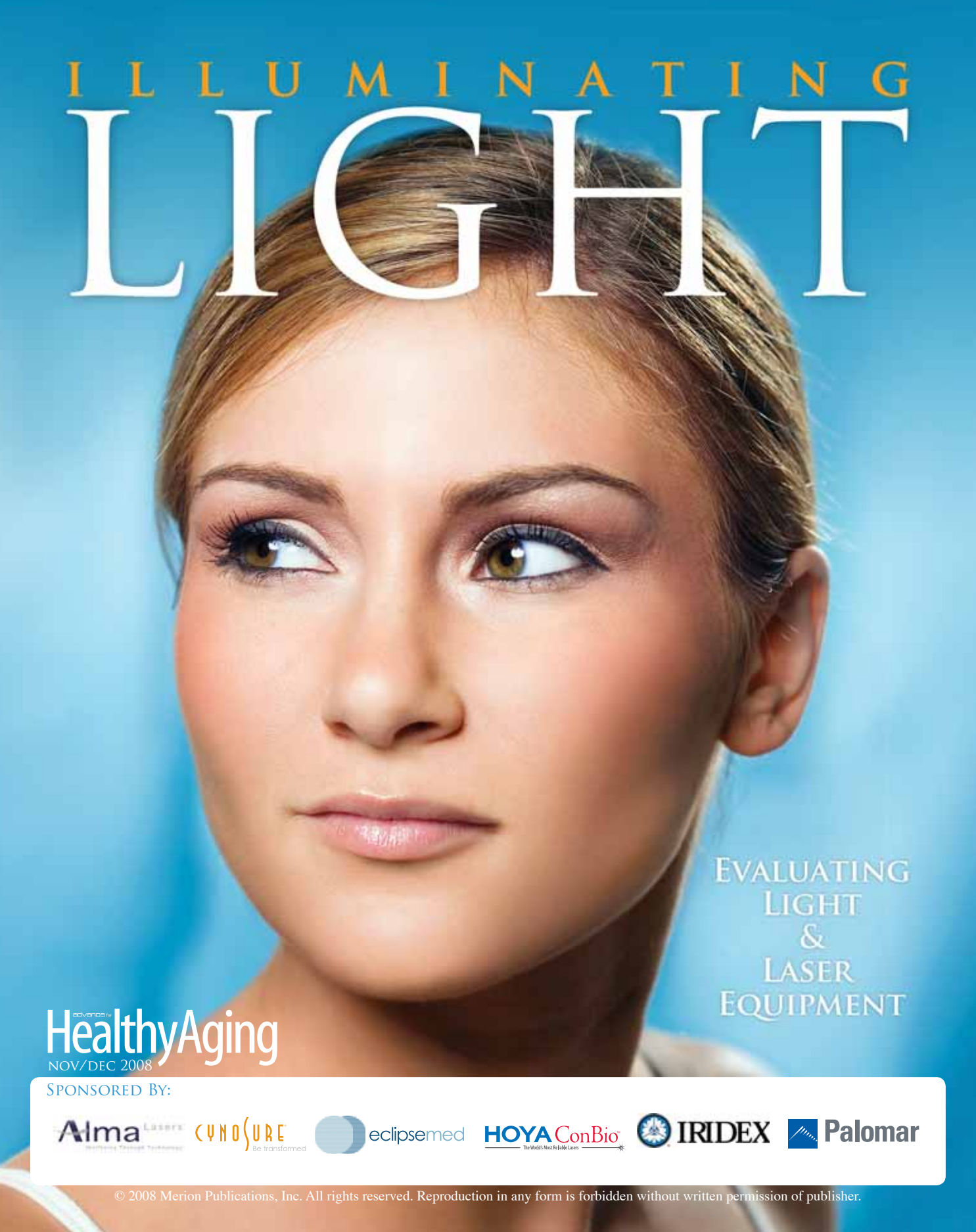
ILLUMINATING LIGHT



Evaluating Light & Laser Equipment

advance for HealthyAging
NOV/DEC 2008

HIGH POWER UNIPOLAR RADIOFREQUENCY DEVICE

Noninvasive, nonsurgical body contouring techniques and procedures for the correction of face and body imperfection including body size, weight reduction, skin toning, firming and smoothing, are being sought out in our society.[1] New technologies center around a patient's increasing desire for quality results, quick treatments and minimal recovery time.

In this regard, significant advancements occured in the past 5 years in the area of radiofrequency (RF) technology. RF technology provides a nonablative, noninvasive means for improvement of age-related rhytides and lax skin.

ULTRASOUND IMAGING

Unfortunately, little data exist regarding noninvasive treatment modalities to treat skin and disproportionate adipose tissue.

To improve measurement criteria, several imaging techniques using CT, MRI or ultrasound (US) evaluate tissue composition including visceral fat. CT exposes the patient to ionizing radiation, and MRI is more expensive than other methods.

As a result, high-resolution US has become an objective, accepted technique for in vivo cellulite imaging.[2]

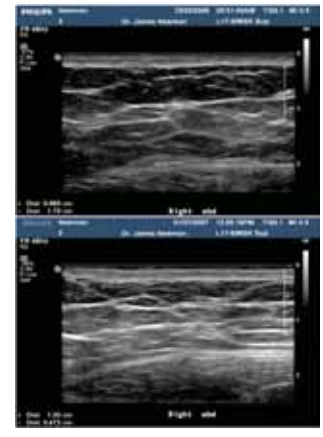
Using US imaging, a cross section of skin can be imaged by detecting reflected acoustic waves, which occurs from transitions between tissue layers with different acoustic impedance. US imaging provides information about the connective tissue of the dermal layer and the irregularity of the surface between the dermis and the hypodermis.

Through US imaging, it can be shown that RF technology produces highly efficient thermal effect on human subcutaneous tissue. The physiologic effects of temperature may occur at the site of the application and in distant tissue.

RF-INDUCED HEATING

The Accent^{XL} system, manufactured by Alma Lasers, is a high power RF-based technology for noninvasive procedures for body contouring, wrinkles and rhytids. The Accent^{XL} technology allows two mechanisms of RF-induced heating of biological tissues: rotational movement of water (dipole) molecules in the alternating electromagnetic field and tissue resistance to the RF conductive current.

The resistance and level of heat production depend on several factors, including dryness, the impedance of the treated tissue, the volume of targeted tissue and the cooling applied.



Pre (top) vs Post (bottom) ultrasonic measurements of the abdomen

Right Abdomen	Pre	Post
Superficial Fat	0.665cm	0.472cm
Deep Fat	1.085cm	0.828cm
Fiber Septum	1.75cm	1.30cm
Right Arm	**Pre**	**Post**
Superficial Fat	0.581cm	0.387cm
Deep Fat	0.749cm	???
Fiber Septum	1.33cm	1.15cm
Gluteus	**Pre**	**Post**
Superficial Fat	1.37cm	0.472cm
Deep Fat	1.38cm	0.828cm
Fiber Septum	2.75cm	1.30cm

— James Newman MD, Harriet Borofsky, MD, San Mateo, CA

Alma Lasers studied 10 patients with age-related rhytides and lax skin. Measurements of initial and final US images were recorded and divided into arms, abdomen and buttocks. Therapeutic power output settings for the Accent^{XL} were between 190-260 watts (UniPolar), and treatment endpoint was to a temperature of 41°C.

On the abdomen, US images were taken at a fixed distance lateral to the umbilicus. Care was taken to capture images on patient exhalation with neutral pressure by the imager. On the arm, the US was taken at the dorsal surface mid triceps level with the arm in a resting position. In each case, Camper's fascia served as the separating fascia.

After treatment with the Accent^{XL}, superficial fat contracted, decreased in thickness and presented a clear demarcation from deep fat, according to the US images.

Fiberous bands increased and were uniform, linear and horizontally oriented. Deep fat appeared more compact, homogeneous and as organized subcutaneous fatty globules.

The observed changes reflect an increased echodensity of structures corresponding to connective tissue, shown as increase in fiber amount and thickening of existing fibers.

These findings suggest RF heat affects both subcutaneous and connective tissue.

Local effects are due to elevated temperature response of cellular function by both direct and reflex action. Locally, blood flow increases with associated capillary dilatation and increased capillary permeability.

US imaging appears to indicate use of thermal energy is an effective means of shrinking redundant or lax connective tissues through the well-established mechanism of collagen denaturation.

1. Chung JH, Seo JY, Choi HR, et al. Modulation of skin collagen metabolism in aged and photoaged huma skin in vivo. *J Invest Dermatol.* 2001;117:1218-1224.
2. Querleux B, Cornillon C, Jolivet O, Bittoun J. Anatomy and physiology of subcutaneous adipose tissue by in vivo magnetic resonance imaging and spectroscopy: relationship with sex and presence of cellulite. *Skin Res Technol.* 2002;8:118-124.

ILLUMINATING LIGHT

ALMA LASERS
www.almalasers.com
info@almalasers.com

(866) 414-ALMA
[(866) 414-2562]

485 Half Day Road, #100
Buffalo Grove, IL 60089

CYNOSURE
www.cynosure.com

(800) 886-2966
(978) 256-4200

5 Carlisle Road
Westford, MA 01886

ECLIPSEMED
www.eclipsemed.com/
www.dottherapy.com
sales@eclipsemed.com

(800) 759-6876

16850 Dallas Parkway
Dallas, TX 75248

HOYA CON BIO
www.conbio.com
info@conbio.com

(800) 532-1064
(510) 455-4500

47733 Fremont Blvd
Fremont, CA 94538

IRIDEX
www.iridex.com
info@iridex.com

(800) 388-4747
or (650) 962-8100

1212 Terra Bella Avenue
Mountain View, CA 94043

PALOMAR MEDICAL TECHNOLOGIES
www.palomarmedical.com
info@palomarmedical.com

(800) 725-6627

82 Cambridge Street
Burlington, MA 01803