Table of Fillers

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The landscape of available substances for soft tissue augmentation is constantly evolving, with new products appearing on the market, and others going out of production. The most commonly used fillers are those based on hyaluronic acid. They are perhaps the most versatile group of products, with uses from the most superficial injection sites through deeper facial contouring. They are unique in that their effects can be reversed through injection of hyaluronidase. Calcium hydroxylapatite is another frequently used product. Its increased viscosity and durability makes it a good choice for general contour improvement and treatment of heavier folds; however, this lends it less appropriate for superficial injection or in delicate areas such as the eyelids and lips. Although most fillers likely have some biostimulatory properties, Poly-L-lactic acid is a unique filler substance in that it relies almost exclusively on its ability to stimulate native collagen production rather than direct expansion of tissues by the product itself. It has proven very useful for larger zone contouring, but less useful for thin-skinned areas such as the vermillion lips and eyelids. Less commonly used are the permanent or semipermanent products such as polymethyl methacrylate, liquid injectable silicone, and implantable devices.

The locations and manner in which fillers are used has experienced a renaissance. In addition to direct augmentation of the nasolabial folds, marionette lines, and lips, the role for fillers has continuously expanded. A greater appreciation of the changes to the aging face that occur at multiple depths including the bone, cartilage, muscle, fat, and skin has led to injection techniques that create a more global and natural correction than merely injecting into the dermis underlying a specific rhytid or fold. Correction of age-related changes to the deep tissues can be achieved via injection in the cheeks, jawline, and temporal fossae. Similarly, a role for fillers has been appreciated in anatomic sites not initially considered to be within the scope of these products, such as the tear troughs, brows, prejowl sulci, ear lobes, and for nasal contouring. It is common to use multiple products at different depths and locations to achieve a more complete correction. Other recent additions to injection technique are the use of blunt-tipped microcannulae and the mixing of local anesthetic with fillers (Table 142.1).

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Table 142.1 Table of fillers

Category	Brand name	Composition	FDA approval year	FDA-approved indication	Additional Uses	Duration of Effect	Notes
Hyaluronic acid	Belotero Balance	Monophasic hyaluronic acid 22.5 mg/mL with cohesive polydensified matrix (heterogeneous particle size and density)	2011	Injection into the mid-to-deep dermis for correction of moderate-to-severe facial wrinkles and folds such as nasolabial folds	Tear troughs, radiating lip lines, lip augmentation, superficial rhytides, other sites	4–12 months	Supplied with a 30 gauge needle. It is useful for superficial injection. It has been suggested that it distributes well through the dermis, helping to prevent the Tyndall effect
	Juvederm Ultra	Monophasic hyaluronic acid 24 mg/mL	2006	Same as Belotero Balance	Lip augmentation, radiating lip lines, tear troughs, other sites	6–12 months	Supplied with a 30 gauge needle
	Juvederm Ultra-XC	Monophasic hyaluronic acid 24 mg/mL with lidocaine	2010	Same as Belotero Balance	Same as Juvederm Ultra	6–12 months	Same as Juvederm Ultra
	Juvederm Ultra Plus	Monophasic hyaluronic acid 24 mg/mL	2006	Same as Belotero Balance	Marionette lines, prejowl sulcus, chin, temporal fossa, facial volumizing (i.e., cheek)	6–12 months	Larger particle size than Juvederm Ultra. Supplied with 27 gauge needle. A 30 gauge needle may also be used
	Juvederm Ultra Plus XC	Monophasic hyaluronic acid 24 mg/mL with lidocaine	2010	Same as Belotero Balance	Same as Juvederm Ultra Plus	6–12 months	Same as Juvederm Ultra Plus
	Juvederm Voluma XC	Hyaluronic acid 20 mg/mL with lidocaine	2013	Deep injection into the cheek to correct age-related volume loss	Will likely have a role in other deep injection sites such as the temporal fossa	1–2 years	Injected into the subcutaneous tissue
	Perlane	Hyaluronic acid 20 mg/mL	2007	Same as Belotero Balance	Same as Juvederm Ultra Plus	6–12 months	Larger particle size than Restylane
	Perlane-L	Hyaluronic acid 20 mg/mL	2010	Same as Belotero Balance	Same as Juvederm Ultra Plus	6–12 months	Same as Perlane
	Restylane	Hyaluronic acid 20 mg/ml	2003	Same as Belotero Balance	Same as Juvederm Ultra	6–12 months	A firmer product than Juvederm Ultra
	Restylane-L	Hyaluronic acid 20 mg/ml with lidocaine	2010	Same as Belotero Balance	Same as Juvederm Ultra	6–12 months	Same as Restylane

Calcium Hydroxylapatite	Radiesse	Calcium hydroxylapatite microspheres	2006 (for cosmetic use)	Subdermal implantation for correction of moderate-to-severe facial wrinkles and folds, such as the nasolabial folds; subdermal implantation for correction of HIV-associated lipoatrophy; oral/maxillofacial defects; vocal cord insufficiency; radiographic tissue marking	Same as Juvederm Ultra Plus	9–18 months	Supplied with accessory kit allowing addition of lidocaine. Provides a more robust lift for heavier rhytides and folds as well as facial contouring. Supplied with a 28 gauge needle
Poly-L-lactic acid	Sculptra and Sculptra Aesthetic	Poly-L-lactic acid particles 2–50 μm in diameter reconstituted with 2–10 ml saline or lidocaine	2004 (Sculptra) and 2009 (Sculptra Aesthetic)	HIV-associated facial lipoatrophy (Sculptra) and correction of shallow-to-deep nasolabial fold contour deficiencies and other facial wrinkles in which deep dermal grid pattern of injection is appropriate (Sculptra Aesthetic)	Deep facial contouring (i.e., cheeks, temporal fossae, jawline, forehead, chin)	18–24 months	Typically requires multiple sessions to achieve desired results through collagen induction. Patients are advised to massage treated areas five times daily for 5 min for 5 days to avoid clumping of product and subsequent nodule formation
Polymethyl methacrylate	Artefill	Polymethyl methacrylate microspheres in vehicle of 3.5 % bovine collagen with 0.3 % lidocaine	2006	Correction of the nasolabial folds	Moderate-to-severe rhytides and folds, atrophic scars (i.e., acne scars)	Long term (5 years to permanent)	Conservative undercorrection is advisable with gradual complete correction in light of its longevity. Injection is into the mid-to-deep dermis

(continued)

Table 142.1 (continued)

Category	Brand name	Composition	FDA approval year	FDA-approved indication	Additional Uses	Duration of Effect	Notes
Autologous fat	Autologous fat	Autologous fat	FDA approval not required	FDA approval not required	Lip augmentation, facial folds, facial contouring, lipoatrophy, dorsal hand augmentation, correction of liposuction contour defects	Transient to permanent	
Liquid injectable silicone	Silikon-1,000	Liquid injectable silicone	1997	Prolonged retinal tamponade in complicated retinal detachments	Moderate-to-severe rhytides and folds, atrophic scars	Permanent	
Subdermal implant	Advanta	Expanded polytetrafluoroethylene	2000	Facial plastic and reconstructive surgery	Lip augmentation, deep rhytides and folds	Permanent	