Body contouring: a combined, non-invasive protocol

Non-invasive body contouring has become one of the fastest-growing areas of aesthetic medicine today. There are many approaches to reducing body fat tissue and improving skin laxity, such as cryolipolysis, high-intensity focused ultrasound, radiofrequency, and a variety of laser therapies. However, only a few clinical studies have provided objective measurements of the treatment efficacies.

I wanted to confirm whether a combined, non-invasive protocol using Fotona TightSculpting® was efficacious in decreasing body fat and increasing skin tightening according to objective measurements [1]. We followed the clinical response by using low-dose native CT, 2D ultrasound, waist circumference measurement, comparative photo documentation, and body fat monitoring with bioelectric impedance. The tissue firmness was measured by ultrasound shear wave elastography.

The treatment

Ten participants were treated with the TightSculpting® method using a Fotona SP Dynamis device. Each woman was treated four times, once every second week.

The first step of the method uses PIANO® mode, a deep-tissue heating with 1064nm Nd:YAG laser to reduce fat tissue and induce skin tightening. This superlong pulse mode is designed for homogenous tissue heating to achieve adipocyte destruction and collagen remodeling without injury to the epidermis. We used the S11-L-Runner scanning handpiece; the scanning surface was 78mm x 84mm, and power flux density was 1.2W/cm², at a fluence of 108J/cm². The temperature of the skin surface was kept at 42°C for eight minutes on each treated site. We checked the skin's temperature using the system's MatrixView® temperature monitor. During treatment, we did not apply either skin cooling or local anaesthesia.

In the second step, we used the SMOOTH® mode and the 2940nm Er:YAG laser with R11 handpiece, with a spot size of 7mm at a fluence of 2J/cm² and 2Hz frequency. We passed four times over the treated area with the Er: YAG laser. This is an effective and safe method to support collagen production, thereby improving skin laxity and elasticity on the treated areas.

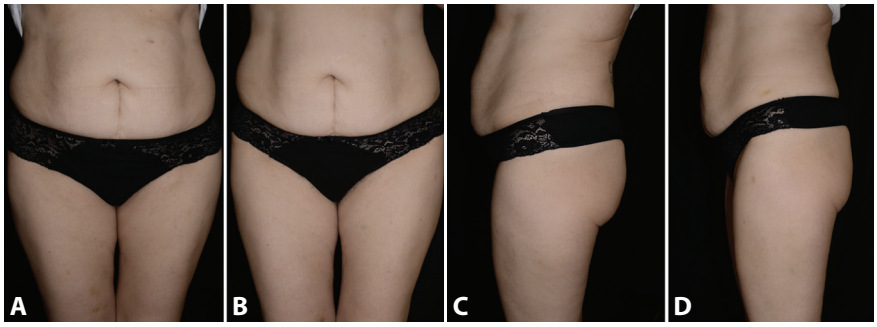

Figure 1: Comparative photographs of a participant before and after the treatments. The participant before (A and C) and after the treatment (B and D).

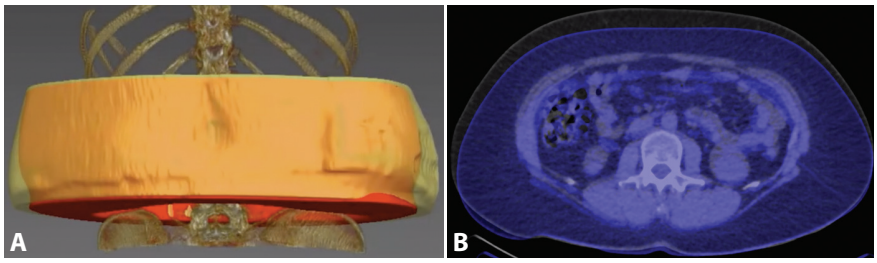

Figure 2: CT images of segmented subcutaneous adipose tissue. A: waist (yellow: before treatment, orange: after treatment). B: the axial CT images from the abdominal region. The baseline scan is gray, the repeated scan after treatment is blue.

Results

In general, we found the protocol significantly reduced waist circumference and total body fat. Ultrasonography revealed that the treatment considerably decreased fat thickness and improved skin stiffness in the treated region. Subcutaneous fat volume, measured by low-dose CT, displayed a significant decrease in the treated areas. These results suggest that this treatment protocol results in a reduction of fat tissue and tightens the skin as measured by objective methods. The participants tolerated the treatments well and did not report pain or any other symptoms of adverse effects.

In conclusion, the Fotona TightSculpting® method has proven to be a comfortable and effective therapy for skin tightening and reduction of fat tissue. In combination with a healthy lifestyle, this method represents a highly promising non-invasive approach for body shaping.

References

1. Vas K, Besenyi Z, Urbán S, et al. Efficacy and safety of long pulse 1064 and 2940 nm lasers in noninvasive lipolysis and skin tightening. *Journal of Biophotonics* 2019. https://onlinelibrary.wiley.com/doi/abs/10.1002/jbio.201900083 Last accessed 30 October 2019.

"The treatment considerably decreased fat thickness and improved skin stiffness"

AUTHOR

Prof Dr Lajos Kemény,

Chairman, Department of Dermatology and Allergology, University of Szeged, Hungary.

Declaration of competing interests: The author has received honorarium and reimbursement for speaking at conferences about laser treatments and for taking part in educational workshops worldwide by Fotona.