

PUBLICATION INFORMATION

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FINANCIAL & CONTENT DISCLOSURE: J. David Holcomb is a consultant, grant recipient, and clinical research investigator for Apyx Medical and received compensation in the form of Apyx hourly compensation and grants. The opinions contained herein are those of the author and do not necessarily represent the official position or policies of Apyx Medical, Inc.

MANUFACTURING DISCLOSURE: Apyx Medical manufactures and owns the Renuvion/J-Plasma technology discussed in this article.

INDICATIONS FOR USE & INTENDED USE DISCLOSURES

- Renuvion Dermal Handpiece is indicated for dermatological procedures for the treatment of moderate to severe wrinkles and rhytides, limited to patients with Fitzpatrick skin types I, II, or III.
- Apyx Medical wants to present you with current scientific discourse. Specific usage outside of the cleared indications may not be safe or effective.

RISKS:

- Risks associated with the use of the Renuvion Dermal System include but are not limited to hypertrophic scarring, milia/acne, telangiectasia (spider veins), skin discoloration/hypopigmentation, dormant infection reactivation, infection, bruising or bleeding. Warning: Application of more than one treatment pass in the perioral area, on the forehead, and along the jawline has been associated with hypertrophic scarring.

As with any procedure, individual results may vary. As with all energy devices there are inherent risks associated with its use, refer to the IFU for further information.

Plasma Energy Skin Rejuvenation



J. David Holcomb, MD

KEYWORDS

- Cold atmospheric plasma • Nitrogen plasma skin regeneration • Helium plasma skin regeneration
- Radiofrequency energy • Radiofrequency bridge

KEY POINTS

- Helium plasma energy is delivered to the tissue in a bimodal fashion via thermal convection/conduction and an ionized helium radiofrequency bridge.
- Animal studies demonstrate greater skin tissue contraction for helium plasma versus nitrogen plasma, likely resulting from greater energy density for helium plasma.
- Clinical use of helium plasma for skin rejuvenation demonstrates significant skin tightening and rhytid reduction, high patient satisfaction, and manageable side effects/complications.
- Helium plasma skin regeneration may be safely performed concurrently with various surgical facial rejuvenation procedures but should be staged ideally before injectable soft tissue filler injections.
- Indications, contraindications, efficacy, and side effects/complications for helium plasma energy skin rejuvenation are similar to deep laser skin resurfacing treatments except that treatment must be avoided in patients with implanted electrical devices.



Video content accompanies this article at <http://www.facialplastic.theclinics.com>.

INTRODUCTION

A new form of plasma energy skin rejuvenation is emerging as a promising tool in doctors' skin resurfacing armamentariums. Helium plasma skin regeneration (PSR) uses radiofrequency (RF) energy to "activate" helium gas to deliver thermal energy to the skin in a bimodal fashion with direct heating of the skin's surface by the flow of hot (ionized and nonionized) helium gas as well as Joule (resistive) heating of dermal tissue below the surface by the flow of electrical current that propagates from the hand-piece tip (cathode) to the target tissue (anode) through the flow of ionized helium. The flow of RF energy to the tissue requires electrical coupling between the treatment tip and the skin, and this occurs passively only for a short distance from the skin's surface (eg, <10 mm). Treatment tip

distance to the skin's surface within the electrical coupling range is not thought to significantly impact energy density. Targeted areas of the skin are treated completely, that is, full field treatment. Although energy deposition is full field, the flow of energy to the skin's surface is dependent on continuously changing skin tissue impedance (immediately increases at treated areas) that also limits depth of effect.¹

The predicate Nitrogen PSR device also uses RF energy to heat a flow of nitrogen gas in the treatment tip. The flowing nitrogen gas is partially ionized and then pulsed onto the skin's surface wherein convective heating of the tissue surface then results in conductive heat transfer into the dermis. Joule tissue heating does not occur with nitrogen PSR treatment. Treatment tip to skin off-sets distance directly and predictably impacts

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