

## boards fodder

### Soft tissue fillers, part 2: non-biodegradable

by Stefanie Altmann, DO, and Natalie M. Curcio, MD, MPH

This chart is an update of **Soft tissue fillers, Part 2: non-biodegradable**, by Natalie M. Curcio, MD, MPH, originally published in 2011.



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Filler class	Trade name	Composition	Skin test	FDA-approved indication	Depth of injection	Needle
Particulate	Bellafill® (Formerly ArteFill®)	Polymethylmethacrylate microspheres (PMMA) suspended in 3.5% denatured bovine collagen, + 0.3% lidocaine	Yes	Nasolabial folds, acne scars	Subdermal	26 G
Fat	Autologous Fat	Adipocytes harvested by large bore needle or liposuction cannula and washed in saline	No	Does not require FDA approval	Subcutaneous fat	16 G to 19 G
Silicones	Silikon 1000®	Polydimethylsiloxane (Silicone oil)	No	Retinal detachment or tamponade in select cases; off-label use as facial filler	Dermal (micro-droplet technique)	25 G to 27 G
	Adato® SIL-OL 5000	Polydimethylsiloxane (Silicone oil)	No	Retinal tamponade in select cases of retinal detachment	Very thick; infrequently used in skin injections	N/A
ePTFE* lip implants	Gore-tex®	Solid strands of porous Gore-tex®	N/A	Soft tissue augmentation	Non-injectable; Subcutaneous	N/A
	§ Softform®	Tubular form of Gore-tex®	N/A	Lip augmentation	Non-injectable; Subcutaneous	N/A
	§ Ultrasoft®	3x softer than Softform®	N/A	Lip augmentation	Non-injectable; Subcutaneous	N/A
	Surgisoft® (formerly Advantta®)	Harder outer shell with a softer inner one; Solid, not tubular	N/A	Lip augmentation	Non-injectable; Subcutaneous	N/A
	VeraFil®	Saline-filled ePTFE balloon	N/A	Lip augmentation	Non-injectable; Subcutaneous	N/A

§ No longer commercially available in the US  
ePTFE\*: expanded polytetrafluoroethylene

### Soft tissue fillers: side effects and complications

Filler	Side effects or complications	Injection tips or solutions
Zyderm® Zyplast® (Bovine collagens) [No longer available in US]	<ul style="list-style-type: none"> <li>• Delayed Hypersensitivity Reaction</li> <li>• Amaurosis fugax (Zyplast &gt;&gt; Zyderm)</li> <li>• Local necrosis (Zyplast)</li> <li>• Contraindicated in glabella</li> <li>• Painful cysts (Zyplast)</li> <li>• Granuloma formation</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-treatment skin tests x2</li> <li>• Avoid glabellar injection and caution near angular artery</li> <li>• I&amp;D or steroids</li> </ul>
Hyaluronic acids	<ul style="list-style-type: none"> <li>• Erythematous bumps</li> <li>• Tyndall effect</li> <li>• Hypersensitivity reaction (0.6%)</li> <li>• Granulomatous foreign body reaction reported in lips with Restylane</li> </ul>	<ul style="list-style-type: none"> <li>• Hyaluronidase to dissolve (tip: know how to dilute!)</li> <li>• Avoid too superficial placement of product</li> </ul>

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Vycross™ products (Juvéderm® Vollbella, Vollure, Voluma)	<ul style="list-style-type: none"> <li>• Delayed onset inflammatory nodules 3-6 months post-injection</li> </ul>	<ul style="list-style-type: none"> <li>• Hyaluronidase, IL steroids, antibiotics</li> <li>• Avoid injection of large quantities that could form a “capsule”</li> </ul>
Radiesse® (Cahydroxylapatite)	<ul style="list-style-type: none"> <li>• Superficial beading</li> <li>• Contraindicated in lips</li> <li>• Radiopaque</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid too superficial placement of product</li> <li>• Surgical excision</li> </ul>
Sculptra® (Poly-L-lactic acid)	<ul style="list-style-type: none"> <li>• Granuloma formation</li> <li>• Palpable nodules 30-40%</li> </ul>	<ul style="list-style-type: none"> <li>• Surgical Excision</li> <li>• Steroids, 5-FU, surgery, Imiquimod</li> </ul>
BellaFill® (Polymethylmeth-acrylate)	<ul style="list-style-type: none"> <li>• Hypersensitivity reaction</li> <li>• Granuloma formation in 6-24 mo (0.6%)</li> <li>• Superficial nodules</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-treatment skin test required by FDA</li> <li>• IL steroids, IL 5-FU, oral antibiotics</li> <li>• Avoid too superficial placement</li> <li>• Contraindicated in lips and around the eyes</li> </ul>
Silikon 1000® (Polydimethylsiloxane)	<ul style="list-style-type: none"> <li>• Product migration</li> <li>• Granuloma formation</li> <li>• Beading and Tyndall Effect</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid adulterated silicone</li> <li>• IL steroids, Minocycline, Imiquimod</li> <li>• Avoid too superficial placement</li> <li>• Use Microdroplet technique</li> <li>• Limit quantity per treatment</li> </ul>
Any Filler	<ul style="list-style-type: none"> <li>• Biofilms (cause of 80% infections) are aggregates of microorganisms in which cells reattached to each other and/or to a surface, such as a filler</li> <li>• Development of granulomas, pseudo-abscesses, or nodules</li> <li>• Routine cultures often negative</li> </ul>	<ul style="list-style-type: none"> <li>• I&amp;D and culture for PCR</li> <li>• Quinolone and Macrolide antibiotics x 2 weeks</li> <li>• IL steroids are contraindicated unless antibiotic treatment has been started</li> <li>• Dissolve nodule with Hyaluronidase if HA filler</li> <li>• Excision or debridement of nodule if possible (and unable to dissolve)</li> </ul>
Autologous Fat	<ul style="list-style-type: none"> <li>• Donor site morbidity</li> <li>• Calcification of injected fat</li> <li>• Unpredictable resorption and uptake at donor site</li> </ul>	

#### References:

1. Curcio NM, et al. Injectable fillers: An American perspective. *G Ital Dermatol Venereol*. 2009 Jun; 144(3): 271-9.
2. Narins RS, et al. Recommendations and treatment options for nodules and other filler complications. *Dermatol Surg*. 2009 Oct; 35 Suppl 2: 1667-71.
3. Requena L, et al. Adverse reactions to injectable soft tissue fillers. *J Am Acad Dermatol*. 2011 Jan; 64(1): 1-34.
4. Rohrich RJ, et al. Soft-tissue filler complications: The important role of biofilms. *Plast Reconstr Surg*. 2010 Jun; 125(6): 1250-6.
5. Humphrey S, et al. Clinical Experience With 11,460 mL of a 20-mg/mL, Smooth, Highly Cohesive, Viscous Hyaluronic Acid Filler. *Dermatol Surg*. 2015 Sept; 41(9): 1060-1067.
6. Sadeghpour M et al. Delayed-Onset Nodules to Differentially Crosslinked Hyaluronic Acids: Comparative Incidence and Risk Assessment. *Dermatol Surg*. 2019 Aug 45(8): 1085-1094.

Some information in this chart has been acquired from the manufacturing company's website:

- Juvéderm (Allergan) <https://www.juvederm.com/>
- Restylane (Galderma) <https://www.restylaneusa.com/>
- Radiesse (Merz) <https://radiesse.com/>
- Sculptra (Galderma) <https://www.sculptraaesthetic.com/>