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LETTER TO THE EDITOR

# Comment to: "Laser-Assisted Liposuction (LAL) Versus Traditional Liposuction: Systematic Review"

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With respect to the review article on *Laser-Assisted Liposuction* published by Dr. Pereira-Netto et al. in January 2018, I would like to share my opinion based on the experience I have with the use of laser in liposculpture treatment on more than 1000 patients and on the articles selected for this publication. I have been applying laser in liposuction since 2007 using many wavelengths such as 980 nm and 1440 nm, both with affinity and absorption for water [1], and in the last 7 years with a new wavelength (1210 nm) with affinity/absorption for lipid-rich tissues. This 1210-nm laser used on 800 cases also shows an advantage for the preservation of adipose tissue which has been documented and published since 2013 [2, 3].

The laser equipment in all of the publications selected by the authors in this article uses wavelengths with affinity/absorption for water; they administer into the subcutaneous cellular tissue with vast amounts of thermal energy, given the laser's photothermolysis property, which increases the adipocyte's membrane permeability. Likewise, the use of tumescent or super-wet techniques increases the amount of fluid in the tissues, which favors the entry of these solutions into the adipocyte causing turgor and cellular lysis ("laser lipolysis").

Currently, all of the market-available laser equipments used in liposculpture have wavelengths that *target* water, due to the affinity/absorption. However, ever since I revised Anderson's 2006 paper [4] in which the author describes lasers with wavelengths with affinity/absorption for *lipid-rich tissue*, the logical aim for this technology seemed to be toward liposuction.

Since 2010, my scientific curiosity forced me to research laser equipment prototypes with wavelengths aiming at the new target (*lipid-rich tissue*). Furthermore, I developed an innovative technique for preserving adipocytes for their subsequent use in fat grafting, the One S.T.E.P. technique™.

The mechanism of action of the laser equipment mentioned in Dr. Pereira-Netto's article is photothermal, one of many properties of the laser; nonetheless, since 2010, the development of our new technique in liposculpture has allowed me to display an unrecognized property, the photochemical property of the laser and hence its name: Selective Tissue Engineering Photostimulation technique (S.T.E.P.™ technique).

This property dissolves the connective tissue in the subcutaneous tissue, releasing the adipocytes without altering them, preserving 98%, which makes its use for grafting possible [5, 6].

The studies that we have carried out and presented in conferences are based on molecular biology, immunohistochemistry, histology (adipocytes, connective tissue, ASC) laboratory tests. In all of the comparative analyses between samples of Conventional Liposuction (CL) and the STEP technique, the results have been very favorable for the STEP technique in preserving adipocytes,

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preserving and stimulating ASCs, the viability of the grafted fat, and in the phenotype quality of the ASCs [7, 8].

The mechanism of action of CL is mechanical disruption, which in my opinion is a lipocurettage, a very traumatic and destructive technique for subcutaneous cellular tissue, but remains widely used in spite of its high morbidity.

In the present work of Dr. Pereira-Netto et al., CL is compared to LAL (Laser-Assisted Liposuction) but with laser equipment whose affinity is not the most adequate for the lipid-rich tissue, taking into account that it has a thermolytic effect on the subcutaneous cellular tissue; hence, its acceptance is difficult among plastic surgeons due to contradictory results.

After more than 40 years of the origination of CL, optimized by Klein in the 1990s, is it possible that we continue thinking that the mechanical disruption of CL is the best mechanism to treat the subcutaneous cellular tissue?

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**Compliance with Ethical Standards**

**Conflict of interest** The authors declare that they have no conflict of interest.

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