

Innovative Applications for Platelet-Rich Fibrin Matrix (PRFM)

The SELPHYL® System from Aesthetic Factors LLC enables the safe and rapid preparation of natural autologous platelet-rich plasma (PRP) utilizing a small amount of the patient's own blood

BY DENISE MANN

SELPHYL® is a unique system that contains a fibrin matrix that stabilizes and protects the platelets, allowing the sustained release of growth factors to promote growth of new tissue, blood vessels, and collagen. With more than 15,000 cases performed with SELPHYL® to date worldwide, there is a growing acceptance of Platelet-rich Fibrin Matrix (PRFM) and Platelet-rich Plasma (PRP) by aesthetic practitioners as well as consumers in search of autologous treatments for cosmetic improvements.

SELPHYL® is currently FDA approved for orthopedics and is being evaluated for a growing range of other clinical applications. The procedure is straightforward and can be performed in a treatment room in a doctor's office in half an hour. The SELPHYL® System is a kit that allows the practitioner to rapidly and safely prepare PRFM at the patient point of care. The entire procedure takes about 30 minutes to perform in a health care practitioner's office. Platelets are known to release growth factors that are responsible to healing and repair. SELPHYL® collects the platelets from blood, removes the components that aren't desired (red and white blood cells), and allows a physician to place the PRFM at the desired location to guide natural tissue regeneration. To date, there have been no cases of granulomas, immune response, or allergic reactions reported.

The SELPHYL® kit is available in 4 ccs, 8 ccs, and the newly launched 16 ccs, which is ideal for pan facial rejuvenation or combination with autologous fat.

"SELPHYL® is part of an exciting new generation of cost-effective fillers that utilizes your body's own capacity for repair and regeneration. There is virtually no risk of allergic reaction since SELPHYL® doesn't contain any synthetic or animal products. A small amount of blood is drawn; the blood is placed in a centrifuge



SELPHYL® PRP/PRFM 16cc Kit



SELPHYL® membrane placed at site of surgical incision. Courtesy of Bart Rademaker, MD.



Left, Autologous fat combined with PRFM. Right, PRP Tube after centrifugation showing golden platelet-rich plasma at the top.



and spun at a high speed for about 6 minutes. The matrix is then injected into the areas of the face to be treated, such as wrinkles, folds, laugh lines, acne scars, and hollows under the eyes. Once injected, SELPHYL® releases growth factors, stimulating collagen production and the growth of new skin cells," says Jon B. Turk, MD, FACS, a facial plastic surgeon in Great Neck, NY.

After treatment, the injected area might be slightly red in color, but will normally fade within a few hours. Mild swelling, slight bruising, itching, and tenderness at the injected site are also temporary, and will typically resolve within 2 days. As Turk says, "PRFM fits into this evolving category of treatments that stimulate collagen, promote skin rejuvenation, and prevent further aging in a safe and minimally invasive manner."

Charles E. Crutchfield III, MD, a dermatologist in Minneapolis, has performed more than 300 cases. "I've been using SELPHYL® for 2 years with tremendous success," he says. "I tell my patients that SELPHYL® is like you helping you, since it's all natural. They appreciate the idea that SELPHYL® utilizes their own natural growth factors and cytokines to turn the clock back. The texture of the skin improves dramatically, and fine facial lines are softened. It's absolutely revolutionary and one of the biggest advances in natural cosmetic dermatology I've seen in my career."

Crutchfield's variation on a "Liquid Face Lift" procedure generally takes around an hour, and most patients can return to their normal routines the next day. "They get results that rival a traditional face lift, minus the pain, downtime, expense, and inconvenience. Every patient is different, so I use multiple techniques and customize every treatment, sculpting and contouring the face, to give my patients the absolute best results," he says.

With SELPHYL®, Crutchfield says that most

SELPHYL® - Tear Trough Study

people see a difference in 2 to 3 weeks. "It crescendos in around 3 months after treatment. I may add a hyaluronic acid filler for volume enhancement, or a second treatment with SELPHYL®. If patients are under a time constraint, I can do both together, but I prefer to use SELPHYL® first. It produces collagen and builds such a strong base so the amount of hyaluronic is about a third of what we normally need."

TREATING THE TEAR TROUGH

New York City dermatologist Bruce Katz, MD, recently completed a pilot study on the Clinical Applications of PRP/PRFM in the Tear Trough. He analyzed injections using the SELPHYL® System to promote tissue regeneration in the treatment of depressions in the tear trough area. Katz examined the qualitative and quantitative changes in the tear trough in 10 patients (eight women and two men) aged 37 to 65 years old, using the Quantificare 3D camera to complete the analysis. The study examined volume loss and volume gain with a SELPHYL® injection, depth of the tear trough, and texture of the skin.

"Patients showed consistent improvements in visual appearance and quantitative measurements in the undereye area after 6 months. SELPHYL® was safe and well tolerated, with no adverse effects reported," Katz says. "Results of our follow-up to analyze ongoing improvement have been quite favorable."

The sweet spot for SELPHYL®, according to most practitioners who are using the system, may be for the periorbital region.

"SELPHYL® is ideally suited to the infraorbital area," Turk says. In a large number of patients, this area exhibits some degree of hollowing with age. This is due to several factors, including thinning of the skin, loss of volume, muscle laxity, and possibly bony recession at the orbital rim. Hyaluronic acid fillers have been used successfully in this area, but just as often they can leave less than desirable results in terms of lumps, bumps, material showing through the skin, as in the Tyndall Effect, and fluid retention. SELPHYL® provides moderate volume, improved blood supply, and collagen stimulation, both of which improve skin texture and color. There are no residual effects, and the material is undetectable," he says.

Crutchfield's protocol for treating under the eyes with SELPHYL® is to use 1 cc per month for 4 consecutive months. "I think this method works better, and the patients get a nice



Each treatment included 2 cc under each tear trough, two treatments six weeks apart. Courtesy of Bruce Katz, MD.

response with each treatment session. There are no other good solutions for this area," he says. I use a topical numbing agent under the eyes for 15 minutes, so it is not painful, and by employing a high dermal injection technique, I rarely see any bruising. The results are diminished wrinkles under the eyes."

According to Turk, patient acceptance is extremely high. "Patients are attracted to a completely autologous, all-natural filler that utilizes regenerative scientific principles to achieve their aesthetic goal. As long as expectations are properly managed, patients are pleased with the outcome. This is a subtle fill with qualitative improvement of skin tone and texture that "brightens" the infraorbital region."

Downtime is about 48 hours of puffiness. The procedure takes only 20 minutes, and Turk often combines it with other noninvasive therapies such as neurotoxin injection or radiofrequency skin tightening, but not at the same time.

SKIN-QUALITY REJUVENATION

One of the most frequently cited benefits of SELPHYL® treatments is the significant improvement that can be achieved for skin texture, tone, and overall quality.

"The burst of growth factors SELPHYL® delivers stimulates the creation of new tissue,

especially collagen, elastin, and blood vessels, like those found in younger, resilient skin. With the increase in new regenerative cells, there is increased elasticity and improved skin tone. Lines and wrinkles soften and recede. The skin looks and feels refreshed and younger," says Tampa, Fla, plastic surgeon Bart Rademaker, MD.

"Growth factors are easily accessible, more so than stem cells. With hyaluronic acid gels or calcium hydroxyapatite, you are introducing some form of scarring into the area being injected. With SELPHYL®, you are reintroducing growth factors into the area, which is beneficial for the skin. You can achieve a dramatic softening of the face, and patients look refreshed. It is not intended to produce a dramatic change in the face," Rademaker says.

According to Washington, DC, area dermatologist Hema Sundaram, MD, the tear troughs as well as the hands are promising areas for patients. "I use SELPHYL® alone and also as an adjunct to alloplastic fillers. I often use blunt microcannulas for injecting it, first making an entry point with a sharp needle, and then using the blunt cannula to deliver it. You can fan or micro-thread with a 22-g, 25-g, or 27-g blunt cannula to avoid penetrating a vessel and running the risk of complications such as bruising."

Sundaram feels that it is important to do



Before and after 8 weeks - 2 ccs SELPHYL® to each infraorbital area, 2 ccs to each marionette line/labio-mental fold. Courtesy of Jon Turk, MD.

more than one treatment session for any area. "I typically do two to three treatments leaving 3 to 4 weeks in-between sessions. With SELPHYL® there is a gradual improvement and a building up of the response, as with other autologous technologies. I use both the 4-cc and 8-cc kits. The smaller kit will suffice for just treating the lower eyelids, including the tear trough. I may use 8 ccs if I am treating areas beyond the lower eyelids, such as other facial areas and the hands. I do not generally use very large volumes per session, as I prefer to perform sequential sessions," she says.

Rademaker takes a slightly different approach and offers patients a more extensive initial treatment, which may be followed by a second treatment, if needed. "I tend to inject the entire face, for which the new 16-cc kit is ideal. Then I focus on the trouble spots, or the areas that concern the patient most, such as the crow's feet, eyelids, nasolabial folds, and above the lip. I may use 2 ccs around each eye, going subdermal, along the inferior orbital rim or slightly above, including the crow's feet, above the lateral brow, and just underneath the brow."

"The key benefits to the patient," he adds, "are that it's natural. They are getting more value for their money, and the effects are longer lasting when done correctly because you are enhancing the natural rejuvenation of the face. Ninety percent of patients are thrilled with the results."

Combination therapies are a growing trend among advanced PRFM injectors. Most physicians concur that there is potential to combine SELPHYL® with other technologies, for example, with autologous fat and other dermal fillers. "When SELPHYL® is used in conjunction with fat transfer, we're finding the grafted adipose tissue lasts longer. With SELPHYL® added to the mix, the new blood vessels increase the delivery of oxygen and nutrients, yielding extremely long-

lasting results. The net effect is to mimic the soft volume that a patient might have had 3 or 5 years earlier, Rademaker says.

As Sundaram says, "We can't volumize a loose face optimally with any type of filler; it is like trying to stuff a sagging stocking. I like to use fractional bipolar radiofrequency or micro-focused ultrasound. I do the lifting and tightening first, wait 3 to 4 weeks, and then treat with SELPHYL®."

It stands to reason that healthy, stronger, and younger skin responds best. As Rademaker adds, "I tell my patients not to spend their money unless they are using good skin care, and consistently taking care of their skin. We include 6 weeks of skin care products into the fee for SELPHYL® treatments for that reason."

WHO ARE THE BEST CANDIDATES?

The number of treatments needed depends on each individual patient, the desired outcome, and the treatment plan selected. As a stand-alone therapy, many physicians recommend a series of one to three injection sessions spaced from 4 to 6 weeks apart for optimal results. The longevity of the results of SELPHYL® treatments vary based on the extent of the procedure, areas treated, and number of sessions.

According to Rademaker, "Everyone can benefit from SELPHYL®, but not everyone will benefit the same way. For those who start rejuvenation treatment before lines become deeply etched and the skin too lax, SELPHYL® is the perfect preventative and corrective injectable treatment. But if lines have taken hold, especially in places like the nasolabial folds, then a filler will provide immediate results."

According to Sundaram, patients of all ages are good candidates for SELPHYL®, including younger patients in their 30s and early 40s. "The SELPHYL® technology is appealing to patients because they think of it as natural,

since it is autologous. Patients who have fairly good retention of skin elasticity in the periorbital area do particularly well with this technology. It is also a preventative option for younger patients who are just starting to develop a tear trough. This is a very promising technology," she said.

New uses are being discussed at national and international medical meetings for off-face areas, but more clinical data is needed to determine the extent of what PRFM can be used for. As Crutchfield says, "One of the brand new treatment areas we are looking at is hair loss. I treated one side of a patient's scalp with SELPHYL® and the other side without, and we saw a noticeable improvement after one session, which was encouraging. I am also using it for rejuvenation of the chest. It works well for décolleté lines and smoothes out skin texture. Patients love it."

According to Rademaker, "I'm also very excited by a new way of delivering SELPHYL®, a thin silver dollar-sized PRFM membrane that, when placed in a surgical wound, is being evaluated to minimize scarring." ■

FOR FURTHER READING

- Goldfarb RH, Shapiro A. Benefits of autologous fat grafting using fat mixed with platelet-rich fibrin matrix (PRFM) SELPHYL®. *Am J Cosmet Surg*. 2012;29.
- Sclafani AP. Platelet-rich fibrin matrix for improvement of deep nasolabial folds. *J Cosmet Dermatol*. 2010;9(1):66-71.
- Sclafani AP, McCormick SA. Induction of dermal collagenesis, angiogenesis, and adipogenesis in human skin by injection of platelet-rich fibrin matrix. *Arch Facial Plast Surg*. 2011;14(2):132-136.

For more information, visit SELPHYL.com.

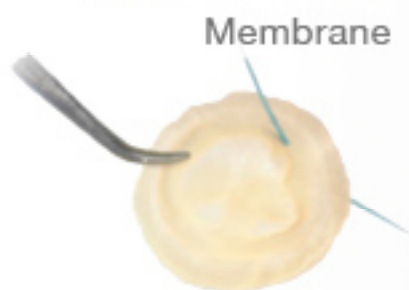
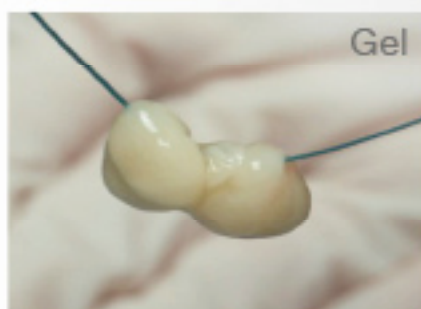
Selphyl® is intended for the safe and rapid preparation of autologous platelet-rich plasma (PRP) from a small sample of blood at the patient point of care. The PRP can be mixed with autograft and allograft bone prior to the application to an orthopedic surgical site as deemed necessary by the clinical use requirements.



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