ATHENA - HEALTH & RESEARCH JOURNAL
2026 • Volume III • Special Issue Nº 3

Biohacking and orofacial harmonization: the influence of the biological terrain on aesthetic outcomes

Maria Teixeira Santos [1] 0009-0005-8905-4324
Sofia Lopes [1,2] 0009-0002-9152-0134
Ludmila Favaretto [2] 0009-0002-9152-0134

[1] Portuguese Association of Orofacial Harmonization and Therapeutics, Lisbon, Portugal
[2] FaceDesign Academy, Porto, Portugal

ARTICLE INFO

Received 07 July 2026
Accepted 08 August 2026

Keywords:
orofacial harmonization
biohacking
facial rejuvenation
extracellular matrix
skin aging
aesthetic medicine

Corresponding Author:
Maria Teixeira Santos; Portuguese Association of Orofacial Harmonization and Therapeutics, lisbon, Portugal;
maria.ntsantos@hotmail.com

DOI: 10.62741/ahrj.v3iSuppl.3.257

ABSTRACT

Introduction: Orofacial harmonization has evolved with the development of minimally invasive techniques, such as botulinum toxin injections, hyaluronic acid fillers, and collagen biostimulators. Despite the standardization of these interventions, clinical practice shows significant variability in the results obtained among different patients undergoing similar treatment protocols. The concept of biohacking has been discussed in the context of regenerative medicine and longevity, referring to the intentional modulation of biological processes to optimize physiological function and tissue regeneration. In aesthetic medicine, lifestyle-related factors - such as nutrition, sleep quality, physical activity, stress, smoking, and sun exposure - may influence cellular processes associated with skin aging, including chronic low-grade inflammation, oxidative stress, and extracellular matrix remodeling. These factors affect fibroblast function and collagen synthesis, which are essential for maintaining dermal structure and for tissue response following aesthetic procedures.
Objective: To discuss the concept of biohacking applied to Orofacial harmonization and to analyze how biological factors and lifestyle habits may influence tissue response and the clinical outcomes of minimally invasive aesthetic procedures.
Methods: A narrative literature review was conducted using the PubMed and Scopus databases, employing the descriptors “skin aging”, “extracellular matrix”, “lifestyle factors”, “collagen synthesis”, “aesthetic medicine”, and “hyaluronic acid filler.” Experimental studies and review articles addressing biological mechanisms of skin aging and their relationship with aesthetic procedures were included. Two clinical cases were used to illustrate differences in clinical response among patients with different lifestyle profiles.
Clinical Case Description: Skin aging results from the interaction between intrinsic and extrinsic factors that lead to decreased fibroblast activity, reduced type I collagen synthesis, and increased

Contributions: Conceptualization: MTS; Data curation: Not applicable; Formal Analysis: SL and LF; Funding acquisition: Not applicable; Investigation: SL and LF; Methodology: MTS and LF; Project administration: SL; Resources: not applicable; Software: Not applicable; Supervision: SL; Validation: LF; Visualization: MTS; Writing original draft– MTS; Writing – review: SL and LF.

Please cite this article as: Santos MT, Lopes S, Favaretto L. Biohacking and orofacial harmonization: the influence of the biologi-cal terrain on aesthetic outcomes. *Athena Health & Research Journal*. 2026; 3(Suppl. 3). doi: 10.62741/ahrj.v3iSuppl. 3.257

degradation of the extracellular matrix. Hyaluronic acid fillers do not act solely as volumizing agents. Studies have demonstrated that their injection can stimulate collagen production in the dermis through mechanical stretching of the extracellular matrix and activation of fibroblasts. This phenomenon, known as mechanotransduction, involves the conversion of mechanical stimuli into biochemical signals capable of inducing tissue remodeling and collagen synthesis. Systemic changes related to lifestyle may modulate these biological processes, influencing the regenerative capacity of the skin and, consequently, the outcomes obtained with Orofacial harmonization procedures.

Conclusion: Biohacking represents an emerging concept in aesthetic medicine, highlighting the importance of the patient's systemic biological state in determining the clinical outcomes of Orofacial harmonization. The integration of biological optimization strategies with Orofacial harmonization techniques may improve the predictability, effectiveness, and durability of aesthetic results.