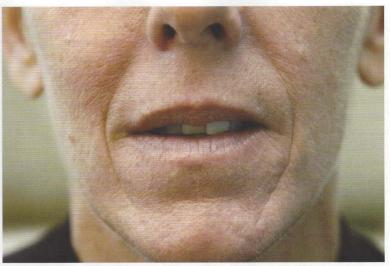


t's not often that I get a new perspective on my own field of practice. But a recent meeting of the American Society for Aesthetic Plastic Surgery in Montreal, Quebec, gave me the unique opportunity to spend time with plastic surgeons from other countries. One morning I had breakfast with a group of Canadian plastic surgeons, and another I was joined by a practitioner from Israel. The experience gave me a new outlook on the trends, products and procedures that are common in other nations but have yet to fully arrive on our shores.

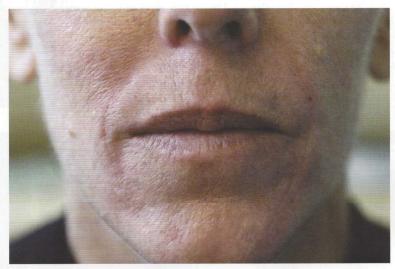
The use of injectable fillers to plump up wrinkles and areas of the face has achieved great popularity worldwide in the past decade, and in most surveys it runs a close second to wrinkle treatment with Botox and other neurotoxins. Indeed, a recent article identified about a dozen fillers sold in the U.S., and new and exciting ones are on the way.

A common misconception is that Botox and fillers are interchangeable in how they are used In reality, the wrinkle-reducing effect of neurotoxins like Botox is actually a secondary benefit. These products are used primarily to treat what we call "dynamic rhytids"—wrinkles that form as a result of underlying muscle contraction. As far as we know, neurotoxins have no direct action upon wrinkles themselves, but when used to relax the muscles that cause the overlying skin to fold, they both treat wrinkles and prevent their future formation. While there is exciting new discussion about whether neurotoxins can improve the color and texture of overlying skin, it is clear that they do treat wrinkles and other deformities through reduction of unwanted muscular activity.

Fillers, on the other hand, treat volume loss. We used to think the aging process was solely the result of gravity—the unrelenting force that pulls our faces, necks, breasts, tummies and thighs inexorably downward. Indeed, Albert Einstein once stated that solving the problem of gravity is so hard that it makes the theory of relativity seem like child's play. While gravitational descent undeniably affects our appearance, current thinking dictates that volume loss is likely a more significant factor when it comes to facial aging. As we age, our faces literally deflate—not like a balloon, but rather like a group of interconnected balloons. Think of the areas between the balloons as seams that, in most cases, have connections to the skin; these seams often separate distinct areas of the face that we call "aesthetic units." These include "nasolabial folds" (smile lines), which run from the base of the nose like parentheses, separating the cheek from the upper lip; "marionette lines," which run downward from the corners of the mouth; and "tear troughs," which separate the lower eyelids from the cheek. In youthful faces, the seams aren't quite as visible, and the aesthetic units blend together. Fillers can literally fill in the seams and help camouflage one



Patient with Grade IV nasolabial folds prior to treatment.



Same patient immediately after injection of 2.0 cc Juvederm XC into nasolabial folds.



Same patient 24 hours following treatment of her nasolabial folds with Juvederm XC.

of the most noticeable signs of the aging process.

I tell my patients to think of fillers in two broad categories: line-fillers and area- fillers. Most people have heard of the more popular products like Juvederm and Restylane, but many aren't aware of a filler made from poly-L-lactic acid, called Sculptra Aesthetic, by Galderma, Inc. I consider this product primarily an area-filler because its volumizing effect is a result of collagen replacement that occurs from product placement just below the skin. On average, three injection sessions are needed over a period of a few months, and results can last more than two years. Many physicians use Sculptra Aesthetic off-label to improve a gaunt facial appearance from volume loss in the cheeks and other areas.

Several types of line-fillers are also commonly used to volumize facial aesthetic units, so there is considerable overlap between line- and area-fillers. My personal philosophy is that it's preferable to replace what has been lost in the human body with something similar or identical to what has been taken away. Hyaluronic acid is a naturally occurring chemical in our body that provides firmness and suppleness to our skin. The most popular fillers used in the U.S., accounting for more than 85% of the market, are made from hyaluronic acid—the HA fill-

concentration, percentage of cross-linking, particle size, swelling and the mysterious "G-prime" (filler stiffness), all of which can affect the end result. As we learn more about facial aging, plastic surgeons are using HA fillers in more novel and creative ways. We're filling specific aesthetic sub-units and camouflaging adjacent facial areas. In addition to filling smile lines and other wrinkles, we can fill temporal hollows, raise the nasal tip, change the shape of the lips, lift the outer brow and even give the ear lobe a more youthful volume. The choice of product for each of these applications is critical, and over the next several years we'll likely see FDA approval of many more HA-based fillers similar or identical to what are currently available internationally. Given the ability to select a product with the exact physical properties that best match our aesthetic goals, we are truly entering the age of "designer fillers"!

Two products leading the way to the future are Juvederm Voluma XC and Restylane Silk. Juvederm Voluma is the first product with FDA approval for deep injection into the cheek to correct volume loss. Because it lasts approximately two years and mimics bony augmentation, Voluma is used to build up the cheek as well as the chin and other facial areas. I can easily envision the day when cheek, chin and other facial implants are almost a thing of the past because of the use of

My choice of filler is determined by area of the face being treated, patient preferences and other factors. If I want a more dramatic look, I might choose one product, and if the patient prefers a more subtle change, I might choose another.

- Dr. Joseph O'Connell

ers. We're seeing a national trend toward HA fillers because of their safety, and many of the new fillers coming in the near future will also be HA-based. The best-selling products of this type fall under the Juvederm and Restylane umbrellas, and these are the products I use most commonly at the Aesthetic Center of Connecticut. Juvederm is made by Allergan, the manufacturer of Botox, and Restylane is from Galderma.

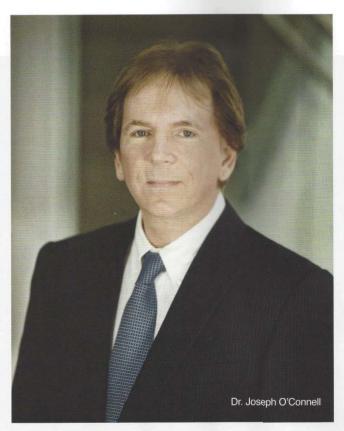
It's important to understand that both Juvederm and Restylane are actually families of products. In the U.S., the Juvederm family currently consists of Juvederm XC and Juvederm Voluma XC; the Restylane family currently includes Restylane, Restylane-L, Restylane Silk, Perlane and Perlane-L. For improved comfort during treatment, I only use fillers with lidocaine, and I do not allow my nurses or other non-physicians to inject the products.

My choice of filler is determined by area of the face being treated, patient preferences and other factors. If I want a more dramatic look, I might choose one product, and if the patient prefers a more subtle change, I might choose another. While HA fillers may appear similar, they actually differ widely in important physical properties, such as

Voluma. Despite its slightly higher cost, I can't imagine not having it in my tool kit.

Restylane Silk was recently approved by the FDA for lip augmentation and correction of "perioral rhytids," those annoying vertical lines surrounding the lips. This product is made using smaller, smoother particles than those used in other Restylane products and, like Juvederm Voluma, is a good example of a designer filler. Perioral rhytids are among the most difficult problems to treat, and Restylane Silk will be invaluable in this role and most likely for more superficial lines that were difficult to treat in the past.

Additional designer fillers currently used in other countries will likely come to the U.S., and U.S.-based manufacturers and distributors already have these products in their pipelines. For example, Volbella and Volift are two Allergan products used globally but not yet approved for use in the U.S. Like Voluma, both use bi-cross technology and are HA- based. As these and other products gain FDA approval, plastic surgeons will have more options to correct volume loss and other deformities not just in specific areas of the face, but in the rest of the body as well. (Fillers are currently used for nipple augmentation, for



example.) It's more evidence of the arrival ofdesigner fillers.

A word of caution: Placement of an injectable filler is a medical procedure that should be performed only by qualified personnel in a licensed medical facility.

Patients should ask about the practitioner's training and experience (remembering, however, that there's no American Board of Medical Specialties-approved board that contains the words "cosmetic," "aesthetic" or "Botox" in their titles). While fillers have an excellent safety record, patients should ask if the "antidote" hyaluronidase is immediately available on site before they are treated with an injection of HA-based fillers from the Juvederm or Restylane family. It is believed that problems that can occur with fillers may be caused by infection, and for this reason it's extremely important that the injections are performed utilizing meticulously sterile technique. Moreover, it's illegal to use fillers, neurotoxins and other products sourced from outside the U.S., so patients should ask to see the box to insure that it's a legitimate U.S. product. Finally, if the price you're charged for the filler seems too low, or no sales tax is being collected for it (6.35% in the state of Connecticut), ask why.

Dr. Joseph O'Connell is a board-certified plastic surgeon and member of the American Society of Plastic Surgeons and the American Society for Aesthetic Plastic Surgery. He is an expert in the area of neurotoxins, injectable fillers and aesthetic surgery. His office is located at the Aesthetic Center of Connecticut at 208 Post Road West, Westport, CT. 203-454-0044. www.plasticsurgeryct.com

