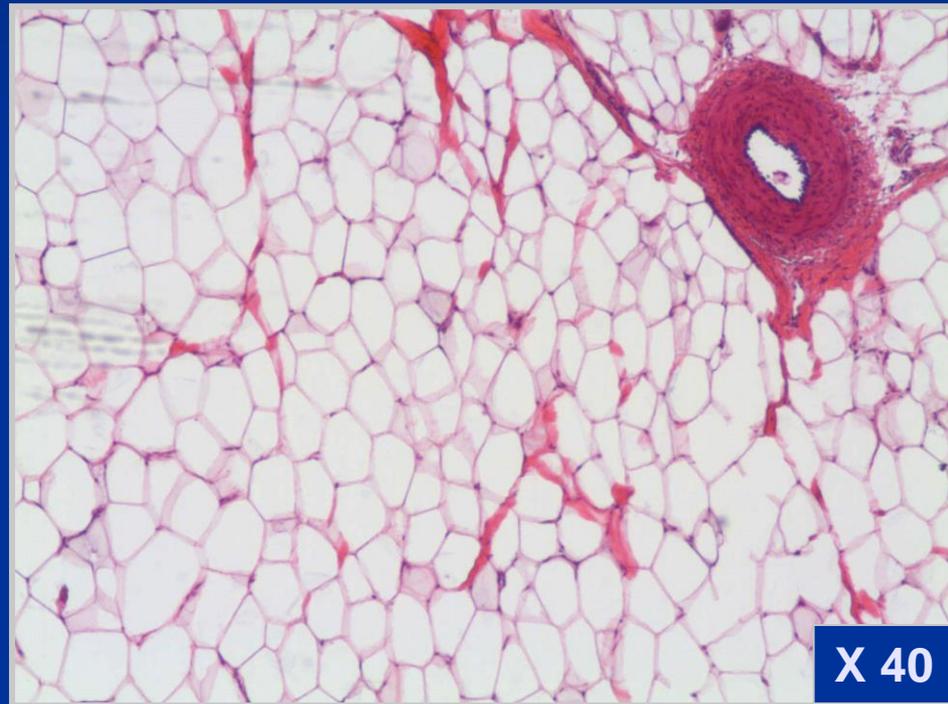
Liposonix

	UltraShape	Liposonix
Technology	Non-thermal Selective Focused Ultrasound	High Intensity Focused Ultrasound (HIFU)
Ultrasound Effect	Non-thermal Mechanical Acoustic Effects	Thermal Effect
Mechanism of Action	Fat cell destruction by means of <u>mechanical disruption (cavitation)</u>	Cell death through <u>thermal coagulation and necrosis¹</u>
Tissue Temperature Increase	<u>< 1° C</u> increase in temperature within focal volume	<u>> 70° C</u> increase in temperature within focal volume

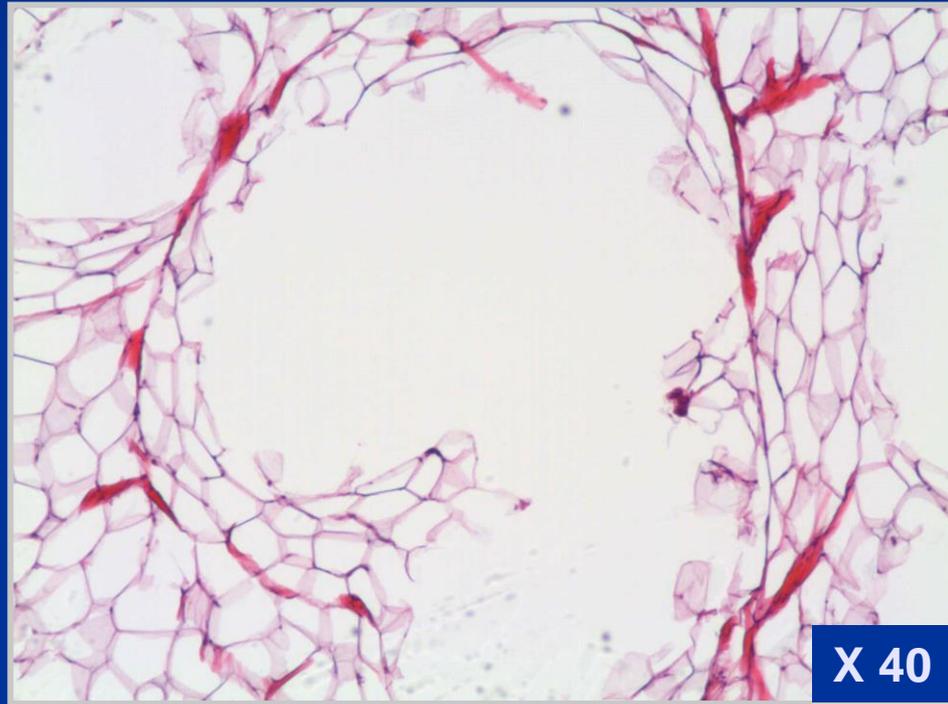
UltraShape[®] Histology

In-vivo Porcine Model: Acute Effects

Control



Single Treatment



Fat Cell Disruption (lysis)

Body Contouring

- “Cold” (Coolsculpting)

New RF Approach

- Needle Bipolar

Body Contouring

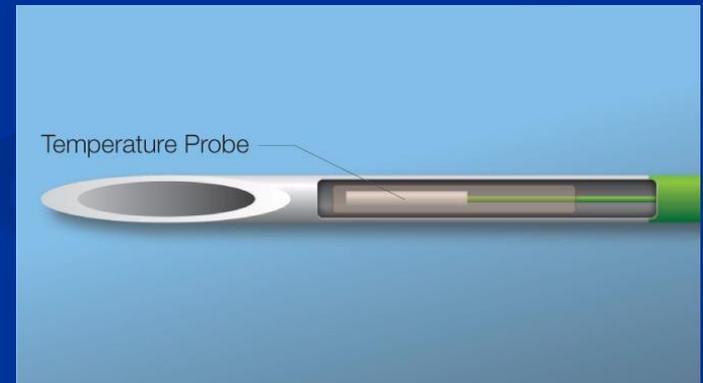
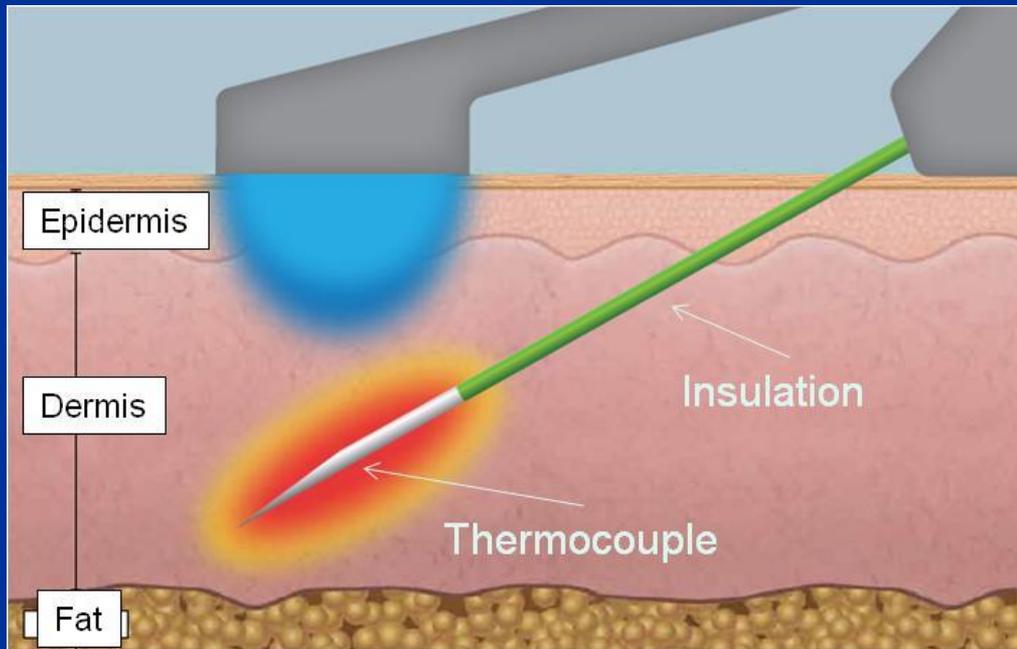
- Deep Microneedle Bipolar RF (Syneron ePrime and Lutronic Infini)

A Pilot Clinical Study to Determine the Safety and Performance of the ePrime System (Non-ablative Radiofrequency Energy) for the treatment of Cellulite

ASLMS 2014

Product Design

- 5 pairs of electrically-isolated 32 gauge needles
- 6 mm length; insulated; specially beveled to maintain sharpness
- Fractionated zones of thermal injury created in and limited to the deep dermis (1-2 mm deep into the skin)



Study Objectives

- To establish the efficacy of a single ePrime treatment of the buttocks skin for safe and effective treatment of cellulite

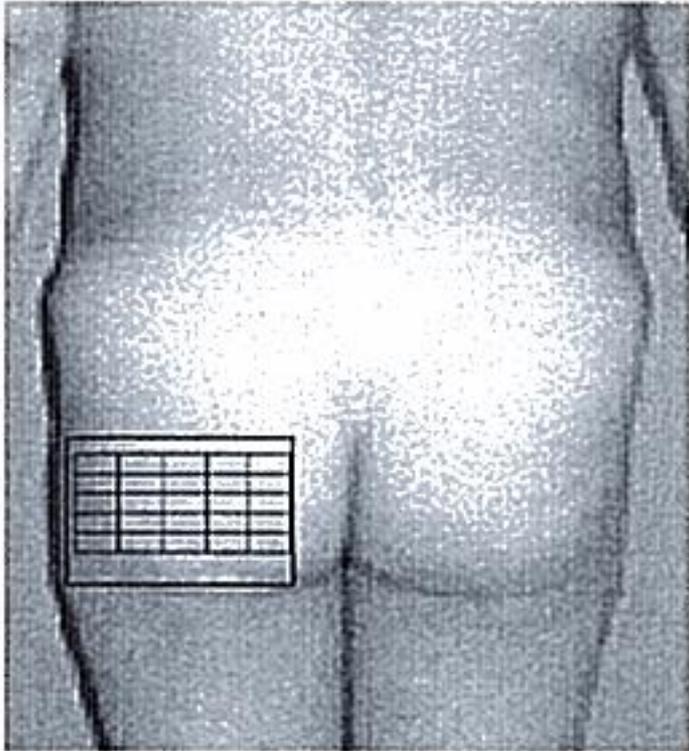
Study Design

- **Prospective, single-center, randomized clinical trial**
- **Split-body**
- **Blinded assessments**
- **N=10**
- **Cellulite**
- **One treatment**
- **One and three month follow-up**

Treatment Area

- Each subject was treated on one buttock/thigh using the ePrime system
- The contralateral side was the untreated control
- Treatment was undertaken by setting the target temperature to the maximum tolerable amount
- One treatment, one month and three month follow-up

Treatment Area



Five pairs of 32 gauge electrode placed into dermis

Insertions numbers were a minimum of 50 insertions per side

Target number of insertions was based on subject size, comfort and reaction

Insertion spacing was no less than 3mm

No overlap of insertions

Results: Investigator Improvement Scores

Investigator Improvement Scores

Statistically significant improvement in cellulite and laxity

Significant linear effect over three month study duration

Subject Satisfaction Scores

Significant effect on subject satisfaction levels

Significant linear effect over three month study duration

No adverse effects

Conclusion

- Bipolar radiofrequency devices, such as ePrime are an effective treatment for cellulite.

- Off-Facial
- Body Contouring
- Body Shaping

Body Shaping

- Radiofrequency (BTL Vanquish)
- Radiofrequency (InMode BodyFX)

Body Shaping

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