

Ringiovanimento perorbitale mediante resurfacing termo-mecchanico frazionato non ablativo con drug-delivery

Francesco Lino

Private practice, Plastic Surgery, Caserta, Italy

La zona perorbitale è la prima area del viso a mostrare segni di invecchiamento. Le principali tecniche attualmente in uso per il trattamento di questa zona sono: chirurgiche e non chirurgiche.

Il resurfacing cutaneo è una delle tecniche base della medicina estetica e della dermatologia. La tecnologia utilizzata è l'azione termo-mecchanica frazionata, le cui punte presentano 81 o 24 piramidi smusse rivestite in titanio che toccano la cute per pochi millisecondi. La drug delivery consiste nel favorire la penetrazione o nell'aumentare l'assorbimento di vari principi attivi attraverso la creazione di canali transcutanei. L'obiettivo di questo studio case series è confermare l'efficacia e la sicurezza del trattamento di resurfacing termo-mecchanico frazionato non ablativo con la drug delivery.

Sono stati trattati 50 pazienti, modificando i parametri utilizzati e le sostanze attive applicate per la drug delivery a seconda della condizione clinica specifica del paziente. L'applicazione delle sostanze attive avviene al termine del trattamento e prosegue con l'applicazione domiciliare per le successive 6 ore.

Il ringiovanimento perorbitale mediante resurfacing termo-mecchanico frazionato non ablativo con drug delivery si è rivelato sicuro, indolore ed efficace, in linea con i dati della letteratura scientifica internazionale. Non sono stati segnalati eventi avversi significativi e permanenti.

La combinazione delle due tecniche migliora la qualità dei risultati e amplia le indicazioni terapeutiche.

Periorbital rejuvenation by non-ablative fractional thermo-mechanical resurfacing with drug-delivery

The periorbital area is the first area of the face to show signs of aging. The main techniques currently in use for the treatment of this area are: surgical and non-surgical.

Skin resurfacing is one of the basic techniques of aesthetic medicine and dermatology. The technology used is fractional thermo-mechanical action, the tips of which have 81 or 24 blunt titanium-coated pyramids that touch the skin for a few milliseconds. Drug delivery consists of promoting the penetration or increasing the absorption of various active ingredients through the creation of transcutaneous channels. The objective of this case series study is to confirm the efficacy and safety of non-ablative fractional thermo-mechanical resurfacing treatment with drug delivery.

50 patients were treated, modifying the parameters used and the active substances applied for drug delivery depending on the specific clinical condition of the patient. The application of the active substances takes place at the end of the treatment and continues with home application for the following 6 hours. Periorbital rejuvenation using non-ablative fractional thermo-mechanical resurfacing with drug delivery has proven to be safe, painless and effective, in line with data from international scientific literature. No significant and permanent adverse events were reported.

The combination of the two techniques improves the quality of the results and broadens the therapeutic indications.

Shenhav LT, Shehadeh W, Alcotzer I, Artzi O. Hybrid fractional laser facial resurfacing: A comparison between a single treatment at high settings versus multiple treatments at low to moderate settings. *Lasers Surg Med.* 2024;56(1):68-74. doi:10.1002/lsm.23704

Wang JV, Mehrabi JN, Zachary CB, Geronemus RG. Evaluation of Device-Based Cutaneous Channels Using Optical Coherence Tomography: Impact for Topical Drug Delivery. *Dermatol Surg.* 2022 Jan 1;48(1):120-125. doi: 10.1097/DSS.0000000000003275. PMID: 34904578.

Wang JV, Bajaj S, Steuer A, Orbuch D, Geronemus RG. Prospective Evaluation of the Safety and Efficacy of Thermomechanical Fractional Injury for Perioral Rhytides. *Dermatol Surg.* 2023 Jun 1;49(6):566-569. doi: 10.1097/DSS.0000000000003762. Epub 2023 Mar 16. PMID: 36946689.

Salameh F, Daniely D, Kauvar A, Carasso RL, Mehrabi JN, Artzi O. Treatment of periorbital wrinkles using thermo-mechanical fractional injury therapy versus fractional non-ablative 1565 nm laser: A comparative prospective, randomized, double-arm, controlled study. *Lasers Surg Med.* 2022 Jan;54(1):46-53. doi: 10.1002/lsm.23494. Epub 2021 Nov 17. Erratum in: *Lasers Surg Med.* 2023 Sep;55(7):702. PMID: 34787919.

Shavit R, Dierickx C. A New Method for Percutaneous Drug Delivery by Thermo-Mechanical Fractional Injury. *Lasers Surg Med.* 2020 Jan;52(1):61-69. doi: 10.1002/lsm.23125. Epub 2019 Jun 28. PMID: 31254291.

Judodihardjo H, Rajpar S. Retrospective study on the safety and tolerability of clinical treatments with a novel Thermomechanical Ablation device on 150 patients. *J Cosmet Dermatol.* 2022 Apr;21(4):1477-1481. doi: 10.1111/jocd.14243. Epub 2021 Jun 6. PMID: 34021955.

Daniely D, Judodihardjo H, Rajpar SF, Mehrabi JN, Artzi O. Thermo-Mechanical Fractional Injury Therapy for Facial Skin Rejuvenation in Skin Types II to V: A Retrospective Double-Center Chart Review. *Lasers Surg Med.* 2021 Nov;53(9):1152-1157. doi: 10.1002/lsm.23400. Epub 2021 Mar 30. PMID: 33783848.

Kokolakis G, von Grawert L, Ulrich M, Lademann J, Zuberbier T, Hofmann MA. Wound Healing Process After Thermomechanical Skin Ablation. *Lasers Surg Med.* 2020 Oct;52(8):730-734. doi: 10.1002/lsm.23213. Epub 2020 Jan 13. PMID: 31943275.