

LETTERS TO THE EDITOR

Early experience of a novel approach to body contouring— Combining liposuction with magnetic muscle stimulation for improved aesthetic outcome: A pilot study

To the Editor,

Although surgical liposuction is the standard in body contouring, there have been emerging techniques employed to simulate the appearance of improved muscle tone without specifically addressing the underlying musculature. Recently, the FDA cleared a noninvasive treatment device (CoolTone™ [Allergan Aesthetics, an AbbVie company]) that uses magnetic muscle stimulation (MMS) technology for body contouring. Unlike other noninvasive devices that aim to reduce subcutaneous fat, MMS devices aim to improve skeletal muscle strength, tone, and definition in regions of the abdomen, buttocks, and thighs.¹ To address concerns of excess subcutaneous fat and decreased muscle tone, an integrative treatment approach that combines liposuction with MMS may be feasible for optimizing aesthetic outcomes. In order to test this novel approach, five adult patients underwent abdominal liposuction followed by six magnetic muscle stimulation (MMS) treatments to the abdomen. The goal was to describe the lead author's early clinical experience and to assess the feasibility, safety, and tolerability associated with integrating these modalities.

At the start of the study, a standard liposuction procedure was performed using the power-assisted liposuction with superwet infiltration/wetting technique.^{2,3} Specific demographics and treatment details are shown in Table S1. Four MMS treatments were administered over 14 days,^{4,5} followed by a 30-day period without treatment. Two additional exploratory MMS treatments were administered over a subsequent 7-day period. The earliest initiation of MMS treatment following liposuction occurred at 7 days postoperatively, the latest at 83 days. Four of the five patients reached the maximum MMS intensity (100%) by the first treatment session and were able to sustain it for a longer duration at subsequent sessions. The fifth patient completed four of six MMS sessions and was only able to tolerate 100% intensity during the fourth MMS session. Surveys to assess the abdomen were given to the patients throughout, and all results are recorded in Table S2. Immediately following the fourth MMS session, four patients showed an improvement of

≥1 point compared to pretreatment ratings in most survey parameters. Four weeks after the fourth treatment session, all five patients rated strength and attractiveness as higher compared to pretreatment. Four patients showed an improvement of ≥1 point in ratings of firmness. All patients reported improvement in strength and attractiveness of their abdomen at some point during the MMS sessions. At 8 weeks after the final MMS treatment, all five patients reported improved strength and motivation to maintain the outcomes of treatment. Most patients ($n = 4$) reported improvement in the appearance of their abdomen and were satisfied or very satisfied with the results of treatment. Figure 1 and Figure S1 provide patient's photographs.

These results suggest that initiation of MMS within 12 weeks of surgical liposuction is unaccompanied by adverse events and is associated with high levels of patient satisfaction and improved aesthetic appearance. We did not observe any adverse events, side effects, or complications associated with the administration of MMS after liposuction, and none of the patients complained of muscular pain, temporary muscle spasm, temporary joint or tendon pain, and local erythema or skin redness.⁶ Although larger sample sizes and follow-up studies with appropriate controls assessing the use of MMS after liposuction are necessary to establish the statistically significant safety, effectiveness, and long-term sustainability of outcomes, our findings suggest that a multimodal approach to body contouring involving liposuction and postoperative MMS is feasible. This may represent the ideal treatment approach for patients seeking enhanced aesthetic outcomes and is promising for addressing two of the defining factors of body shape-adipose tissue and skeletal muscle tissue.

FUNDING INFORMATION

S. Shridharani received funding for editorial support from Allergan Aesthetics, an AbbVie company, for the submitted work. S. Shridharani serves as an advisory board member and consultant for Allergan outside the submitted work. G. Tisch, T. Ebersole, T. Moak, and M. Kennedy declared no financial disclosures.

Plastic Surgery The Meeting (ASPS); San Francisco, California. October 17, 2020.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2022 The Authors. *Journal of Cosmetic Dermatology* published by Wiley Periodicals LLC.



FIGURE 1 Images showing the torso of a 54-year-old male patient before liposuction (baseline), after liposuction, after four MMS treatment sessions, and after six MMS treatment sessions

ETHICAL APPROVAL

Statement of institutional review board approval and/or statement of conforming to the Declaration of Helsinki: Patients were treated in accordance with the principles of the Declaration of Helsinki and the International Council for Harmonisation Good Clinical Practice guidelines.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Sachin M. Shridharani MD^{1,2} 

Grace M. Tisch BA¹

Trina G. Ebersole MD²

Teri N. Moak MD²

MacKenzie L. Kennedy BS¹

¹LUXURGERY, New York, New York, USA

²Division of Plastic Surgery, Washington University – St. Louis School of Medicine, St. Louis, Missouri, USA

Correspondence

Sachin M. Shridharani, LUXURGERY, 880 Fifth Avenue, # 1A/B/C/D, 10021 New York, NY, USA.

Email: sms@luxurgery.com

ORCID

Sachin M. Shridharani  <https://orcid.org/0000-0002-0193-349X>

REFERENCES

1. Allergan receives FDA clearance for CoolTone™ device. <https://www.prnewswire.com/news-releases/allergan-receives-fda-clearance-for-cooltone-device-300873208.html>. Accessed May 7, 2020.
2. Rohrich RJ, Beran SJ, Fodor PB. The role of subcutaneous infiltration in suction-assisted lipoplasty: a review. *Plast Reconstr Surg*. 1997;99(2):514-519. discussion 520-526.
3. Matarasso A. Superwet anesthesia redefines large-volume liposuction. *Aesthet Surg J*. 1997;17:358-364.
4. Kilmer SL, Cox SE, Zelickson BD, et al. Feasibility study of electromagnetic muscle stimulation and cryolipolysis for abdominal contouring. *Dermatol Surg*. 2020;46:S14-S21.
5. Fabi S, Dover JS, Tanzi E, Bowes LE, Tsai FUF, Odusan A. A 12-week, prospective, non-comparative, non-randomized study of magnetic muscle stimulation for improvement of body satisfaction with the abdomen and buttocks. *Lasers Surg Med*. 2021;53:79-88.
6. About CoolTone™. https://www.coolsculpting.com/pdfs/CTN131700-CoolTone_Important_Safety_Information.pdf. Accessed May 7, 2020.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.