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Authors: Kevin A. Wilson, Contributing Editor

Arian Mowlavi, MD; Adam Rubinstein, MD; Richard Gentile, MD; Justin Yovino, MD;
Michael S. Kluska, MD

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Paid Consultants: Arian Mowlavi, Adam Rubinstein, Richard Gentile, Justin Yovino, Michael S. Kluska

Medical Advisory Board Members: Richard Gentile

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- The opinions contained herein are those of the authors and do not necessarily represent the official regulatory position or policies of Apyx Medical, Inc.
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- The use of the terms "skin tightening", "skin contraction", "body contouring", "facial contouring", "facial rejuvenation", "sculpting", "aesthetic indications", "treating skin laxity", "shrink wrap effect", "body sculpting", "non-surgical facelift", and "fat grafting" in relation to the use of the Renuvion technology has not been approved or cleared by the FDA.
- Images in this article are examples of the Renuvion device used as a tool for coagulation resulting in tissue contraction¹⁻⁵. As with any procedure, individual results may vary.
- The Renuvion System's mechanism of action involves the percutaneous application of energy to the underlying tissue that results in the coagulation of soft tissue, causing a contraction effect on that tissue.¹⁻⁵
- Apyx Medical manufactures and owns the Renuvion/J-Plasma technology discussed in this article.

RISKS: Risk associated with the use of Renuvion may include: unintended burns (deep or superficial), pneumothorax, scars, temporary or permanent nerve injury, pain, discomfort, gas buildup resulting in temporary and transient crepitus or pain, infection, hematoma, seroma; asymmetry and/or unacceptable cosmetic result. There may be additional risks associated with the use of other devices along with Renuvion and there may be an increased risk for patients who have undergone prior surgical or aesthetic procedures in the treatment area. As with all energy devices there are inherent risks associated with its use, refer to the IFU for further information.

INTENDED USE DISCLOSURE: The Renuvion system is intended to be used for the delivery of radiofrequency energy and/or a helium gas plasma for electrosurgical cutting, coagulation and ablation of soft tissue during open surgical procedures. The Apyx Plasma/RF Handpiece (APR HP) is intended to be used with compatible electrosurgical generators for the delivery of radiofrequency energy and/or helium plasma for cutting, coagulation and ablation of soft tissue during open surgical procedures. The APR HP is a sterile, single use electrosurgical (monopolar) device intended to be used in conjunction with compatible generators for the percutaneous delivery of radiofrequency energy and/or helium plasma for cutting, coagulation and ablation of soft tissue.

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Minimally Invasive Helium Plasma/RF Device Catapults Body and Facial Contouring to New Heights

By Kevin A. Wilson, Contributing Editor

The unique capabilities of the recently updated Renuvion® cosmetic technology from Apyx™ Medical (Clearwater, Fla.) provide a minimally invasive subdermal thermal therapy that is changing the game. According to physicians, subdermal coagulation with Renuvion does wonders when added to body or facial contouring protocols by enhancing outcomes and expanding the potential patient base, causing doctors to rethink what's possible. Now more than ever, physician users can bring patients closer to idealized results with less downtime, using smaller incisions and less invasive surgical procedures.

FDA cleared for cutting, coagulation and ablation of soft tissue, Renuvion's powerful technology provides a therapeutic thermal effect in a unique manner, according to plastic surgeon and high definition body sculpting expert Arian Mowlavi, MD (Laguna Beach, Calif.).

"It contracts tissue, often eliminating the need for cutting/excisional surgery. After the handpiece is inserted under the skin through the same, very small incision required for fat removal, helium is energized to plasma at the tip, simultaneously heating nearby tissue and serving as a pathway for the proprietary RF energy, which provides an additional effect," Dr. Mowlavi explained. "This effect is automatically selective for untreated tissue because the plasma seeks out low-impedance tissue. As the impedance of treated tissue rises during treatment, the plasma automatically seeks un-treated areas. There is nothing out there that provides this level of safety, specificity and speed. You can apply energy at different tissue depths for a layered, full and thorough treatment."

Adam Rubinstein, MD, a Miami-based plastic surgeon, feels the innovative combination of RF energy and plasma with Renuvion makes it both revolutionary and extremely efficient. "RF tissue heating, especially for body contouring, can be very time consuming. With Renuvion, the improvement in treatment time is almost

exponential because tissue is heated to 85° C and then cools back to baseline in under half a second, which is almost instantaneous."

"The type of energy is often less important than the tissue temperature you can achieve," said facial plastic surgeon Richard Gentile, MD (Akron, Ohio). "Tissue contracts and fat melts at certain temperatures, greater than 67° C and 55° C, respectively. By reaching 85° C the time to cause the desired effect is extremely short. And, because the heat with the plasma is neutralized very quickly, we can achieve these subdermal temperatures and heat connective tissue, or fat, or collagen, without unwanted thermal damage to the overlying skin or vital structures below. Until Renuvion we haven't seen this kind of capability."

"Faster treatment plus scarless outcomes and soft tissue contraction with Renuvion allow me to treat a much wider range of patients," Dr. Mowlavi explained. "I can offer less invasive treatment options to younger patients and males, who don't want the stigma of an incision line or don't want to lose time from work. And, Renuvion is especially helpful when treating older patients, who want to avoid general anesthesia, the long scars and prolonged recovery times associated with incisional surgery."

"Although we offer an array of aesthetic surgeries, more than 90% of our patients undergo liposuction. We do it every day; easily 300 cases a year, and on all body areas," said plastic surgeon Justin Yovino, MD (Beverly Hills, Calif.).

"As we age, our tissue loses its elasticity," Dr. Yovino continued. "So, being able to provide subdermal heat-based tissue contraction is the key in my practice."

"Renuvion has significantly improved our ability to treat specific areas such as the upper arm. Women who want upper arm fat reduction, but have associated moderate to severe skin and soft tissue laxity, often require skin removal, which results in long scars that patients typically don't



Arian Mowlavi, MD
Plastic Surgeon
Laguna Beach, CA



Adam Rubinstein, MD
Plastic Surgeon
Miami, FL



Richard Gentile, MD
Facial Plastic Surgeon
Akron, OH



Justin Yovino, MD
Plastic Surgeon
Beverly Hills, CA



Michael S. Kluska, DO
Plastic Surgeon
Chattanooga, TN

want, so they decline to proceed and leave discouraged,” Dr. Yovino explained.

“In the past I wouldn’t even offer arm liposuction to patients with moderate to severe skin laxity because the best they’d get is a deflated arm,” Dr. Yovino noted. “With Renuvion we can do even more with our signature liposculpting procedure. This procedure happens in the office setting, using specially powered liposuction canulas under local anesthesia, and allows us to reposition the patient as we treat. The repositioning is especially important with arm sculpting, which requires a delicate approach with high attention to detail,” he shared.

“Now our patients can get a more rewarding result because I can remove fat as well as provide the tissue contraction necessary to give them an outcome that reflects what they actually want,” Dr. Yovino pointed out. “I’ve always been on the lookout for this kind of thing, and I’ve found it in Renuvion. It allows me to treat more people less invasively, which appeals to anyone’s patient base.”

Renuvion has revolutionized Dr. Mowlavi’s body contouring capabilities. “This does amazing things for my high definition liposuction (HDL) and body sculpting procedures, which by definition are stunning and transformative,” he reported. “Renuvion gives me better, full-circumference treatment capability when removing fat comprehensively and selectively from the deep and superficial layers – both of which are essential to crafting outstanding hi-definition results.”

The reason for this? Because with any liposuction procedure, skin contraction is a key element to the final outcome. “You can’t achieve good hi-def results without

skin contraction that is consistent and predictable,” Dr. Mowlavi stated. Renuvion helps Dr. Mowlavi better realize the final result after he sculpts with ultrasound-assisted hi-def liposuction. “Also, using my technique with Renuvion, I can preserve 90% viability of the fat used in Brazilian Butt Lifts, a critical component of HDL body contouring.”

Dr. Mowlavi uses a 2 to 10 HDL Body Scale (2 being the lowest and 10 being the highest score) to grade body shape and guide his customized surgical plan. He chooses which modalities to use, and how, depending on where patients fall in the scale. “Before Renuvion you couldn’t get a 9 or 10 result for anyone who didn’t walk in the door with at least a 7 score,” he said. “The capabilities of Renuvion allow me to deliver top outcomes to patients with lower scores such as a 5. Patient satisfaction is incredible.”

And for full body treatment, Renuvion continues to change the game. “I can treat six to eight areas, double that bilaterally,” Dr. Mowlavi said. “At a treatment time of 45 minutes per area with the competing technology, this is prohibitive. With Renuvion I can contract the skin and soft tissues in five minutes per area and thus treat the full body as needed in one session.”

With the importance of skin contraction to body contouring so evident, a study by Dr. Mowlavi scheduled to appear in *Plastic and Reconstructive Surgery* highlights the changes in elasticity seen with Renuvion treatment. “We measured distraction force using a special meter to determine how much force it takes to pull the skin 0.5 inch, 1.0 inch and 1.5 inches away from the body before and after Renuvion treatment. Data showed that Renuvion increased average distraction force required to pull the skin by 115% at 0.5 inch, 82% at 1.0 inch and 58% at 1.5 inches. This data demonstrates dramatic decrease in tissue elasticity and improved skin quality with Renuvion.”

“We really haven’t had a truly powerful tissue contraction technology for very long in this field. Because it is so efficient, Renuvion has changed how I do many of my procedures,” Dr. Rubinstein explained. “As a stand-alone procedure I can treat laxity on the abdomen, arms, neck, anywhere on the body, to provide an almost shrink-wrap effect for maximum recontouring. As an adjunct to liposuction, Renuvion is outstanding because correcting the overlying laxity is a key consideration.



Before and three months after High Definition Liposuction with VASER and Renuvion skin tightening of the medial thighs, lateral thighs, back, flanks and abdomen, as well as a Brazilian Butt Lift.

Photos courtesy of Arian Mowlavi, MD

“Renuvion allows us to do things we couldn’t do without it,” Dr. Rubinstein continued. “If a patient already has some loose skin and we do liposuction we’d just be creating additional laxity. With Renuvion we can be a bit more aggressive with liposuction in some regions, counting on technology to fix the laxity. Areas such as the inner thigh, which is very sensitive, respond extremely well to Renuvion. If I just did liposuction we’d have the problem of additional laxity, but with Renuvion I can be a bit more liberal in who I treat with confidence. And it is

where the brow or facelift has much smaller scars, 1.5 cm on each lateral brow rather than a full trichophytic brow flap.”

During treatment, Dr. Kluska treats the entire subcutaneous space with Renuvion, then does a small wedge resection in the lateral brow area to elevate and properly position the skin as the subcutaneous contraction continues over time. “Downtime is reduced to five to seven days versus 14 days, and results maximize over the next six to nine months as the thermal effect of Renuvion continues to

“With Renuvion we can be a bit more aggressive with liposuction in some regions, counting on technology to fix the laxity.”

easy to add to my procedures because it doesn’t significantly increase total time under anesthesia.”

Michael S. Kluska, DO, a plastic surgeon in Chattanooga, Tenn. completed a comparative study at the end of December 2019 pitting helium plasma/RF against bipolar RF as an adjunct to liposuction with follow-up out to six months. “I told the team at Apyx Medical that I was going to do a comparative study and if their device was better, I’d buy it. I bought three,” he said. Follow-up in the study occurred at one week, one month, three months and six months. “We included 11 patients treating medial thighs, arms and back rolls bilaterally with the different devices. It was a well-controlled study: same amount of tumescent solution, same volume of aspirate for each location and we followed the recommended application protocols for each product. Renuvion came out ahead in all areas: greater contraction, reduced treatment and recovery times, decreased discomfort, decreased procedure and anesthesia expense and decreased time, and ultimately outcomes and patient satisfaction were higher.”

In addition to body treatment, Renuvion is transforming the facelift paradigm, according to Dr. Kluska. “I use Renuvion for full face treatment, it has given me an added color in my palette allowing me to achieve more definitive skin contraction. I can use it by itself, but I now offer short-incision brow lifts or mini-brow lifts that give us great results but are much less invasive. I offer a unique procedure

stimulate new collagen generation,” he elaborated. “It is a more conservative approach with a natural looking result that patients enjoy. More and more, patients don’t want to look ‘done’, but refreshed. I could describe a similar procedure for the lower face and neck which is equally profound. In any case patients are back to work in five days.”

Dr. Gentile’s use of Renuvion has altered the landscape of his facial correction offerings as well. “In our office we call it ‘Sculpturing’, a combination of sculpting and contouring to help restore the youthful shape of the face less invasively,” he shared.

“We categorize these procedures in a spectrum that starts with Renuvion alone for a less aggressive treatment where appropriate, reducing fat and contracting



Before and three months after body sculpting using a proprietary “Precision Sculpt” technique and Renuvion
Photos courtesy of Justin Yovino, MD



Before and two months after facial rejuvenation protocol that included Renuvion brow lift, liposuction and Renuvion to the neck, fat grafting to the face, rhinoplasty and chin augmentation

Photos courtesy of Michael Kluska, DO



Before and four weeks after liposuction and Renuvion to the neck with full-face fat grafting

Photos courtesy of Michael Kluska, DO



Before and after a nonsurgical facelift and subdermal skin contraction with Renuvion

Photos courtesy of Richard Gentile, MD

tissue in the lower face and neck using very small insertion points. Up from there we can do minor surgery with similarly small incision points made possible by Renuvion, and then progress to a full surgical approach. Renuvion allows us to achieve the contraction of skin with less reliance on the surgical aspect and gives us a broader spectrum of care. This concept allows us to provide better and more natural looking results. We may also provide complementary fat grafting to further improve contours.”

Dr. Yovino sees the neck as one of the best response areas for Renuvion. “I use it all over the body in conjunction with many procedures, but the neck is a special area similar to the upper arms,” he explained. “Renuvion allows us to be as minimally invasive as possible while providing the best result, especially for patients who are candidates for a more aggressive surgical approach, like a neck lift, but who don’t want one. These people can be counselled that while the result won’t be as profound as surgery, the overall look will be improved.”

Both the Renuvion generator and the handpieces have been recently updated. “Renuvion is still young as far as devices are concerned, but it has been around a long time for other surgical specialties,” said Dr. Rubinstein. “The technology was born for laparoscopic use, so its original handpiece design was more in tune with that model. How we’re using it now requires a new paradigm.

“The new Renuvion APR handpieces are slimmer and more suited to aesthetic applications,” Dr. Rubinstein continued. “And the improved generator works with the new handpieces for more efficient treatment. The ergonomic design features a pencil-type grip rather than a pistol grip. Instrument shaft diameter has been reduced from 5 mm to 3 mm on the new handpieces, which are both strong and slightly flexible to facilitate proper movement through the tissue. The bullet-shaped tip can direct plasma flow to side-facing ports rather than out the front. There are three designs with different lengths and tip port configurations (twin-port tip with 27 cm or 15 cm shaft, or single-port tip with 15 cm shaft) to facilitate a variety of treatment possibilities. Distance indications on the tips, with accompanying dermal marking templates, help physicians keep the application of heat away from the

“What Renuvion does is bring added value to my practice by enhancing what I am already doing, as well as opening up new areas of treatment.”

incision/insertion site. All this makes treatment much easier.”

The addition of a joule counter to the Renuvion generator allows for measurement of how much energy is being delivered. “This is still new technology so we’re still working out best practices such as how much energy to deliver, and the joule counter will help us develop improved protocol recommendations and augment the capabilities of this already excellent technology,” Dr. Rubinstein reported. “As we figure out ranges of energy for different applications this will help us provide consistent, reproducible guidelines toward optimal results.”

Additionally, this new system upgrade is free of charge. “Apyx is committed to doing things right,” Dr. Rubinstein praised. “As they determine better ways to do things, they stand by their physician partners rather than try to capitalize on improvements, which would penalize early adopters. Users can be confident that they have the highest level of capability with the device at all times, which speaks volumes about the company and its customer service.”

In fact, Apyx used a physician advisory board to guide current and future improvements, Dr. Gentile pointed out. “Transforming from the original surgical-focused device to this new handpiece has made Renuvion truly ideal for aesthetic indications all over the face and body. It is easier to use, more comfortable for physicians as well as patients, and will help us refine our techniques and broaden versatility further as we move forward.”

“The Apyx commitment to the customer is part of what will make Renuvion so successful,” Dr. Yovino maintained. “They listen to physicians and spend significant resources in research and development to take initiative and remain progressive. They make sure doctors are educated and aware, with verified information you can trust about what this device can, and cannot do. They have consistently overdelivered on their promises.”

“What Renuvion does is bring added value to my practice by enhancing what I am already doing, as well as opening up new areas of treatment,” said Dr. Kluska. “Renuvion allows me to deliver consistent results I can be confident in and proud of – an add-on to any procedure. It saves treatment time and anesthesia cost. It is a win-win that makes everything better for both physician users and patients.”

Dr. Kluska added that Renuvion itself doesn’t require general anesthesia and can be done under local anesthesia in-office. “I can use it on all locations, face or body, including lower extremity calf sculpting, less-aggressive scarless breast lifts, turn a traditional tummy tuck into mini-tummy tucks using the heat of Renuvion to contract the upper abdomen, and more, all with reduced treatment time and downtime.”

By broadening the potential patient base, the potential revenue stream is also improved, according to Dr. Yovino. “I purchased Renuvion to give my patients better results, but it helps me convert more consults into scheduled procedures. I won’t treat inappropriately, but if we don’t treat we can’t help the patient and we don’t make any money. By allowing us to treat more patients, more successfully and more conveniently, with better outcomes, everybody wins. It also provides an add-on that yes, raises the price, but is 100% justifiable because it truly maximizes the patient outcome.”

“Good surgical technique is always the key to good surgical outcomes. And Renuvion allows us to do more safely, use better techniques and achieve the quality outcomes patients are looking for,” Dr. Yovino persisted. “It is all about safety and results.”