

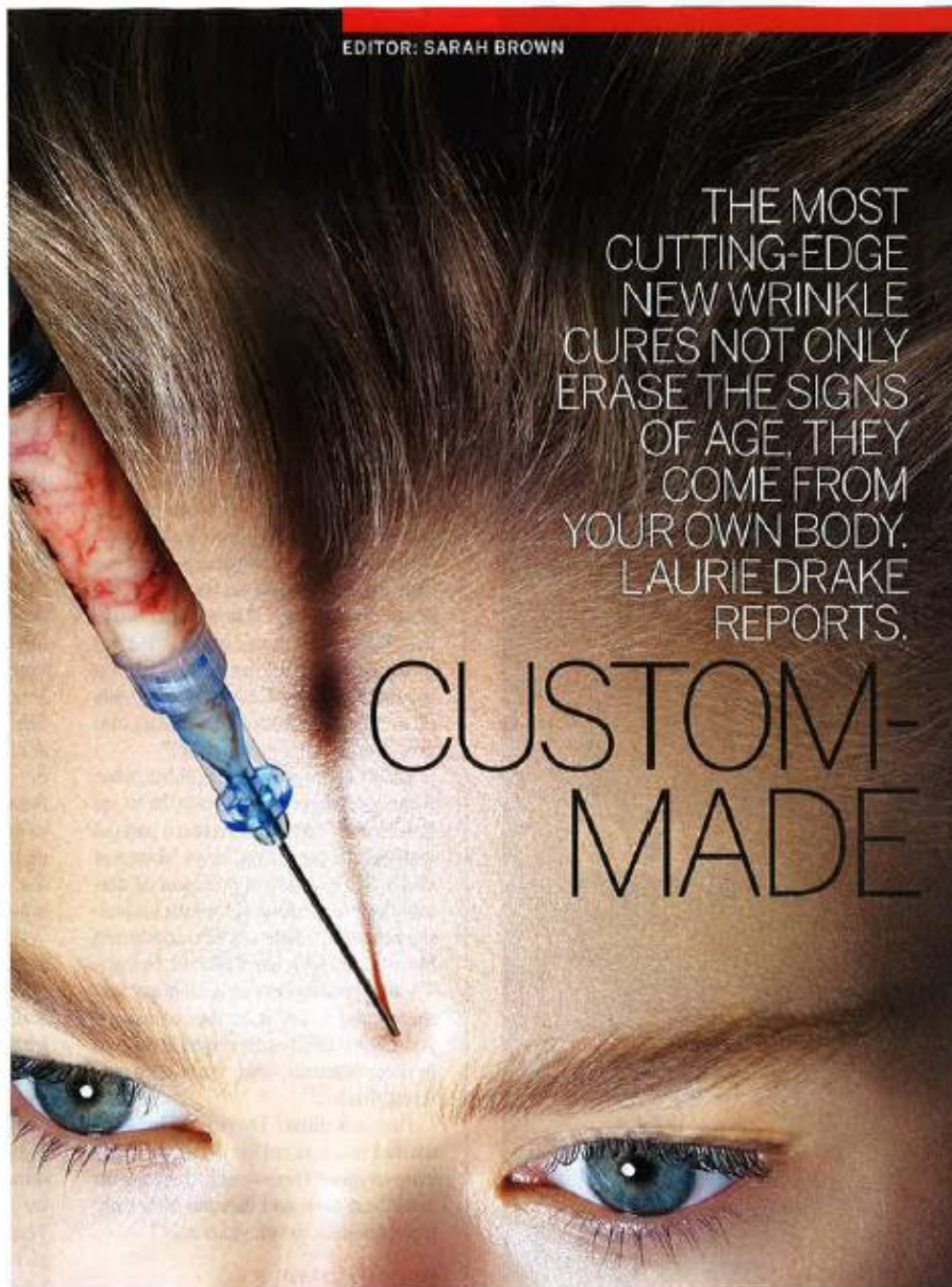
EDITOR: SARAH BROWN

As she sat in her doctor's office overlooking the rolling hills of Hunt Valley, Maryland, Janet David, 57, was excited—and nervous. Excited about the prospect of losing her wrinkles but nervous because she was about to undergo autologous fibroblast therapy, an experimental procedure using skin snipped from behind her ear to ultimately fill the lines in her face. Welcome to the hottest—and perhaps most promising—new trend in dermatology: Grow your own filler.

Doctors are attracted to autologous injectables—fillers seeded from your own tissue (skin cells, blood plasma, or fat)—for their potential to do more than quickly diminish lines and restore lost volume. According to Manhattan plastic surgeon Robert M. Freund, M.D., in addition to filling, these injectables “may be able to turn back the clock by increasing the production of collagen, elastic fibers, and hyaluronic acid—all the things that make skin look young.” Inspired by regenerative medicine (the science of teaching aging cells to heal themselves and “act” younger), these aesthetic innovations give new meaning to organic beauty. And since the material injected is derived from the patient's own cells, it carries a low risk of rejection or allergic reaction to boot.

FARMING FIBROBLASTS

The clinical trial in which Janet David participated was for fibrocell therapy. It's a technique that was once known as Isolagen Therapy and was used to fill wrinkles from 1995 to 1999, until the FDA required it to attain formal agency approval, through stringent safety and efficacy studies, which began in 2003. Renamed laViv by the Pennsylvania biotech company Fibrocell Science, it has risen through the ranks of trials and could be approved as early as this month.



THE MOST CUTTING-EDGE NEW WRINKLE CURES NOT ONLY ERASE THE SIGNS OF AGE, THEY COME FROM YOUR OWN BODY. LAURIE DRAKE REPORTS.

CUSTOM-MADE

FAT CHANCE
AUTOLOGOUS INJECTABLES TAKE “NATURAL BEAUTY” TO A WHOLE NEW LEVEL.
PHOTOGRAPHED BY RAYMOND MEIER. SITTINGS EDITOR: LAURA FERRARA.

David's procedure went like this: After numbing the site, Robert Weiss, M.D., associate professor of dermatology at the Johns Hopkins University School of Medicine, scooped out three three-millimeter tissue samples by way of punch biopsy and sent them to a lab, where the fibroblasts—the cells that synthesize the connective fibers that

make up skin's structure—were isolated from the tissue, purified, and then multiplied hundreds of millions of times in a vitamin-enriched growth medium. Three months later, David was back in Weiss's office, having her harvested fibroblasts injected into her nasolabial folds, where they would not only diminish her lines but work beneath the *health* >76

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surface to produce fresh collagen (for structure), elastin (for tautness), and hyaluronic acid (for thickness), hopefully for years to come.

"It's a breakthrough because this is the first time we've been able to inject a patient's own fibroblasts, which in turn produce collagen and elastin in the skin," says dermatologist Fredric Brandt, M.D., who has been conducting clinical trials on laViv since 2006 in his offices in Coral Gables, Florida, and Manhattan. Brandt has been impressed with laViv's ability to smooth nasolabial lines and acne scars, and foresees future applications virtually head-to-toe. "That's where I see the real home run. We should be able to inject laViv in small amounts all over to up-regulate your fibroblasts and improve pigmentation, scarring, and sagging—and not only on the face but on the hands, the arms, and the legs." He notes, though, that laViv is no magic bullet. "It's not going to pump up the patient like fat would; it's more of a way to gradually fill in superficial lines and wrinkles, and give overall skin rejuvenation."

LaViv is not a quick fix, either, since it can take three to four months to see results. But, "the improvement you get really keeps persisting," says Margaret Weiss, M.D., assistant professor of dermatology at the Johns Hopkins University School of Medicine, who conducted David's trial with her husband, Robert. "With typical hyaluronic-acid fillers, you might need to come in once or twice a year. With laViv, you might need two or three sessions—and, for at least two years, that's it."

Just ask Janet David. "The area where I was injected for the study, in my nose-to-mouth lines—well, there are no lines there now, and this was after only three sessions. Seven years ago!"

BLOOD SIMPLE

Giving up a little skin in the service of your own pales in comparison to giving blood, but that's what some marketers are calling "vampire filler"—an injectable derived from your own plasma. Formally known as platelet-rich plasma therapy (PRP), this technology is borrowed from the world of orthopedics, where it's used in about 500 hospitals for the treatment of tendinitis, particularly tennis elbow. (Because tendons get very little blood, the idea

is to speed healing by flooding the injured site with your own concentrated platelets, the tiny colorless bodies that release growth factors to repair tissue.) Tiger Woods credits PRP with healing his knee last year.

Savvy dermatologists and plastic surgeons decided to try PRP on wrinkles, since the growth factors it releases are the same ones that spur fibroblasts into action. (While PRP has been FDA-approved for orthopedic injuries, doctors may legally administer it, off-label, for cosmetic use.) The process is not for the squeamish: You'll need to give up about four test tubes of blood from your arm. The blood is spun in a centrifuge to separate the platelets from the red and white blood cells, and a few minutes later, the platelet-enriched "broth" is ready. "From that 30cc of blood, we'll get 3cc of PRP, which should be enough to inject around your crow's-feet and the vertical lines around your mouth," says Freund, who has been researching the field for the last eight years and serves as chairman of Lipose, a company that develops PRP and fat-transfer tools. Results—which take about six weeks to manifest and have been found to last up to a year—are hard to predict, since the aesthetic use of PRP is still in its infancy and published research is thin.

"The big difference between PRP and prepackaged fillers is that with prepackaged fillers, with the exception of Sculptra, you get an immediate change; with PRP, it will take some time," notes plastic surgeon Trevor Born, M.D., who has been using PRP in his offices in Toronto and New York. "But PRP is still relatively new, and we don't have the same amount of experience with it that we have with Restylane or Juvéderm. There is still work being done in terms of how to use it most effectively, and whether to go superficial or deep to get the best results."

Dermatologist Lisa Airan, M.D., who has been offering PRP in her New York practice for the past seven months, finds it ideally suited for fine wrinkles (especially the notoriously hard-to-treat lipstick lines), shallow acne scars, soft depressions, and the dark hollows around the eyes. "And it really improves the texture of the skin under the eyes—that's an application like no other," she says.

Not all doctors are *health* >78

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convinced yet. "I just think it's too much for the patient, and there's a risk of confusion in a busy doctor's office. It's not for me," says Manhattan dermatologist Patricia Wexler, M.D. "Between Sculptra, Restylane, fat, and Radiesse, we have enough."

STEM-CELL FACELIFTS

The much hyped, so-called stem-cell facelift—a term dismissed by the American Society of Plastic Surgeons and most credible doctors—is little more than a new way to describe fat injections, or fat grafting.

While a patient's own fat-as-filler has traditionally been prized for its long-lasting results and ability to fill large areas, it is only recently that studies have confirmed fat cells to be the body's richest source of adult stem cells, too.

Sydney Coleman, M.D., clinical professor of plastic surgery at NYU's Langone School of Medicine, has been a pioneer in the field of fat grafting and adult stem-cell research. "What I observed as far back as 1992 was that when you put fat under the skin, you see a change that's beyond filling: Not only does it plump it out a bit but it improves the color and tone of the skin and

decreases wrinkles and pore size. So with each fat transfer, stem cells that can potentially repair aging and sun-damaged skin are transplanted as well."

While studies confirm that adult stem cells (which release growth factors, in turn stimulating fibroblasts into action) are indeed present in fat, studies specifically examining what those stem cells do once transplanted into healthy facial skin are just now under way. So, for the time being, "it's hard to say exactly what's improving the texture of the skin," says Airan. "I know from experience that any kind of filler injection will improve the quality of the skin just by stretching the existing fibroblasts. The added volume actually stimulates them. Still—and it's not quantifiable, it's subjective—I think when you inject fat, the texture improves more than with other fillers."

In terms of alternate theories, "fat turns out to be very active in the hormonal system, and there are a lot of estrogen receptors in fat, so it's possible that some of the ameliorative effects on the skin are due to this and don't have anything to do with stem cells," says Richard Glogau, M.D., clinical professor of dermatol-

ogy at the University of California.

Still, it is clear that fat has a beneficial effect on skin that extends beyond just filling. Fat grafting has now been integrated into the protocols of most facelifts, because, as Coleman says, "tightening and stretching the skin just simply isn't enough. You need the volumizing effect of fat and also the rejuvenating effect on the skin."

Fat's downsides have always been its unpredictability—whether or not the graft will "take"—and the time-consuming nature of the numerous treatments required for optimal results.

Because fat is permanent, Coleman often recommends that new patients start with a temporary artificial filler like Juvéderm, Restylane, or Radiesse to see how they like the added volume. Then they can move on to fat grafting. But, he adds, "it really needs to be injected by someone who knows how. It takes talent; if you put in too much or too little, or put it in irregularly, it can be a problem. A doctor needs to know how to process the fat, and then place it. Once you inject the fat, that's it." □

To find a qualified, board-certified doctor, consult aad.org, or plasticsurgery.org.