

Effects of Low-level Laser Therapy in Subcutaneous Fat Reduction and Improvement in Body Contour

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BACKGROUND AND OBJECTIVE

Low-level laser therapy (LLLT) has evolved as an efficient tool to provide therapeutic outcomes for a variety of medical indications. Currently, this is a U.S. Food and Drug Administration–approved technology for improving pain alleviation. However, recent studies on LLLT indicate “liquefaction” or release of stored fat in adipocytes by opening of the cell membrane after a short treatment. Nonetheless, clinical data is limited. The aim of the study was to assess the clinical effects of low-level laser therapy on subcutaneous fat reduction and improvement in body contouring.

STUDY DESIGN /MATERIALS and METHODS

Retrospective data review of patients ($n=311$) treated with Low-level laser therapy (658nm, 150 mW array/40 mW+/-20% diode laser radiation source) for a period of 26 months. All patients were meticulously screened and advocated on proper diet and exercise before treatment initiation. The LLLT was applied topically to skin of the abdomen and torso to areas where undesired fat was present.

RESULTS

272 females, 39 males (age range: 18-81 yrs) underwent from 1 to 24 laser treatments to the abdominal and torso areas. 54.6% ($n=170$) patients had 6 or more treatment sessions. Measured loss from a single first session treatment in 81% of the sample ($n=253$) averaged 2.79 cm (range: 0-9 cm) or 1.4cm in girth reduction covering all application times. Overall, 130 patients who completed all 6 and 12 sessions achieved an average sustained losses of 6.55 cm and 11.04 cm corresponding to an average girth reduction of 0.48 -0.55 cm per session. With weight loss of a minimum of 0.68 kg per week results averaged 9.0 cm for the 6 session group and 16.1 cm for the 12 session group corresponding to an average girth reduction 0.67-0.75 cm per session. 75.2% were able to sustain at least 4 cm or more loss in 6 or more sessions. Patient satisfaction and photographic assessment demonstrated significant higher score in all patients. Only 6 patients (<3%) of the 253 patients measured for their first session experienced no loss from the treatment. No significant complications were encountered in the patient population.

CONCLUSION

While there is a high demand for body shaping procedures, effective non-invasive body contouring alternatives for non-surgical candidates are very few. Cosmetic surgery patients are reluctant to undergo procedures that require general anesthesia and pose a multitude of potentially serious risks and complications with a possibility of several weeks of recovery time. Low level laser therapy appears to be safe and an efficacious method for reducing subcutaneous fat in the abdominal and torso areas where undesired fat is present.