Choosing the Correct Facial Filler
Gail Humble, MD

The Aging Face
- Nasolabial fold
- Ptosis of commissure
- Lateral mandibular groove
- Prejowl depression
- Jowling
- Thinning lips
- Perioral rhytids
- Loss of mandibular support
- Loss of dental support

Facial Contouring
Restoring facial contours and symmetry changes our perception of facial age

Age 20  Age 50  Age 49
A General Approach to the Use of Fillers

- Analysis of the face to determine volume deficits
- Consideration of the properties of various fillers
- Communication with patients establishing realistic goals, known risks, down time, and expense

Cosmetic Indications for Soft Tissue Augmentation

- Lip Augmentation
- Melolental folds
- Nasolabial folds
- Facial contouring
- Wrinkles
- Scarring and tissue defects
- Brow lift
- Tear trough defect

Facial Filler Indications

- Glabella
- Tear Trough
- Nasojugal Groove
- Dorsal Nasal Area
- Mid
- Submalar
- Marionette Line
- Chin (mentum)
Contraindications To The Use Of Soft Tissue Filler

- Absent or thin dermis
- Deep wrinkling
- Inelastic skin
- Sharp edged defects
- Glabellar injections are relatively contraindicated

Classification of Fillers

- Fillers can be classified in a variety of ways
- Other common classifications
  - Temporary vs permanent
  - Animal-based vs. non-animal-based
  - Autologous vs. nonautologous

Ideal Filler Characteristics: Safety

- Nonallergenic
- Noncarcinogenic
- Nonteratogenic
- Biocompatible
- Nonmigratory
- Minimal inflammation
- Minimal pain
**Ideal Filler Characteristics: Effectiveness**

- Flexible use
- Reproducible technique and result
- Longer duration of effect
- Stable results
- Product undetectable following administration

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**Ideal Filler Characteristics: Convenience**

- Outpatient use
- Readily available
- Easy to store
- Easy to prepare
- Affordable

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**Variables Contributing to Predictable Outcomes with Dermal Fillers**

- Filler factors
- Technical considerations
- Patient variables
Filler Factors & Technical Considerations

- Duration
- Source
- Amount of downtime
- Formulation properties
  - Smoothness
  - Viscosity
  - Cohesivity
  - Malleability

Filler Factors & Technical Considerations

- Ease of injecting
- Level of required skill
- Types of potential complications
  - Short-term
  - Procedure-related
  - Technique-related
  - Delayed and long-term material
  - Technique associated

Filler Factors & Technical Considerations

- Reversibility
  - Ability to reverse complications
  - Ability to correct overtreatment noninvasively
- Versatility
- Correction goal
  - Undercorrection
  - Overcorrection
**Patient Variables**

- Age
- Sex
- Skin color (Fitzpatrick skin type)
- Skin thickness
- Aesthetic presentation
- Wrinkle/fold thickness

**Patient Variables**

- Presence of telangiectasias
- Treatment history
- Aesthetic goals and expectations
- Psychological factors
- Budgetary considerations

**Permanent Fillers**

- Remain in tissues indefinitely
- Nonforgiving: permanent characteristics require a highly skilled physician
- Appearance can become distorted because of age-related changes
- Longer-term side effects
  - Granulomas, asymmetry, lumpiness, migration
Nonpermanent Fillers

- Degradable and dissipate over time
- Require repeat treatments
- Temporary nature allows patients to decide what they like and dislike (over time)
- Age-related facial changes not affected because of temporary nature
- Side effects are usually mild and transient in nature

History of Facial Fillers

- Appropriate cosmetic correction at one age may not seem appropriate with the anatomic changes that occur with age
- Aesthetic fashion may change
### Timeline of Dermal Filler Availability in US

<table>
<thead>
<tr>
<th>Approval Year</th>
<th>Product</th>
<th>Source</th>
<th>Off/On Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>Zyderm® 1</td>
<td>Bovine collagen</td>
<td>Off</td>
</tr>
<tr>
<td>1983</td>
<td>Zyderm® 2</td>
<td>Bovine collagen</td>
<td>Off</td>
</tr>
<tr>
<td>1985</td>
<td>Zyplast®</td>
<td>Bovine collagen</td>
<td>Off</td>
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<tr>
<td>2003</td>
<td>CosmoDerm® 1</td>
<td>Human collagen</td>
<td>Off</td>
</tr>
<tr>
<td>2003</td>
<td>Cosmolift®</td>
<td>Human collagen</td>
<td>Off</td>
</tr>
<tr>
<td>2003</td>
<td>Restylane®</td>
<td>Hyaluronic Acid</td>
<td>On market</td>
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<tr>
<td>2004</td>
<td>Hyalurin®</td>
<td>Hyaluronic Acid</td>
<td>Off</td>
</tr>
<tr>
<td>2004</td>
<td>Hyalurin® Plus</td>
<td>Hyaluronic Acid</td>
<td>Off</td>
</tr>
<tr>
<td>2004</td>
<td>Captique™</td>
<td>Hyaluronic Acid</td>
<td>Off</td>
</tr>
<tr>
<td>2004</td>
<td>Sculptra® (HR)</td>
<td>Poly-L-lactic acid</td>
<td>On market</td>
</tr>
<tr>
<td>2005</td>
<td>CosmoDerm® 2</td>
<td>Human collagen</td>
<td>Off</td>
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</table>

### Overview of Facial Filler Products

<table>
<thead>
<tr>
<th>Approval Year</th>
<th>Product</th>
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<tbody>
<tr>
<td>2006</td>
<td>Juvederm® Ultra/ Ultra Plus</td>
<td>Hyaluronic acid</td>
<td>On market</td>
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<tr>
<td>2006</td>
<td>Arjuna</td>
<td>PMMA</td>
<td>On market</td>
</tr>
<tr>
<td>2006</td>
<td>Radiance®</td>
<td>CaHA</td>
<td>On market</td>
</tr>
<tr>
<td>2007</td>
<td>Perlane®</td>
<td>Hyaluronic acid</td>
<td>On market</td>
</tr>
<tr>
<td>2008</td>
<td>Prevital® Silk</td>
<td>HA + lidocaine</td>
<td>On market</td>
</tr>
<tr>
<td>2008</td>
<td>Evidence®</td>
<td>Porcine collagen</td>
<td>Off</td>
</tr>
<tr>
<td>2008</td>
<td>Hydrole® (formerly Elevia™)</td>
<td>Hyaluronic acid</td>
<td>On market</td>
</tr>
<tr>
<td>2009</td>
<td>Sculptra® Aesthetic</td>
<td>Poly-L-lactic acid</td>
<td>On market</td>
</tr>
<tr>
<td>2010</td>
<td>Juvederm® XC products</td>
<td>HA + lidocaine</td>
<td>On market</td>
</tr>
<tr>
<td>2010</td>
<td>Restylane®-L</td>
<td>HA + lidocaine</td>
<td>On market</td>
</tr>
<tr>
<td>2010</td>
<td>Perlane®-L</td>
<td>HA + lidocaine</td>
<td>On market</td>
</tr>
</tbody>
</table>

*Weinkle, P.  The science of dermal fillers. MedscapeCME Dermatology online 2010.*
### Temporary Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Correction Duration</th>
<th>Skin Test</th>
<th>Mechanism of Action</th>
<th>Injection Technique</th>
<th>Effect Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low density HA (Restylane Touch, Hylaform Fine Lines)</td>
<td>2-3 months</td>
<td>No</td>
<td>Direct tissue filling</td>
<td>Correction</td>
<td>Immediate results</td>
</tr>
<tr>
<td>Medium density HA (Perlane, Juvederm)</td>
<td>3-9 months</td>
<td>No</td>
<td>Direct tissue filling</td>
<td>Augmentation w/volume</td>
<td>Correction</td>
</tr>
<tr>
<td>CosmoPlast, Zyplast</td>
<td>3-6 months</td>
<td>Yes</td>
<td>Direct tissue filling</td>
<td>w/material injected</td>
<td>Overcorrection</td>
</tr>
<tr>
<td>CosmoDerm, Zyderm I &amp; II</td>
<td>6-12 months</td>
<td>Yes</td>
<td>Direct tissue filling</td>
<td>w/material injected</td>
<td>Overcorrection</td>
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</tbody>
</table>


### Semi-Permanent Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Correction Duration</th>
<th>Skin Test</th>
<th>Mechanism of Action</th>
<th>Injection Technique</th>
<th>Effect Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiesse</td>
<td>2-7 years</td>
<td>No</td>
<td>Stimulation of innate connective tissue using hydroxyapatite injection that forms scaffolding</td>
<td>Correction</td>
<td>Immediate results</td>
</tr>
<tr>
<td>Sculptra</td>
<td>2-7 years</td>
<td>No</td>
<td>Stimulation of collagen and other connective tissue synthesis (neocollagenesis)</td>
<td>Undercorrection</td>
<td>Progressive results over time</td>
</tr>
</tbody>
</table>


### Permanent Products

<table>
<thead>
<tr>
<th>Product</th>
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<th>Injection Technique</th>
<th>Effect Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone</td>
<td>Permanent</td>
<td>No</td>
<td>Replacement w/volume injected as well as encapsulation of material by ingrowth of native connective tissue</td>
<td>Gradual correction but no overcorrection</td>
<td>Immediate results</td>
</tr>
<tr>
<td>Artecoll/Artefill</td>
<td>Permanent</td>
<td>Yes</td>
<td>Encapsulation of PMMA spheres by collagen</td>
<td>Correction</td>
<td>Immediate results</td>
</tr>
</tbody>
</table>