Adverse Events Associated With At-Home Microcurrent Facial Devices

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PRACTICE **POINTS**

- At-home microcurrent facial devices have been associated with serious adverse events, including arrhythmia, pain, dizziness, and retinal detachment, based on US Food and Drug Administration Manufacturer and User Facility Device Experience database reports, underscoring the importance of counseling patients about potential risks prior to use.
- Existing randomized controlled trials of microcurrent devices are limited by small sample sizes and short follow-up periods (maximum 12 weeks), making it difficult to characterize the long-term safety profile of these increasingly popular devices.
- Dermatologists should be aware that the largely unregulated at-home microcurrent device market lacks robust, large-scale safety data. Patients, particularly those with cardiac conditions or implanted electrical devices, should be advised to consult a physician before use.

To the Editor:

At-home microcurrent facial devices have gained rapid popularity for cosmetic rejuvenation, promising improvements in skin tone, contour, and collagen production.[1] In particular, the post–COVID-19 era has seen a surge in at-home beauty practices driven by social media influence, with the global microcurrent facial market estimated at $372.9 million in 2022 and projected to grow at a compound annual growth rate of 7.3% through 2030.[1] Microcurrent devices deliver low-level electrical currents to the skin and underlying muscles. Given the limited exploration of the long-term safety, we aimed to collate existing data and identify trends in reports of adverse events (AEs) associated with these microcurrent devices.

On April 15, 2025, the US Food and Drug Administration's Manufacturer and User Facility Device Experience (MAUDE) database was queried for medical device reports from January 1, 2013, through March 31, 2025, using product names and keywords including *NuFACE*, *TheraFace*, *FOREO*, and *microcurrent device*. Search terms were limited to brands for which complaint data existed in the MAUDE database at the time of query. To ensure accuracy, reports were manually reviewed to eliminate duplicates and irrelevant entries.

A total of 28 unique AE reports associated with at-home microcurrent devices were identified (eTable). The majority involved NuFACE devices (ie, NuFACE Trinity, NuFACE Mini, and NuFACE Trinity+)(NuFACE)(n=25), followed by the TheraFace PRO (Therabody, Inc)(n=2) and the FOREO BEAR (FOREO)(n=1). The most frequently documented AEs associated with the NuFACE devices included arrhythmia (7/25 [28%]), pain (6/25 [24%]), dizziness (4/25 [16%]), headache (4/25 [16%]), and inflammation (4/25 [16%]). There was 1 (4%) case of retinal detachment. The TheraFace PRO was associated with device overheating (2/2 [100%]), and the FOREO BEAR was associated with facial deformity/disfigurement (1/1 [100%]).

While microcurrent therapy is widely marketed to consumers through social media influencers and at-home beauty platforms,[1] randomized controlled trials (RCTs) evaluating AEs related to use of this technology are lacking, possibly due to nonstringent regulation of nonprescription cosmetic devices.[2] Contrary to our findings, RCTs of microcurrent devices have reported minimal or no AEs; for instance, an RCT evaluating 56 participants treated 5 times weekly for 12 weeks with a microcurrent device that was not included in our analysis reported only mild erythema in all experimental group participants.[2] In another RCT of 30 participants, 15 of whom were treated with a microcurrent device and 15 with placebo for 30 minutes once daily over a period of 10 days, no AEs were reported.[3] A cohort analysis of 34 patients also provided preliminary evidence supporting the use of microcurrent therapy for chronic back and neck pain, beyond its cosmetic applications.[4] Despite the lack of reported AEs in

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The eTable is available in the Appendix online at www.mdedge.com/cutis.

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the literature, there is a notable absence of large-scale, rigorous studies on this topic.

Our analysis was subject to the limitations of the MAUDE database, in which reports of severe AEs are more likely to be reported than transient ones. Additionally, the small sample size and lack of a known denominator make it difficult to compare frequencies of AEs among different microcurrent tools. The products chosen for this study were the select few that reported complaint data, but there is a large existing market of devices that may be associated with AEs that have yet to be reported, potentially because of their novelty.

Our findings suggest that, despite their over-the-counter availability, microcurrent facial devices may carry major risks—particularly in at-home settings. While short-term studies have highlighted potential benefits, the small sample sizes and limited follow-up make it difficult to comprehensively characterize long-term safety risks. Among available studies on microcurrent beauty treatments, the longest follow-up was only 12 weeks.[2] Our findings support the need for further large-scale and longitudinal studies to evaluate both the efficacy and safety of at-home microcurrent therapy, especially with increasing consumer interest. The diversity of the products available adds to the challenge of broad safety guidelines, in addition to the lack of long-term clinical studies.

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APPENDIX

eTABLE. Microcurrent devices characterized by frequency of unique adverse events

Microcurrent device	Frequency, n (%) (N=28)
NuFACE devices[a] (NuFACE)	
Arrythmia	7/25 (28)
Pain	6/25 (24)
Dizziness	4/25 (16)
Headache	4/25 (16)
Inflammation	4/25 (16)
Swelling	3/25 (12)
Hemorrhage	3/25 (12)
Chemical exposure	2/25 (8)
Nerve damage	2/25 (8)
Laceration	2/25 (8)
TheraFace PRO (Therabody)	
Device overheating	2/2 (100)
FOREO BEAR (FOREO)	
Deformity/disfigurement	1/1 (100)

[a]NuFACE Trinity, NuFACE Mini, and NuFACE Trinity+.

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