

# Ultrasound Findings in Fat Following a 1060nm Non-invasive Diode Laser – Correlation with Anatomic Findings

DAVID MCDANIEL, MD<sup>1</sup>; ROBERT WEISS, MD<sup>2</sup>; SEAN DOHERTY, MD<sup>3</sup>; BO CHEN, PhD<sup>4</sup>; MARGARET WEISS, MD<sup>1</sup>; KAREN BEASLEY, MD<sup>1</sup>; CHRISTIAN HALVORSON, MD<sup>1</sup>; ANNE MARIE MAHONEY, MD<sup>1</sup>

---

---

## Study Design:

- Validate an ultrasound method for measuring fat thickness using a unique, hands-free 12 MHz ultrasound transducer cradle designed to apply consistent pressure on the skin to minimize user error.
- To observe changes in fat thickness following a single treatment.

## Evaluation:

- Forty patients were enrolled to observe changes in the reduction of flank and/or abdominal fat.
- Ultrasound measurements were recorded at baseline and 12 weeks post treatment.

## Results:

- The linear correlation coefficient was  $R^2=0.842$ , well within accuracy necessary to validate ultrasound as a reliable measurement for fat reduction.
- Ultrasound measurements were reproducible with minimal error ( $\pm 3\%$ ).
- Statistically significant changes ( $p > .005$ ) in ultrasound measured fat thickness were observed at the 12 week follow up visit.
- More than 82% of subjects had a reduction in the fat layer after treatment.

---

<sup>1</sup> McDaniel Laser & Cosmetic Center, Virginia Beach, VA

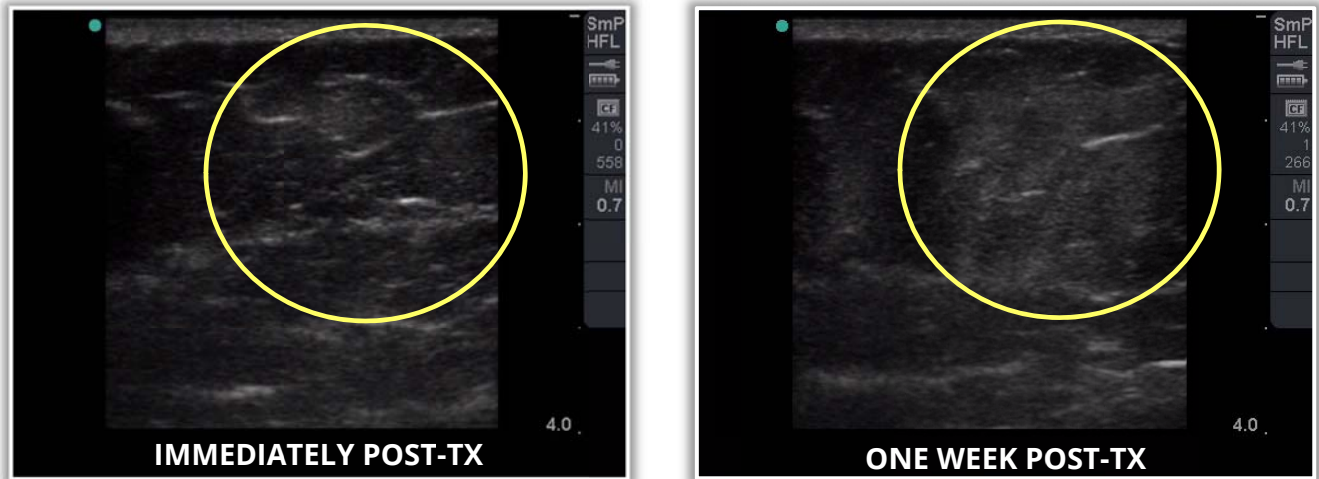
<sup>2</sup> MD Laser Skin & Vein, Hunt Valley, MD

<sup>3</sup> Boston Plastic Surgery Specialists, Concord, MA

<sup>4</sup> Cynosure, Inc. Westford, MA

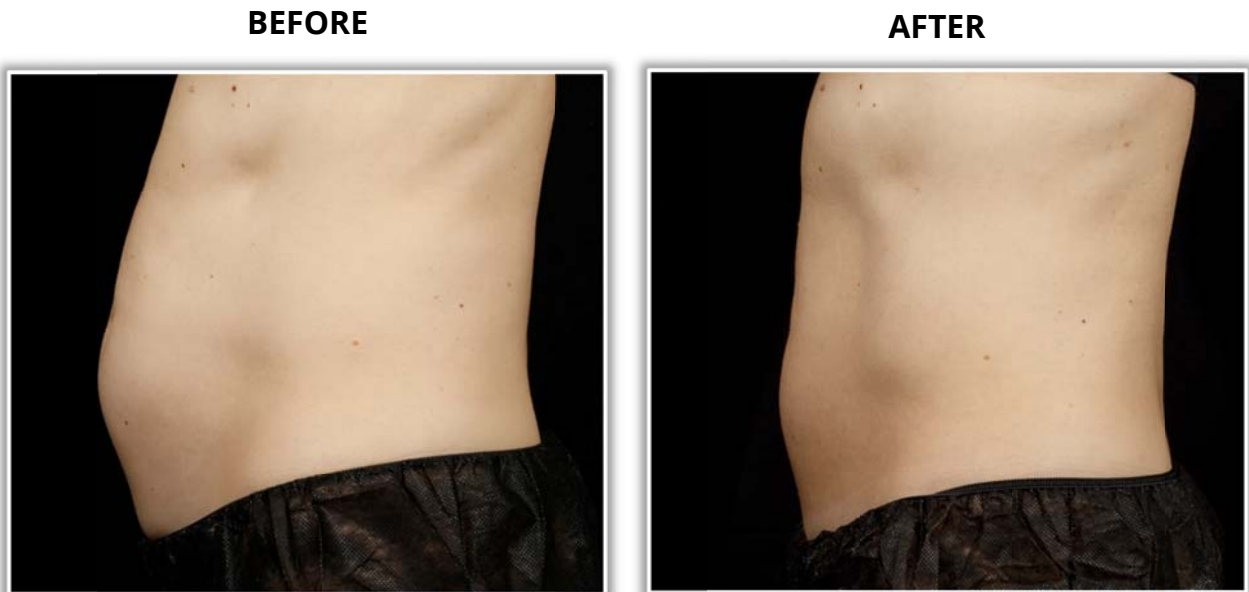
## Results (continued):

- An unexpected finding was a change in fat layer signals showing significant changes in echogenicity of treated fat compared to baseline images in 90% of patients:



## Conclusion:

- Ultrasound imaging proved to be a reliable measurement of fat reduction when a validated technique is used.
- Treatment with a non-invasive 1060nm diode laser reduced the thickness of fat after a single treatment in the vast majority of patients.



14 weeks post 2 Tx

Courtesy of Dr. Sean Doherty