

A One Day Seminar **in the Aesthetic Use of:**

Botulinum Toxin Type A and Dermal Fillers





Disclaimer

Today's presentation will include the use of Botulinum Toxin A in the FDA approved Glabellar, Crow's Feet, and Forehead areas (onabotulinum toxin A).

In addition, areas of the upper face that are not included in the FDA indication will be shared.

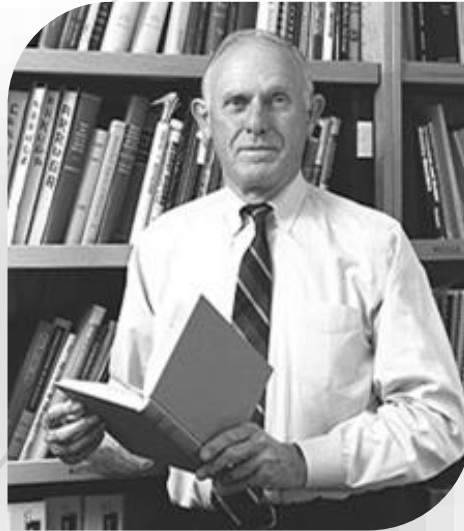
These injections are considered off-label use and within accepted and published standards.

Botulinum toxin A therapy



Alan B. Scott

(1960's) attempted to find an agent to use on eye muscles for strabismus. First used in 1978 on humans.



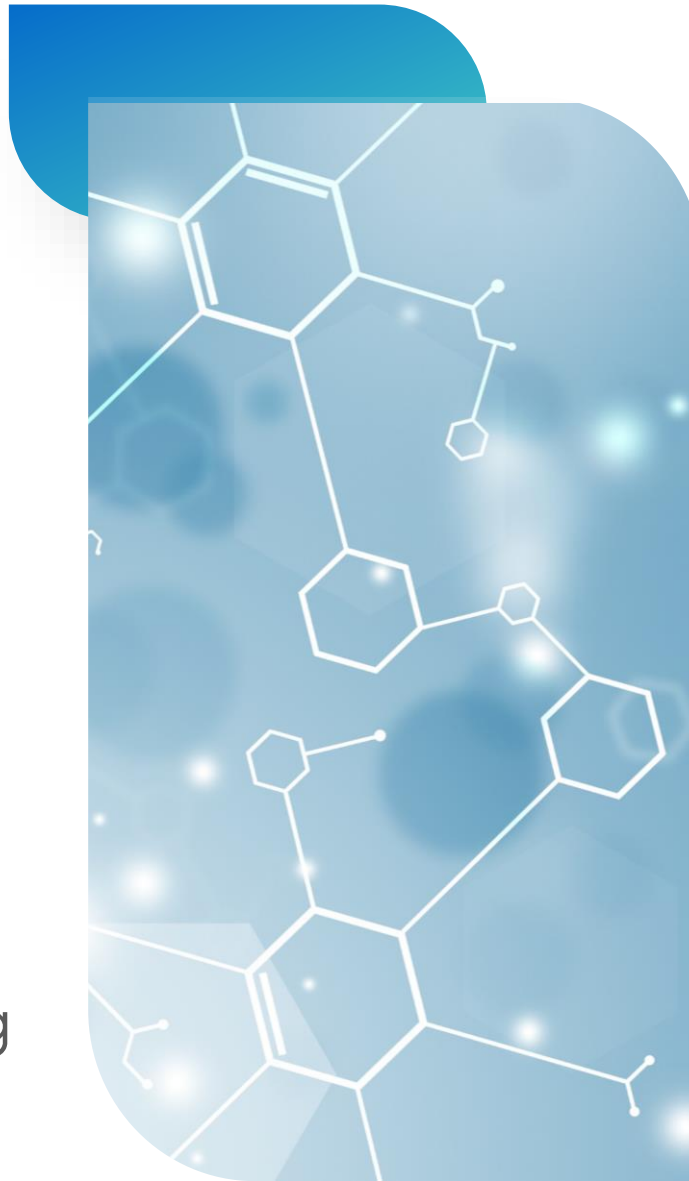
Carruthers and Carruthers

(Canadian physicians) did joint dermatological-ophthalmologic research starting in 1987 with Alan Scott.

Pharmacology

Three step process

01. IRREVERSIBLY binds to presynaptic terminal of motor end plate
02. Internalized into axon by endocytosis
03. Cleavage of SNARE (receptor) proteins resulting in inhibition of neurotransmitter release



SNARE proteins

N-ethylmaleimide sensitive factor attachment protein receptor

Each serotype binds to a specific residue of one of the docking proteins

Botox=SNAP-25

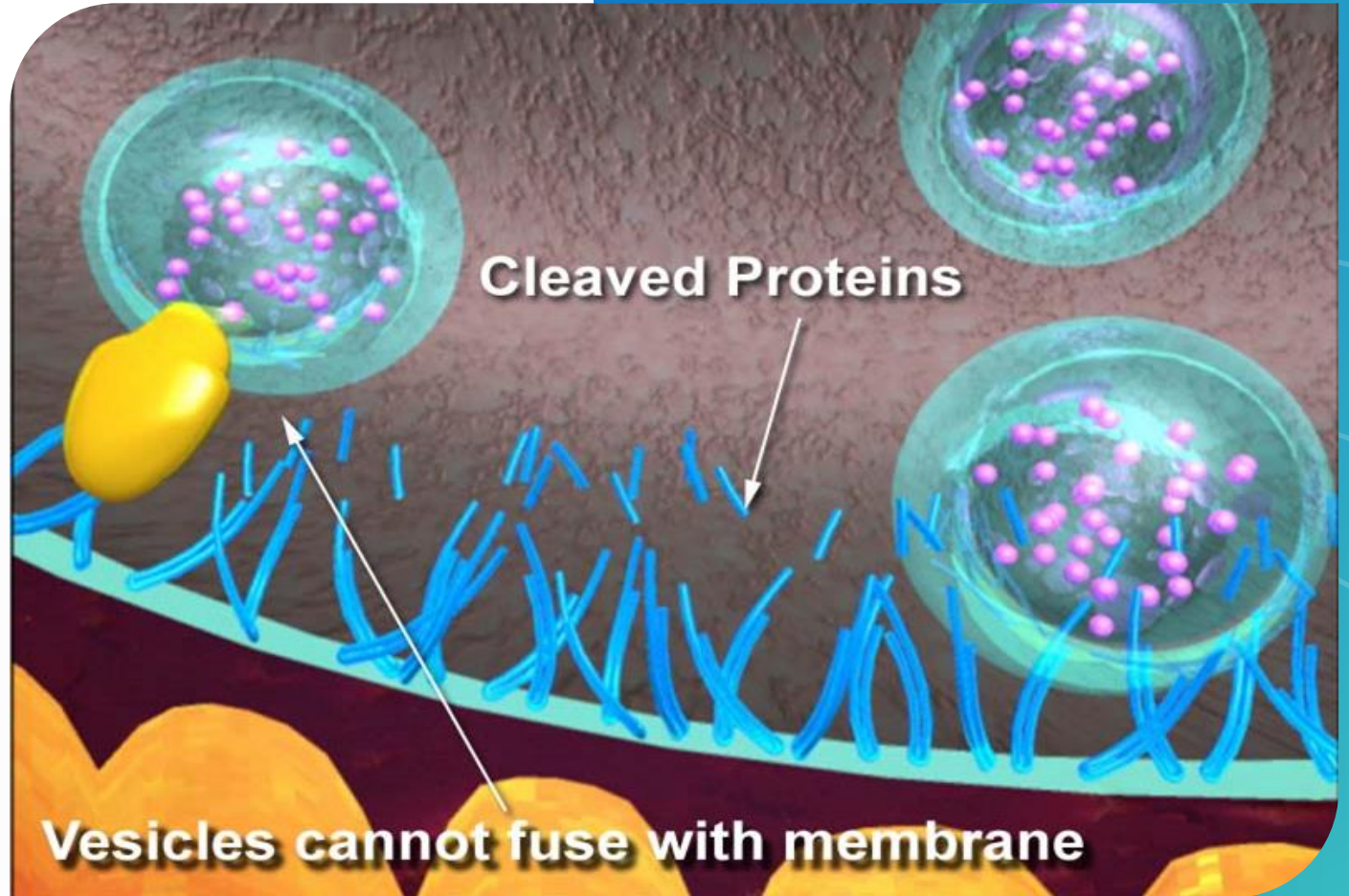
Jeuveau=SNAP-25

Dysport=SNAP-25

Xeomin=SNAP-25

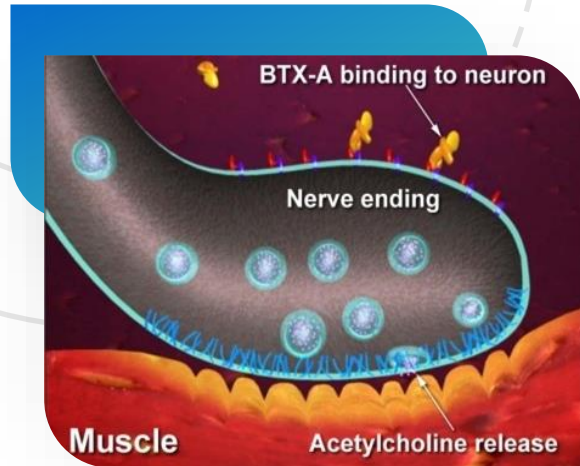
Mechanism of Action

Light chain blocks fusion of neurotransmitter vesicle with nerve membrane by cleaving SNAP-25 with Type A

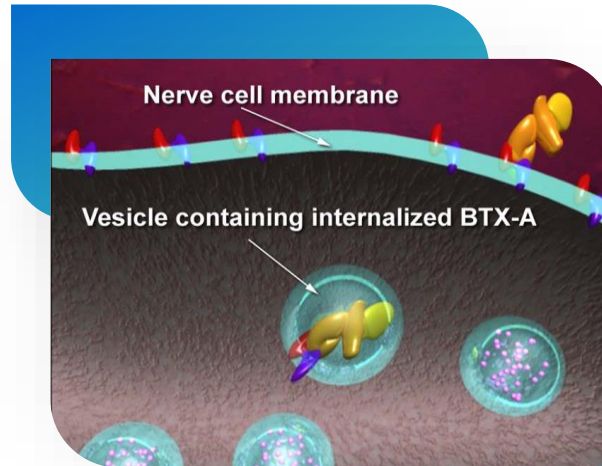


Botulinum Toxin A

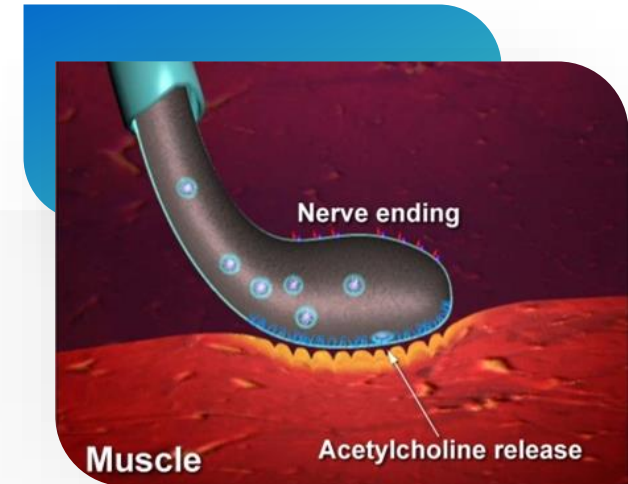
Mechanism of Action



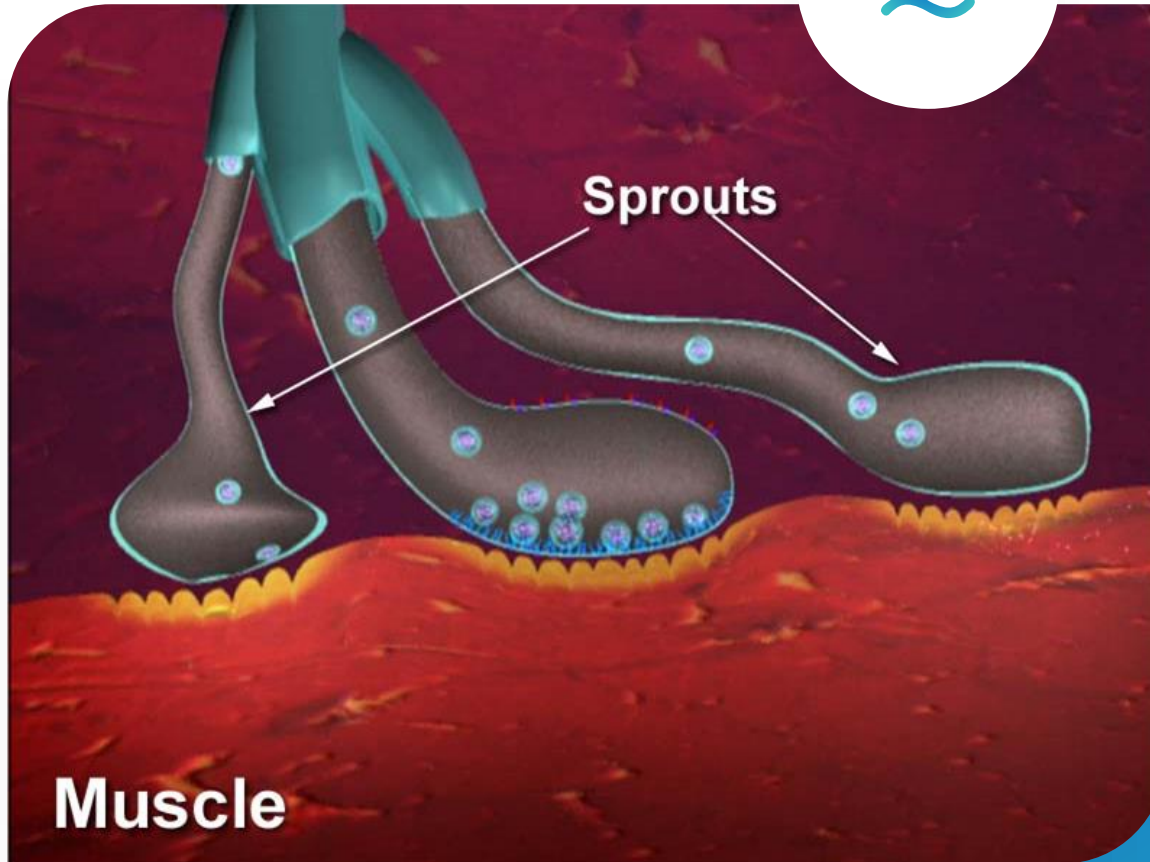
Before Botulinum Toxin A:
Endplate sits upon muscle
fiber



The Botulinum Toxin
is internalized via
receptor-mediated
endocytosis



Botulinum Toxin A
binds to nerve
terminal



Mechanism of Action

The endplate expands and collateral axonal sprouts emerge. Sprouts subsequently retract and are eliminated; parent terminal is re-established



Product Overview



FDA-Approved

BOTOX (OnabotulinumtoxinA: 1989/2002)

Dysport (AbobotulinumtoxinA: 2009)

Xeomin (IncobotulinumtoxinA: 2011)

Jeuveau (PrabotulinumtoxinA-xvfs: 2019)

FDA Clinical Trials Ongoing





Botulinum Toxins

Allergan



Botox

Galderma



Dysport

Merz



Xeomin

Evolus



Jeuveau



BOTOX

(onabotulinum Toxin A)

01. Call Client Support Service 1-800-811-4148
02. Press Option 2
03. Have Your Medical License Number and Certificate of Completion Available

BOTOX

(onabotulinum Toxin A)



01. Allergan can ship on Fridays for Saturday delivery OR Monday delivery. Will NOT ship to home address
02. Botox is shipped over night on Dry Ice. If the product is left at room temperature, it loses potency.
03. Allergan has been known to blacklist accounts for ordering an excessive amount of neurotoxin neutralizers

Dysport (abobotulinum Toxin A)



01. Shipped through Medicis/GaldermaMcKesson
877-520-0500
02. Dysport® should be stored at 2-8°C (36-46°F) (NOT FROZEN) prior to reconstitution/ injection. It should be protected from light.

Dysport (abobotulinum Toxin A)



01. Ratio of diffusion differs from Botox®
02. Specific training for Dysport® is recommended to prevent inappropriate injection/diffusion. Medicis has a DVD and online videos on reconstitution/injection at:

www.dysportusa.com/HCP-Reconstitution-Chart.aspx
www.dysportusa.com/HCP-Administering-Dysport.aspx

Dysport

(abobotulinum Toxin A)



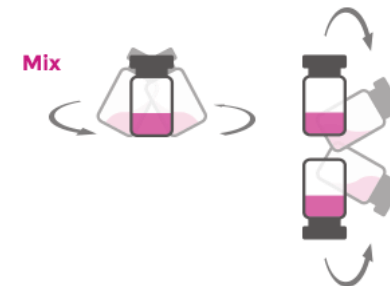
01. The 300 unit aesthetic vial is a 3ml glass vial with a rubber stopper covered by an aluminum cap
02. A 500 unit Neurologic product is available as well as a 1000 unit 2-vial box
03. Be sure you are purchasing the 300 unit aesthetic vial for cosmetic purposes

Xeomin

(Incobotulinum Toxin A)



01. Merz Aesthetics 866-862-1211
Xeomin previously owned by Allergan
02. Shipped room temperature;
refrigerate after reconstituted
03. Needs to be inverted for 15 minutes



Xeomin

(Incobotulinum Toxin A)



01. Ratio of diffusion is similar to Botox.
02. However, package insert cautions that the units of biological activity cannot be compared or converted to other botulinum toxin products using other assay methods.

Jeuveau

(Prabotulinum Toxin A-xvfs)



01. evolus.com/for-practices/
02. Must be kept refrigerated before and after reconstitution



Jeuveau

(Prabotulinum Toxin A-xvfs)

01. Ratio of diffusion is similar to Botox.
02. However, package insert cautions that the units of biological activity cannot be compared or converted to other botulinum toxin products using other assay methods.

Antitoxin

- An antitoxin is available if overdose or mis-injection occurs.
- Contact your Local or State Health Department to process a request for antitoxin through the CDC. If you do not receive a response within 30 minutes, contact the CDC directly at **770-488-7100**.
- Antitoxin will not reverse Botulinum toxin induced muscle weakness already apparent by the time antitoxin is administered.



Alternatives to Injectables



Surgery

Laser

IPL

Topical Skin Products

Microdermabrasion

Medical Needling

Radiofrequency

LED Light Treatments

Microcurrent Toning

Chemical Peels

Product Partnering

Allergan



Botox

Juvederm/Voluma

SkinMedica/Vivité/Prevage

Coolsculpting

Galderma



Dysport

Restylane

Obagi

Merz



Xeomin

Radiesse/Belotero

NeoCutis

**Ultherapy, Cellphina,
Lasers/RF devices**

Evolus



Jeuveau

Common Types of Facial Wrinkles

Forehead Lines

Frown Lines

Crows Feet

Tear Troughs

Bunny Lines

Nasolabial Folds

Marionette Lines

Mental Crease

Neck Lines



Botulinum Toxin Use

The more simple and more defined the effect of a muscle, the more obvious and predictable the effects

Selective flaccid paralysis of muscles occurs with localized injections into the muscle itself.

Nearly painless injections can lead to softening of facial lines for 3-6 months.

Carruthers & Carruthers Report

25-year recap of
long-term effects of
Botulinum Toxin A

Very safe product

Initial clinical trials: 853
treatments on 50 patients, just
1% resulted in adverse events

The study found no increase
in adverse events with number
of treatments

No allergic reactions
were reported

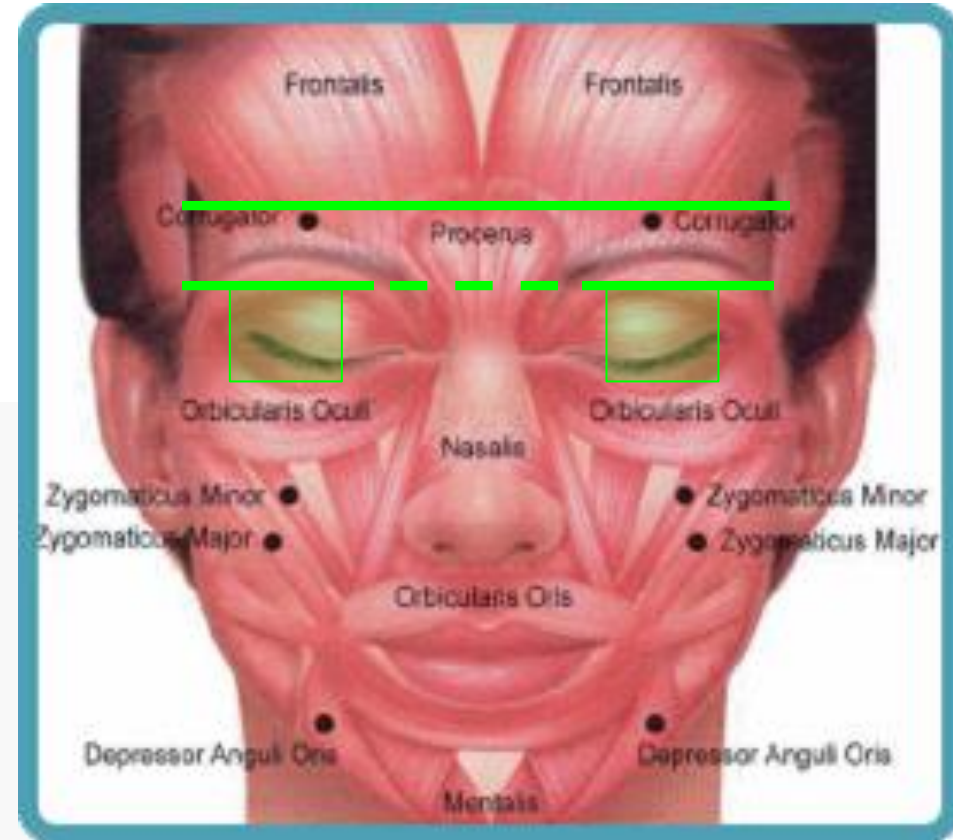
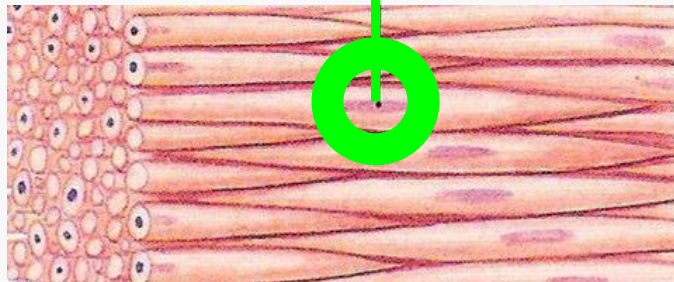
10 adverse events in 8 patients
were reported over the study
including: ptosis, dysphagia,
bruising and injection pain.

Interactive: Facial Muscle Anatomy



Think of how a muscle is built

1 cm diffusion





How Long Can Botulinum Toxin Be Used Once reconstituted?



Once reconstituted, store refrigerated

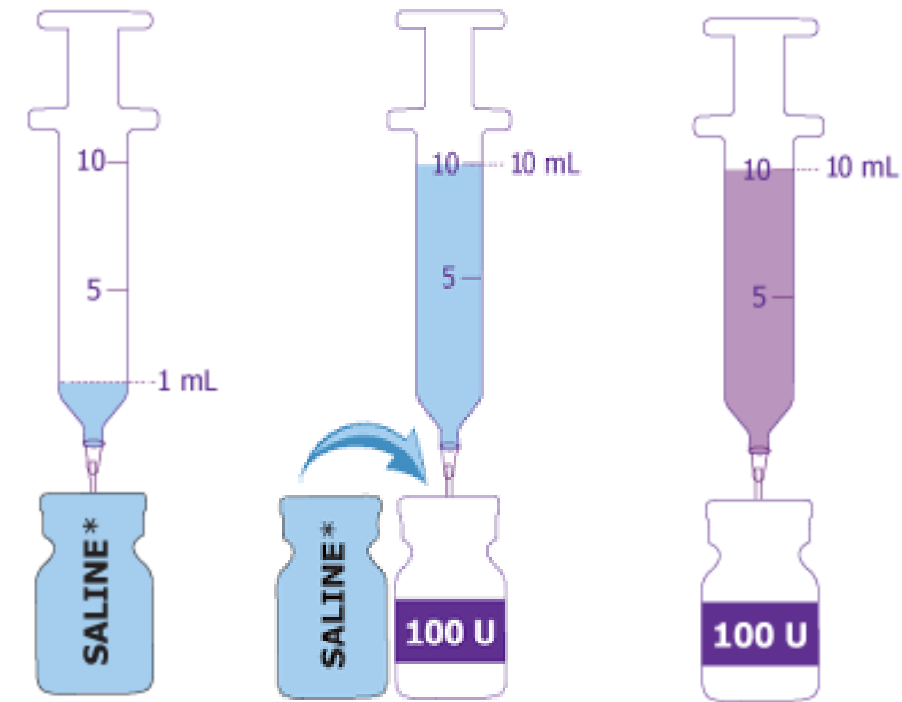
Ideal use is within 24 hours – this follows manufacturer' specifications.

Originally thought to degrade sharply –
Study by Garcia and Fulton demonstrated continued potency to 30 days.

Study by Hexcel found 6 weeks of efficacy/sterility.

Reconstitution

- 100 u vial (STRONG VACUUM IN VIAL)
- Use 2.5 ml sterile saline per 100 unit vial (or the appropriate volume for the desired dilution) (1.25ml saline to reconstitute a 50 unit vial)
- Use preservative-free 0.9% saline (manufacturer's recommendation) or preserved 0.9% saline
- Introduce saline VERY slowly into Botulinum Toxin vial.
- Do not shake vial! Make every effort to avoid foaming.



Prior to reconstitution, keep refrigerated.
After reconstitution, keep refrigerated or on ice.



Botulinum Toxin Storage

Syringes



1 ml Syringe with 0.1ml increments. TB—with detachable needle
Norm-Ject or Exel 26048—with detachable needle. Allergy—with attached needle



Insulin Syringes—with attached 30-32g 5/16" to 1/2" needle 30 unit (3/10ml), 50 unit (1/2ml), 100 unit (1ml)



UniTox Syringe—with attached 30g 5/16" needle must use 2.5ml saline in a 100 unit vial dilution. Increments are 5,10,15 and 20 units



Comfortox Syringe

BOTOX

Reconstitution



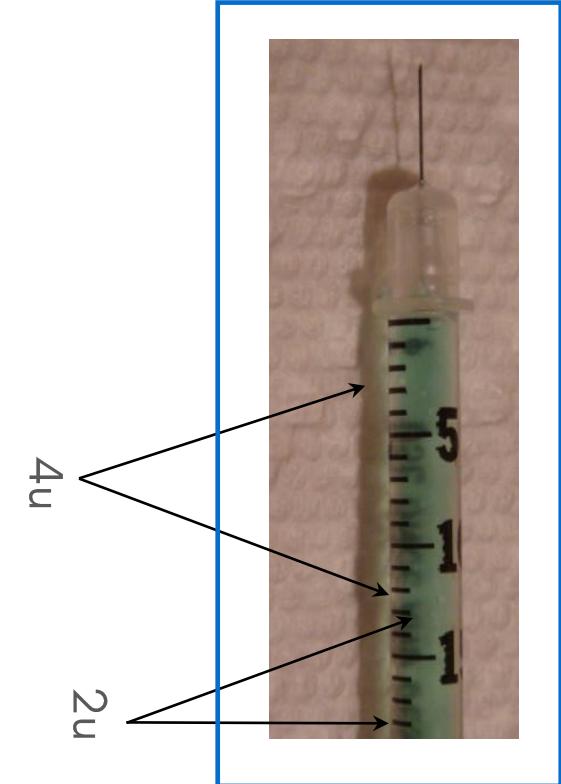
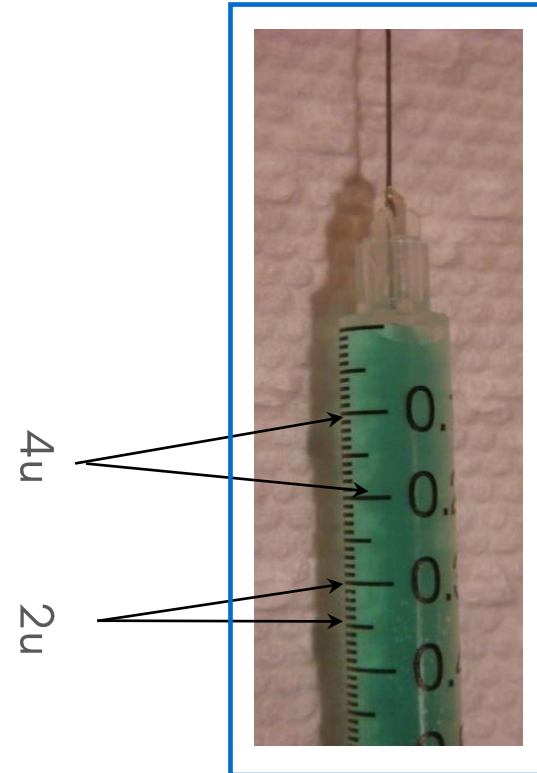
Diluent added(0.9% Saline, sterile, no preserved)	Resulting dose/ Units per 0.1 mL
1.0 mL	10.0 U
2.0 mL	5.0 U
2.5 mL *	4.0 U*
4.0 mL	2.5 U
8.0 mL	1.25 U

BOTOX Injections

Typical individual injections are from 2-4 units.



1ml TB Syringe



3/10ml Insulin Syringe

Reconstituting Dysport®

- Using a 23 g needle and aseptic technique, draw up the proper amount of sterile, preservative-free 0.9% saline.
- Insert the needle into DYSPORT® vial at a 45° angle and allow saline to be pulled into the vial by partial vacuum.
- Gently invert the vial (do not shake)
- Reconstituted DYSPORT® should be a clear, colorless solution, free of particulate matter.

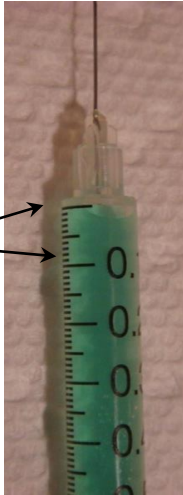


Typical individual injections are 10 units.

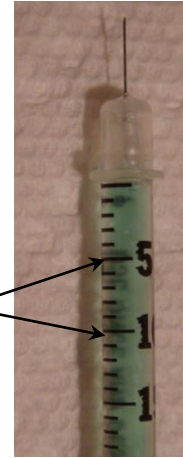
There are 2 “on-label” dilutions

Reconstituting Dysport®

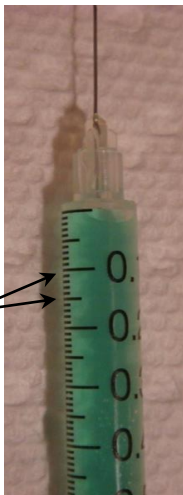
10 units/ 0.08ml



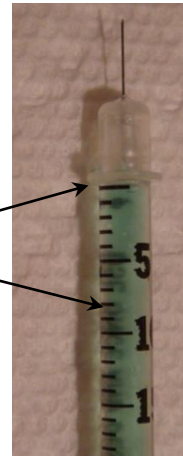
2 units/insulin unit



10 units/0.05ml



10 units/8 insulin units



10 units per 0.08ml

2.5ml of preservative-free 0.9% sterile saline to a 300 unit vial

10 units per 0.05ml

1.5ml of preservative-free 0.9% sterile saline to a 300 unit vial

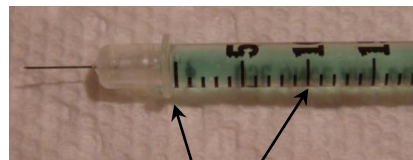
Reconstituting Dysport®

- Off-Label “Easy Transition #1” dilution
- Same volume injected as Botox/Xeomin

2.5 ml of preservative-free 0.9% sterile saline to a 300 unit vial



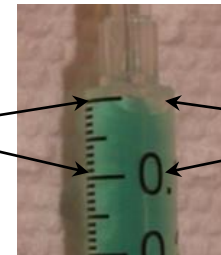
12.5 units per 0.1ml



12.5 units per 10 insulin units

When recording the number of units injected, this will be about 3 times the units of Botox

Botox 4 units

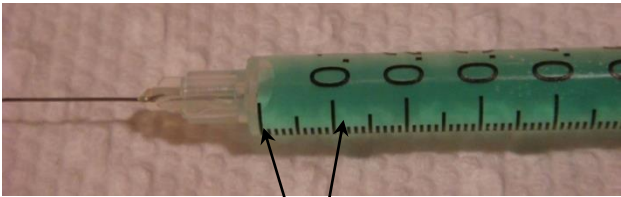


Dysport 12.5 units

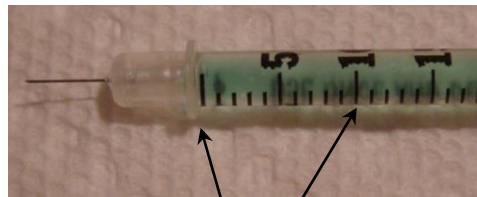
Reconstituting Dysport®

"Dr. G's" Method of reconstituting Dysport

3 ml of preservative-free 0.9% sterile saline to a 300 unit vial



10 units per 0.1ml



10 units per 10 insulin units
or 1:1 with Insulin Syringe

Dysport®

01. Dysport® cosmetic recommendation is 10 units per injection site with 50 units injected into the glabellar area--the only FDA-approved indication.
02. Typically 3 times the units of Dysport per injection site compared to units of Botox or Xeomin



vs



Reconstituting Xeomin®

Product arrives at room temperature

Do not release vacuum. The partial vacuum will draw the saline into the vial.

Once reconstituted, must be refrigerated or on ice

Reconstitute with sterile 0.9% preservative-free saline

Package insert recommends use within 24 hours

Single patient vial

Xeomin needs to be inverted for 15 minutes after reconstitution to ensure adequate product mixing



**Diluent added (0.9%
Saline, sterile, non-
preserved)**

**Resulting dose/
Units per 0.1 mL**

1.0 mL	10.0 U
2.0 mL	5.0 U
2.5 mL *	4.0 U*
4.0 mL	2.5 U
8.0 mL	1.25 U

Xeomin® Reconstitution



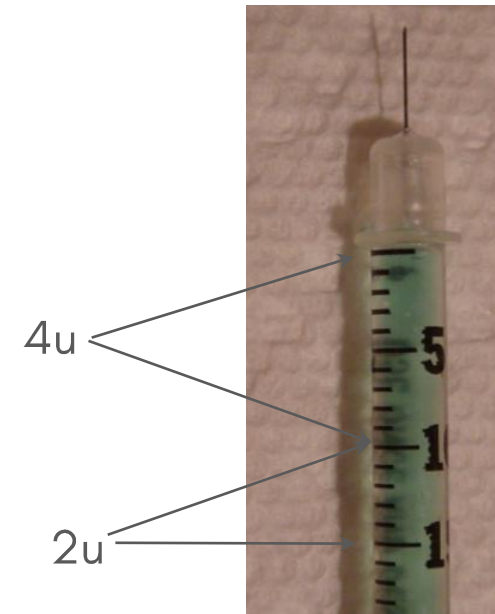
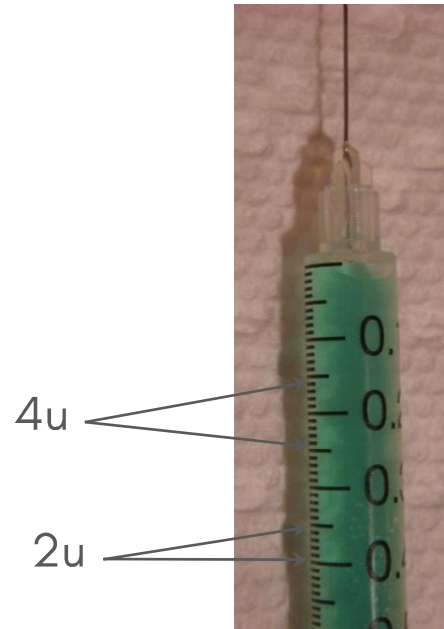


Xeomin® Injections

Typical individual injections are from 2-4 units.



1ml TB Syringe



3/10ml Insulin Syringe

Client Selection

- Basic points – all risks and complications have been clearly stated/explained
- If client is unsure have them wait.
- BTXa cannot replace psychotherapy.
- Assess expectations – if unrealistic, safer to avoid treatment
- Best age for BTXa is 30–65 years.
- Judge facial condition!



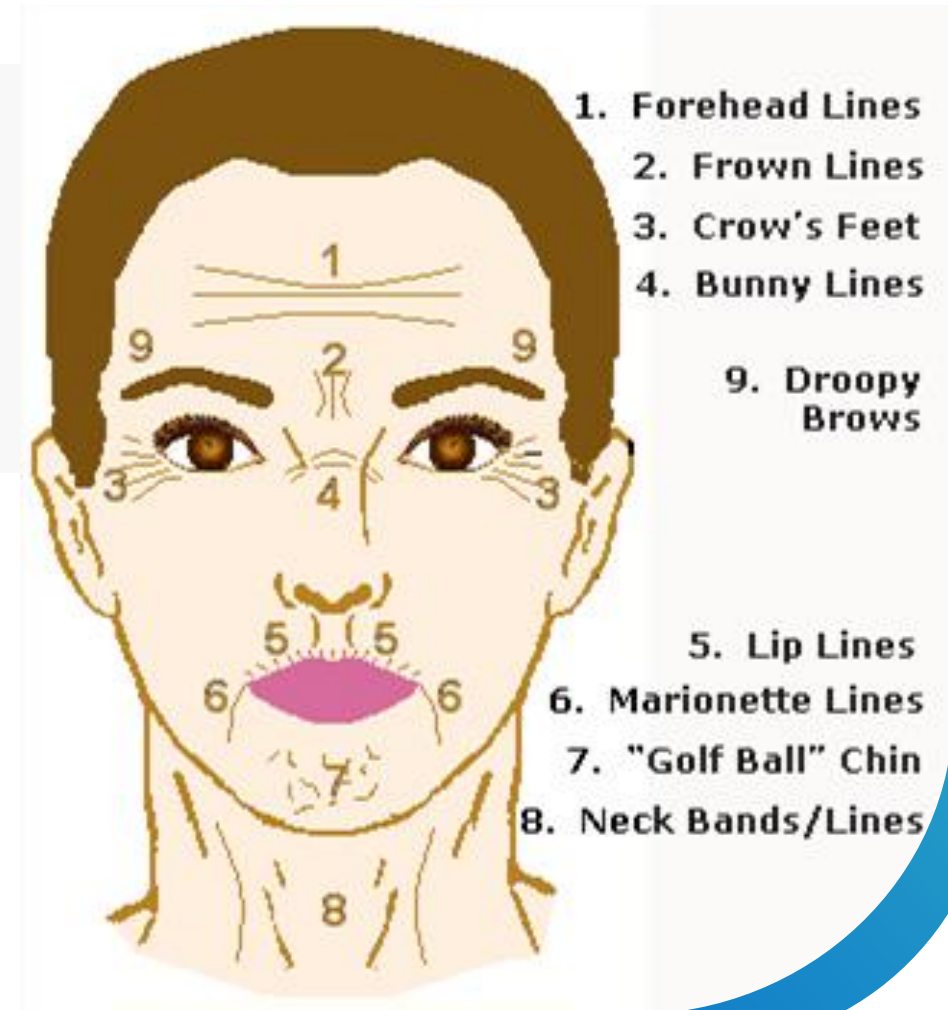
Botulinum Toxin Indications



- 01.** Most of the folds and wrinkles in our face are the result of traction of underlying mimetic muscles on the skin, ptosis of the fat pads and loss of collagen.
- 02.** Muscles are in a dynamic balance.
- 03.** Treatment should affect specific muscles while sparing the surrounding muscles.

Botulinum Toxin – Indications

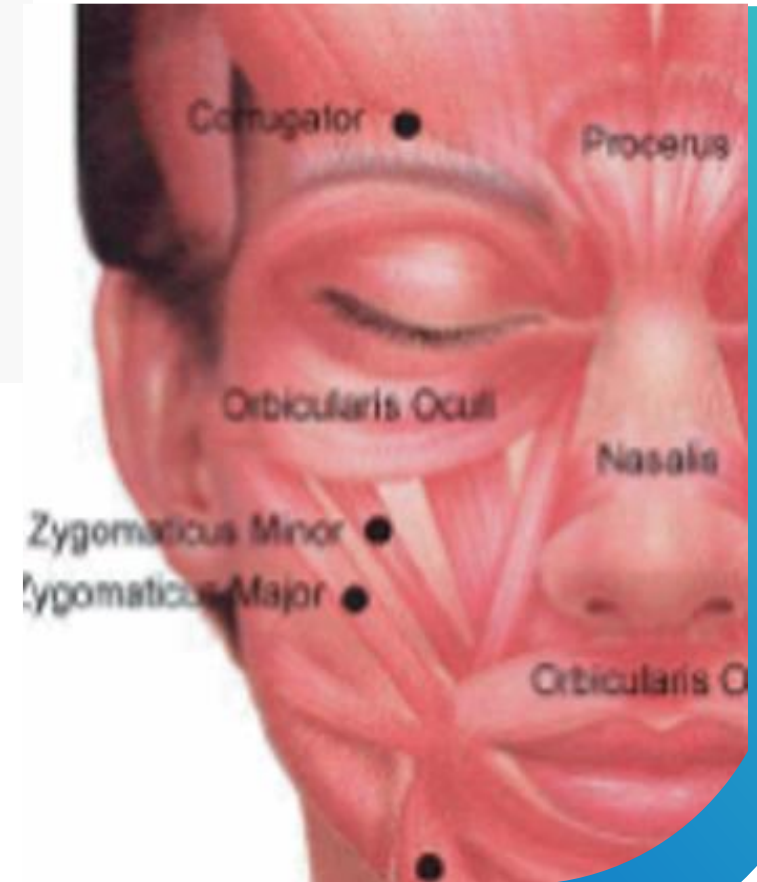
- 01.** Horizontal forehead lines
- 02.** Glabellar folds “frown lines”
- 03.** Lateral canthal lines “crows feet”
- 04.** Fine wrinkles on bridge of nose “bunny lines”



***Numbers 5 - 8** can be considered Advanced procedures using Botulinum Toxins for purposes of this seminar.

Botulinum Toxin – Indications

01. Main area of Botulinum Toxin treatment is upper half of the face. Lower half of face and neck treated less frequently.
02. We will rejuvenate the lower face today with Dermal Fillers



Neurotoxin: Contraindications

Allergy to any components of the toxin preparation.
(i.e. albumin/egg allergy)

Generalized impairment of muscle strength (i.e.
Myasthenia Gravis, Eaton-Lambert syndrome, ALS)

Antibiotic therapy shortly before or after treatment
(Aminoglycosides - (gentamicin) intensify effect,
others can lessen effect.)

Clients planning Lasik surgery

or Blepharoplasty (plastic surgery operation for correcting
defects, deformities, and disfigurations of the eyelids).



Neurotoxins: Contraindications

01.

Treatment with ASA, NSAIDS or Anticoagulants one week prior to Tx.

02.

Infections of the eyelids or of other intended injection sites.

03.

Serious preexisting disease

04.

Pregnancy and for the duration of breast-feeding.

05.

Caution for your practice – Underage clients need parental consent.

06.

Blood donors – can't donate after Botulinum toxin A for a period of time determined by the blood bank.

Preparing The Client

Take “before” photograph

Take “after” photo two weeks after
– If necessary to help resolve complaints such as “I can’t see any difference” or “It’s worse now than it was before”.

Inform client verbally about treatment and potential complications.



- ✓ Multiple Photos of Different Angles
- ✓ Hair Away From Face
- ✓ Remove ALL Makeup
- ✓ Solid Background
- ✓ Clear Shots of Injection Area

Botulinum Toxin A Treatment



Use written consent

Document status prior to treatment (describe in chart, as well as photo)

Cleanse injection site (if you use alcohol, dry the area, as this may adversely effect BTXa).

Botulinum Toxin A Treatment

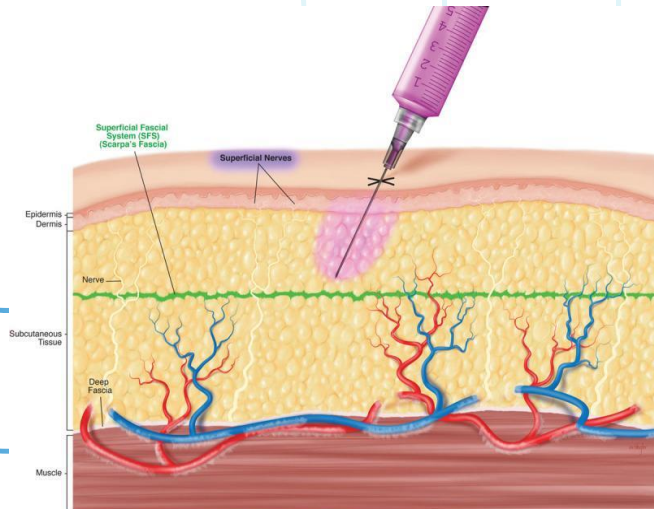


Evaluate anatomy in upright position.

Inject Botulinum toxin with client in upright position.

Ask client to contract targeted muscles BUT the needle is inserted in the belly of the muscle while relaxed.

Botulinum Toxin A Treatment



The needle is inserted into the muscle and BTXa is injected.

Beware tapping periosteum may dull needle.

Dermal wheal (bleb/intradermal) could be done in most areas.

Botulinum Toxin A Treatment

- Botox, Jeuveau, and Xeomin will diffuse approximately 1 cm in a radius from the injection site when reconstituted with 2.5ml saline.
- Dysport will diffuse approximately in a 1.5 cm radius from the injection site.

Avoid the area less than 1 cm above the orbital rim over the iris. Diffusion of the toxin into this area can cause ptosis. With Dysport®, avoid the area 1 1/2 cm above the brow.



- Recommended maximum dose of Botox® to be administered at one time is 100 units. Keep in mind, however, that neurologists often inject 600-800 units/session. The lethal dose for a 70Kg person is 2500 units.
- Men typically require 2-3 times the amount of BOTOX as women, dependent upon muscle mass.
- Athletic women may need more
- After two years of injections every 4-6 months, the frequency and amount of neurotoxin injected may be able to be decreased

Botulinum Toxin A Injections

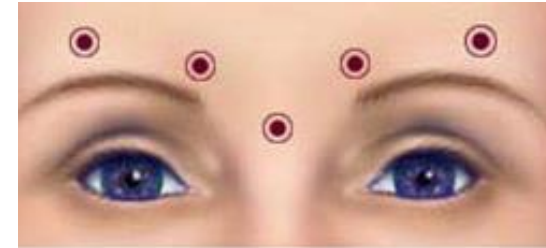


Glabellar Region “Frown Lines”

Recommended Botox/Xeomin dose:
12-24 units – 4 units per injection
site.

Dysport 50-85 units—10 units per injection site

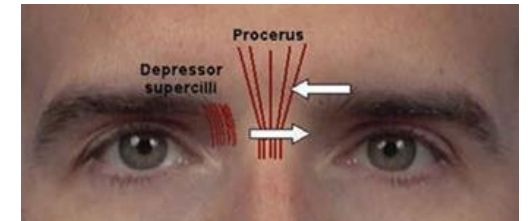
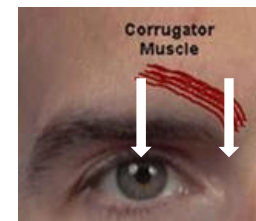
By paralyzing the Corrugator muscle and parts of the Procerus muscle, the frown lines are arrested and the effect of the muscles lifting the brows dominates.



Botox® injection sites.



Muscles affected by Botox



Glabellar furrows & Nasal Wrinkles

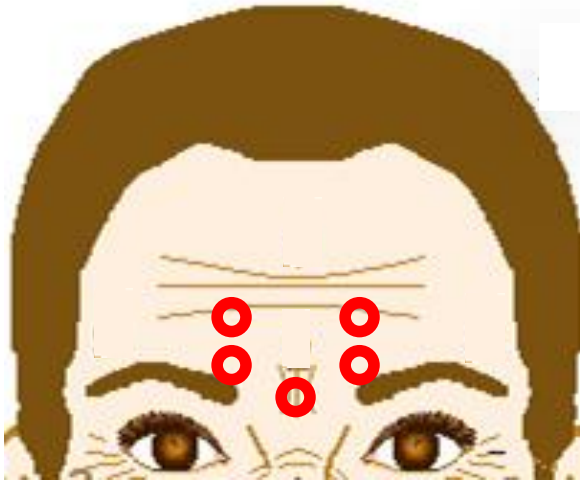
Recommended Botox®/Xeomin dose:
 $\cong 4$ units/site

Recommended Dysport®
 dose: $\cong 10$ units/site 10

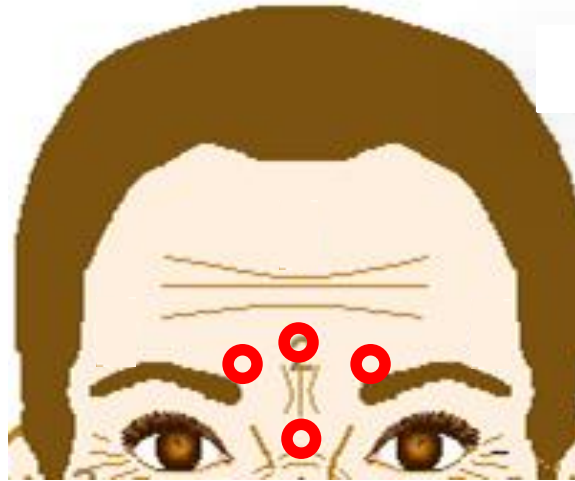
Horizontal glabellar furrows (caused by the Procerus muscle) 1 injection on the midline in the belly of the muscle will usually handle this.



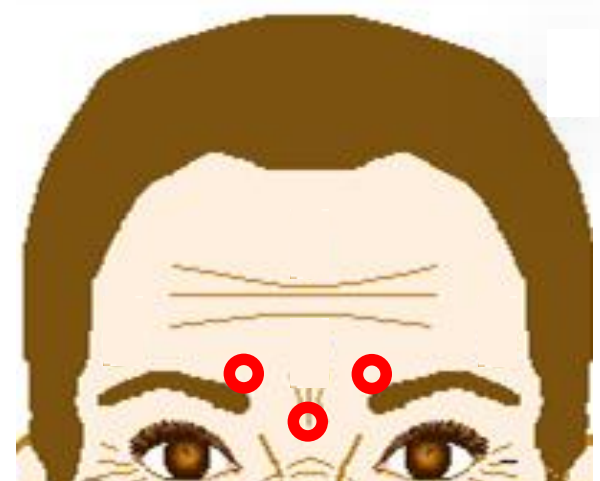
Additional Glabellar Injection Patterns



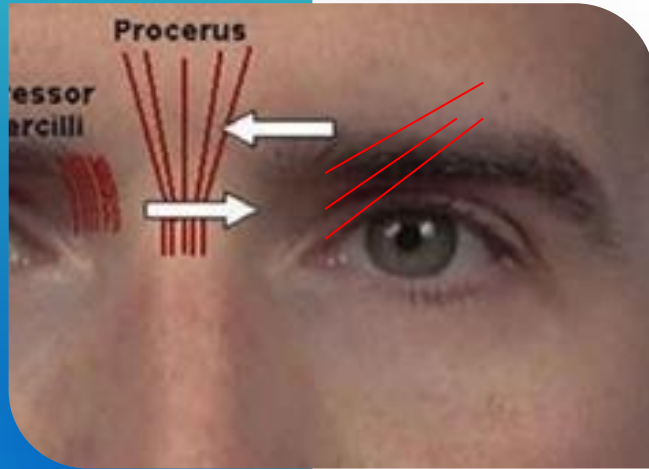
Stacking



Diamond



Trio

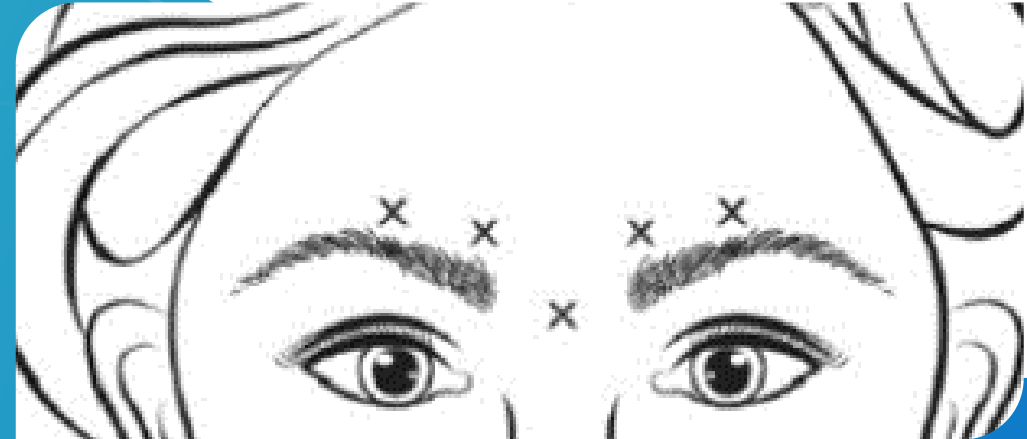


Glabellar Landmarks

Commonly used landmarks lie about 1 cm above the medial ends of the eyebrows, directly over the glabellar furrow, in the middle of the bridge of the nose and usually also in the medial belly of the glabellar fold.

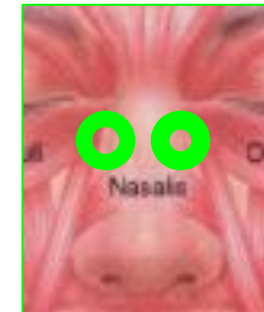
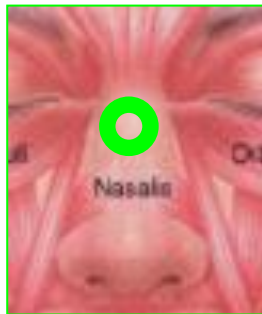
Easy Administration

Medial corrugator injections should be placed at least 1 cm above the bony supraorbital ridge¹



Bunny Lines

For fine lines on the nasal bridge, place injections of 1-2 U BOTOX® on both sides of the **rhytide** or one injection centrally.



Do not inject too low as this can cause the lip to droop if the Labii superioris alaeque nasi is affected.

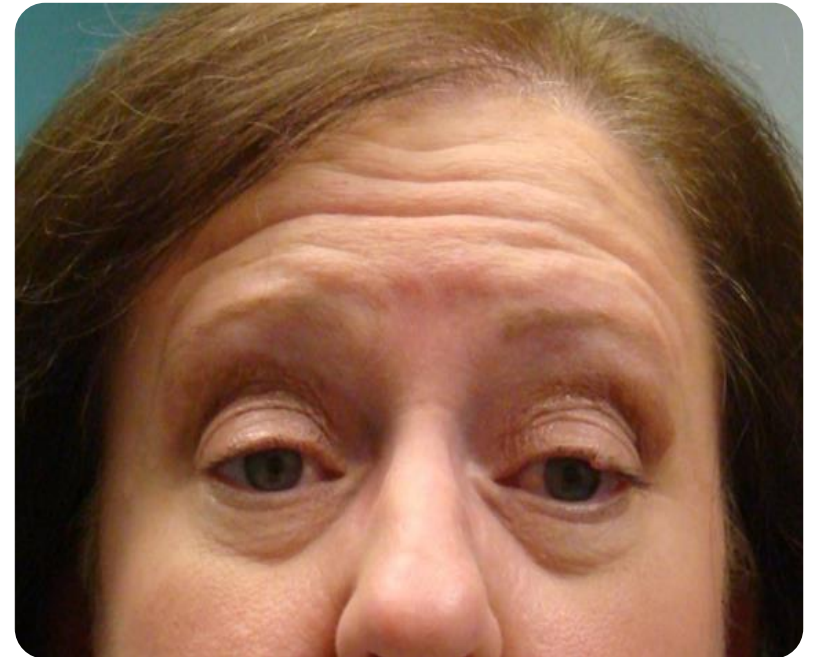
Frontalis Region

"Frown Lines"

Treatment softens the vertical glabellar furrows, and is frequently accompanied by a mini brow lift, raising the eyebrows about 1-3 mm medially

BTXa injected into the glabellar region causes the frontalis muscle to dominate. (Can help with older clients or those with low set eyebrows.)

Failure to include the glabella when injecting the forehead can cause lowering of the brow (Neanderthal appearance)

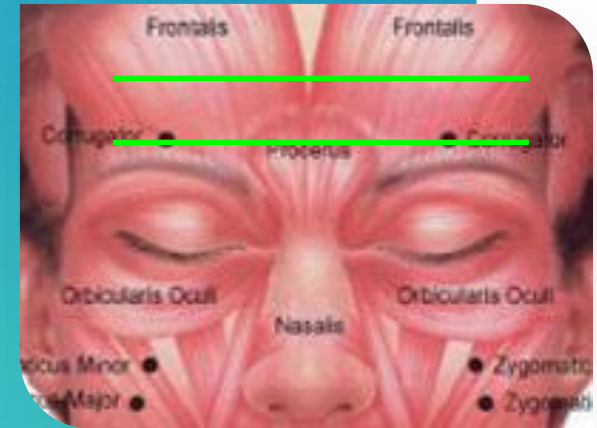


Horizontal Forehead Lines

Recommended Botulinum Toxin dose is
12-20 units (2-4 units each site)

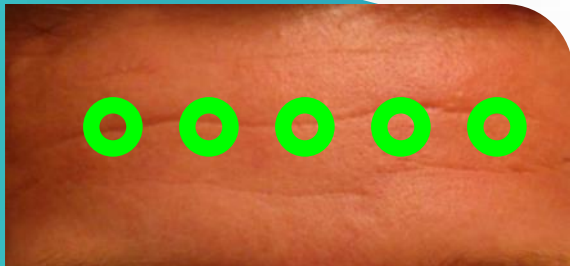
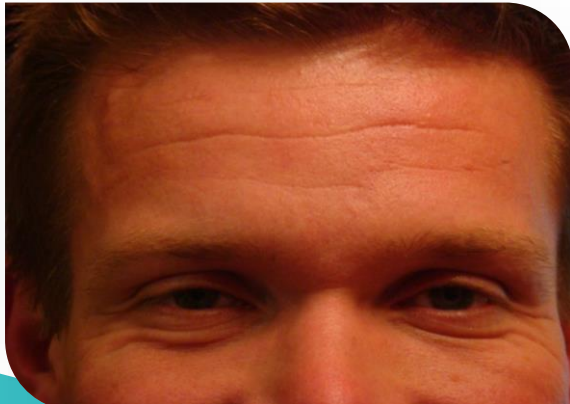
Since the frontalis muscle is responsible for elevating the eyebrows and wrinkling the forehead, paralyzing this muscle can lower the forehead and the eyebrows.

Because of this, the glabellar region should always be treated first or at the same time in order to raise eyebrows

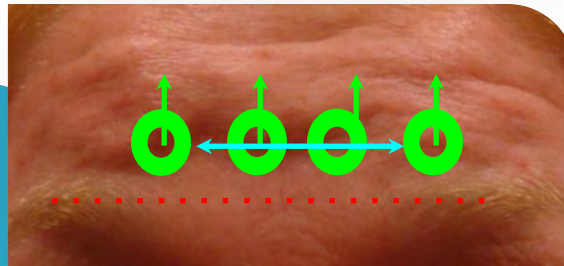


Horizontal Forehead Lines

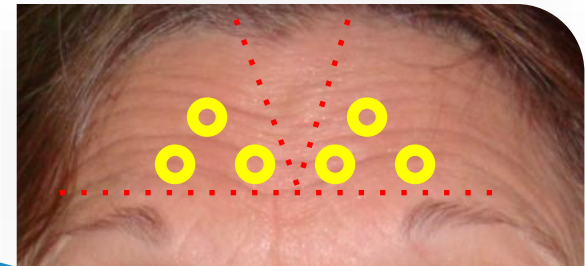
Rectangular
Frontalis



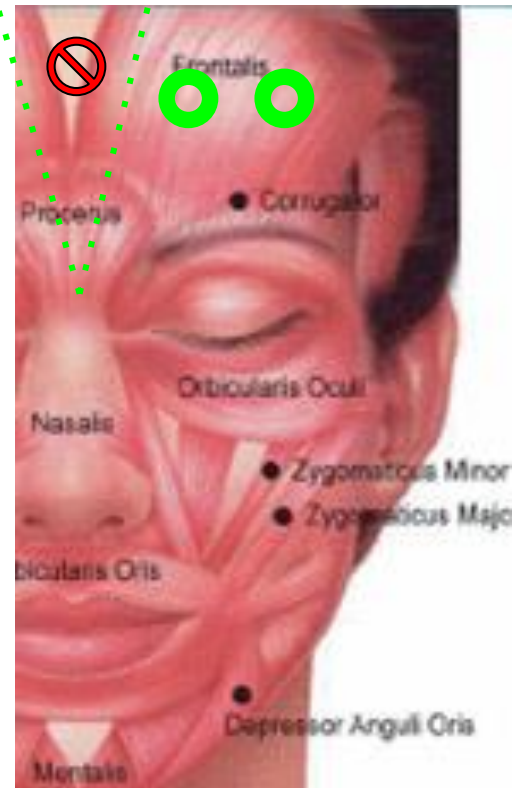
Inject-Distribute-
Return in 2 weeks



Bifurcated
Frontalis



Horizontal Forehead Lines



Product placement is based on the pattern of wrinkle formation:

- 01.** Single wrinkle zone
- 02.** Diffuse wrinkling
- 03.** Bifurcated muscle vs. a rectangular muscle
- 04.** Post-trauma

Sites To Avoid

Injections of toxin in the lateral forehead region.

The 'Bermuda Triangle' area of the forehead is to be avoided, since paralyzing this area can cause a ptosis of the eyebrows.



Botulinum Toxin A Treatment



Injection in the 'crows feet' area are frequently performed intradermally rather than in the belly of the muscle and are quite effective.

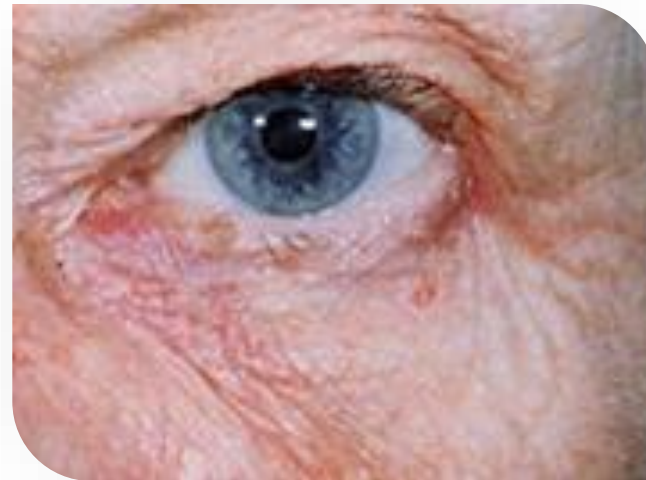
Lateral Canthus Lines "Crows Feet"

- 01.** Recommended dose is 12-24 units – use multiple injections of 2 units to maximize the benefits
- 02.** Start injections about 1 to 1.5 cm lateral to the orbital rim.
- 03.** Injection pattern is individualized to client.



Crow's Feet Caution

The provider must be careful when treating clients with loose, baggy skin on their lower lids, since this provides a path for BTXa to migrate into unintended areas.

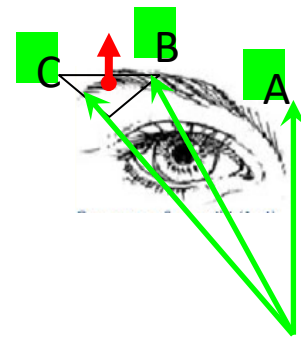


Brow Lift

Brow proportion usually dictates that the female brow should gently arch at the junction of the lateral 1/3 and the medial 2/3 of the brow.

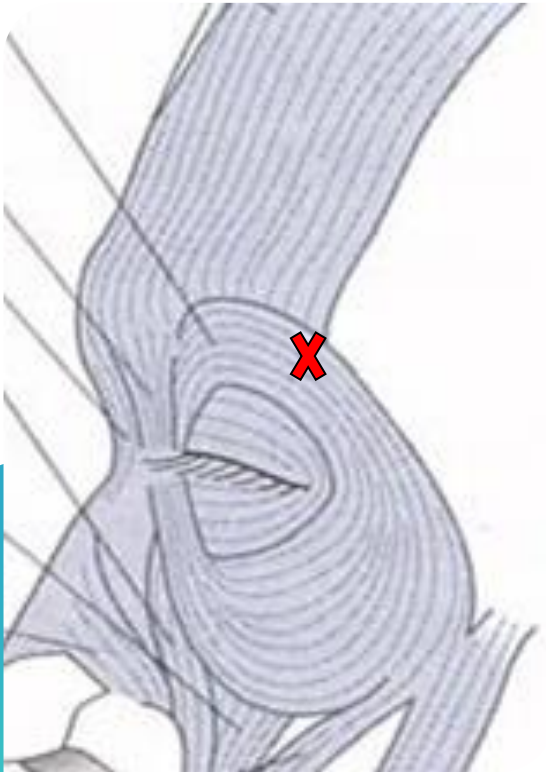
A-B=Medial 2/3

B-C=Lateral 1/3

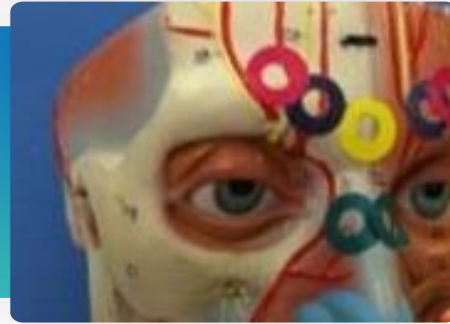


Temporal Brow Lift

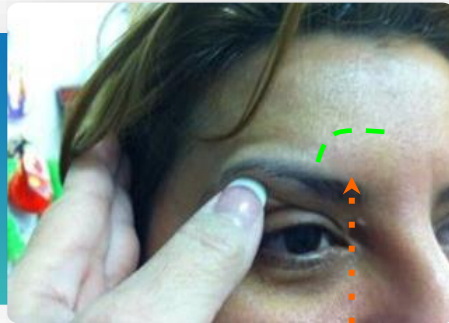
The Lateral Injection: Where the Temporal Fusion Line Crosses the Brow



Interactive: Landmarks



Locate Temporal Ridge



Establish Orbicularis oculi border

Reversing the "Spock Brow"



1 – 2 units per site to "drop" the brow

- Explain to the client that effect is not immediate – they should expect to see results in 3–7 days.
- Follow up or advise to call in 14 days if unsatisfied with results. Take additional photo then or as needed.
- Schedule additional treatment as desired, typically in 3 – 6 months.

Botulinum Toxin After Treatment

Remind the client frequently about the following points:

- 01.** Stay upright for four hours
- 02.** Do not massage or scratch injection site
- 03.** Exercise treated muscles

Minimum Skin Care

- 01** Cleanse the skin twice a day
- 02** Moisturizer
- 03** Sunscreen
- 04** Retinol, Retinoid or Retinaldehyde



Topical Skin Products

Wide Range:

Over the Counter

(ROC, Olay, Neutrogena, etc.)

Direct Sales

(Avon, MaryKay, Jaffra, BeutiControl)

Clinical

(Aesthetician, RN, ARNP, MD/DO) (Rejuve, SkinMedica, PreVage, VIVITÉ, Cosmedix, NIA24, Neocutis, NeoStrata, MD Skincare, SkinCeuticals, ZO Skin Health, Obagi)

Prescription

(Retin-A, Refissa, Renova, Avage/Tazarotene)

Neutrogena

Rejuve Skincare

ReFissa®
Tretinoin Cream, USP (Emollient) 0.05%

MARY KAY®

- Local injection pain
- Bruising (3-10%)
- Pressure sensation above the upper lid/lower forehead
- Reversible lid ptosis (3%)
- Diplopia (very rare)
- Headache, "flu", hearing impairment (<1%)
- Numbness in forehead
- Brow ptosis - usually occurs after injection of frontalis and can last up to 3 months.
- Non-responder
- Paralysis of neighboring muscles due to incorrect injection technique

Side Effects and Complications





Side Effects

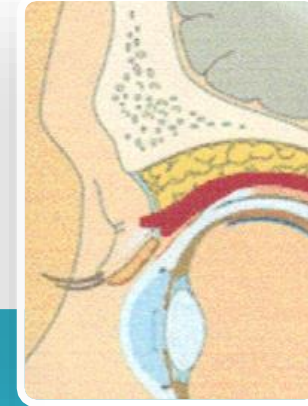
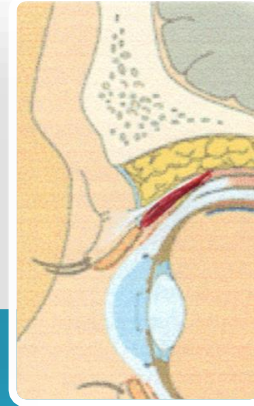
Anaphylaxis – extremely rare.

Carruthers reports performing over 10,000 treatments and has never seen one.

Dr. Wm Binder of UCLA reports using over 1 million units of Botulinum Toxin A and has never seen one.

Still be vigilant and prepared.

Side Effects



- ✓ Ptosis of upper eyelid. This may occur after injection of glabellar frown lines if the toxin migrates to the upper eyelid levator muscle. May appear as early as 48 hours or as late as 12 weeks after injection and may last from 2 to 12 weeks.

- ✓ **Naphcon-A®/Opcon-A®** or **Apraclonidine 0.5% eye drops** (one or two drops three times a day) can be used until ptosis resolves.
- ✓ To avoid – do not inject any closer than 1 cm from orbital rim.

Botulinum Toxin and Fillers

- BTXa typically should be performed prior to filler injections, **not** at the same session.
- Perform BTXa first (about 2 weeks prior) and take advantage of the muscular relaxation and therefore immobility of the filler. Filler will last longer in the skin after BTXa .
- BTXa in the upper face and Fillers in the lower face **are acceptable**. But, if at the same session, exercise caution.



Botulinum Toxin– Supply List

Must be at least NP to order supplies



- ✓ Alcohol or Non-alcoholic disinfectant
- ✓ 2X2 or 4X4 pads, Applicator or Q-tips
- ✓ 1 ml syringes (Tb). Watch "safety" syringes!
- ✓ 0.9% Sterile Saline preservative free or preserved
- ✓ Ice packs **prior** to injections only
- ✓ 30-32 gauge needles to administer
- ✓ 23-27 gauge for mixing and drawing up solution
- ✓ 30-32 gauge ultrafine insulin syringes may also be used to administer
- ✓ Gloves

RNs need supervising MD/DO

Points To Be Aware of

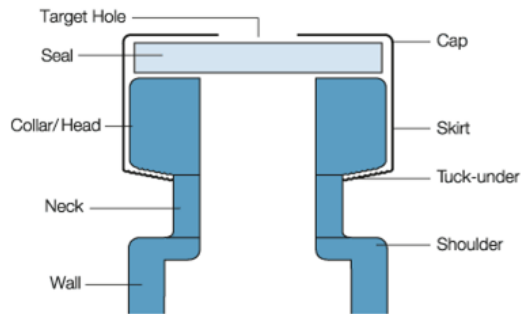
Avoid

- ✓ Errors in preparing the solution (wrong dilution, contamination, foaming or shaking)
- ✓ Local anesthetics (may weaken effect)
- ✓ Use of alcohol without drying (might degrade toxin)
- ✓ Drop of BTXa solution on tip of needle
- ✓ Aspiration before injection (not recommended)



Get Every Last Drop of Botulinum Toxin

Kebby Pliers or other de-capping device such as a hemostat, paint can opener or even a beer opener



✓ 20mm size Decapper
for Botox

✓ 13mm size Decapper
for Dysport

🌐 Kebby :
www.kebbyindustries.com

☎ Phone :
815-963-1466



Conclusion

A few more references:

[www.medestheticsmag.com/
comparing-neurotoxins](http://www.medestheticsmag.com/comparing-neurotoxins)

<https://www.aafp.org>

search: Botulinum Toxin

search: Aesthetic Procedures

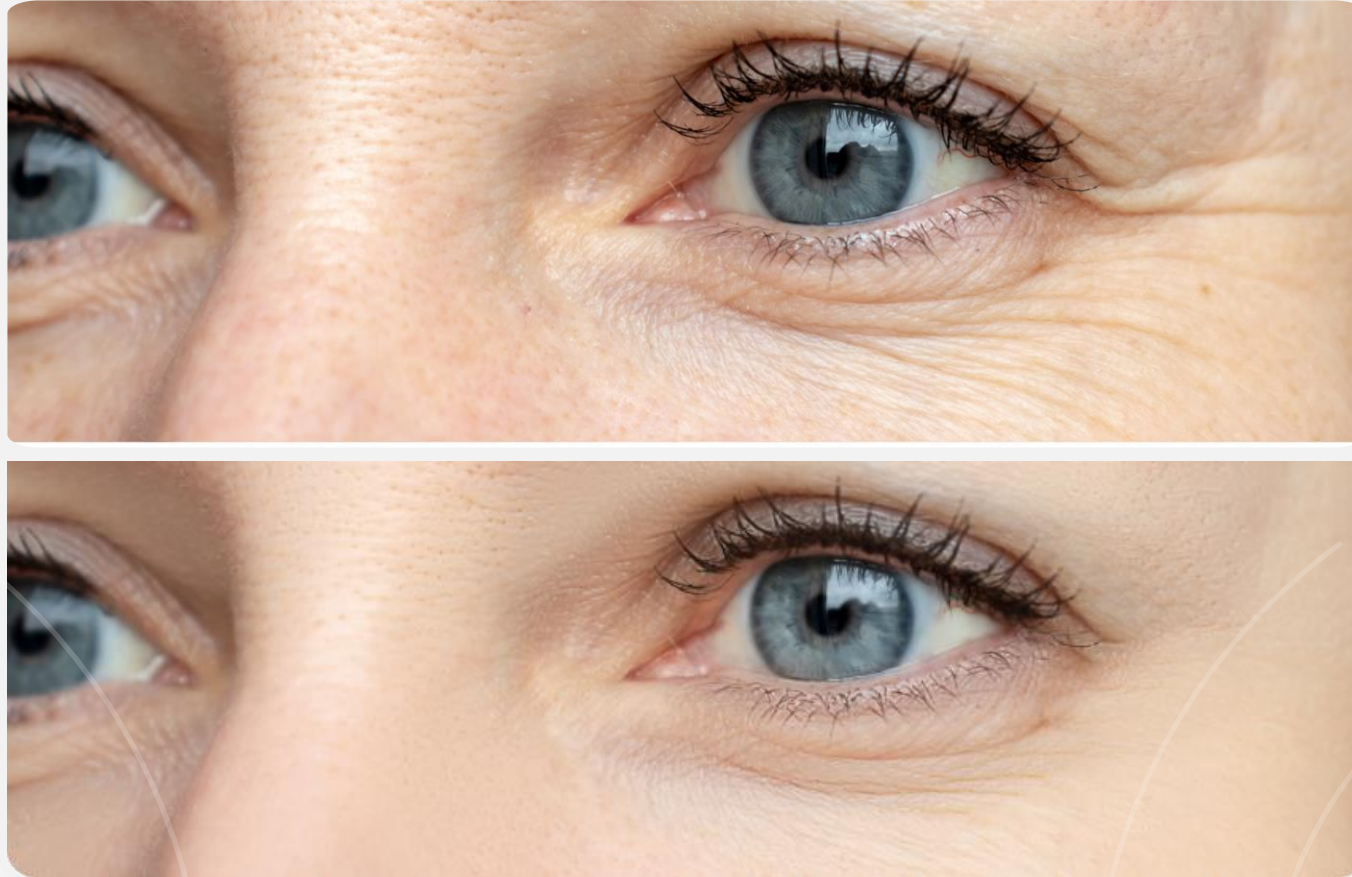
- ✓ As an aesthetic treatment, BOTOX offers a unique treatment that is relatively low in cost, while giving rapid and marked results.
- ✓ BOTOX is the first of many procedures that you can safely add to your new practice of aesthetic medicine.
- ✓ Consider other facets of aesthetic medicine to promote repeat business and a loyal, routine, and growing client base.



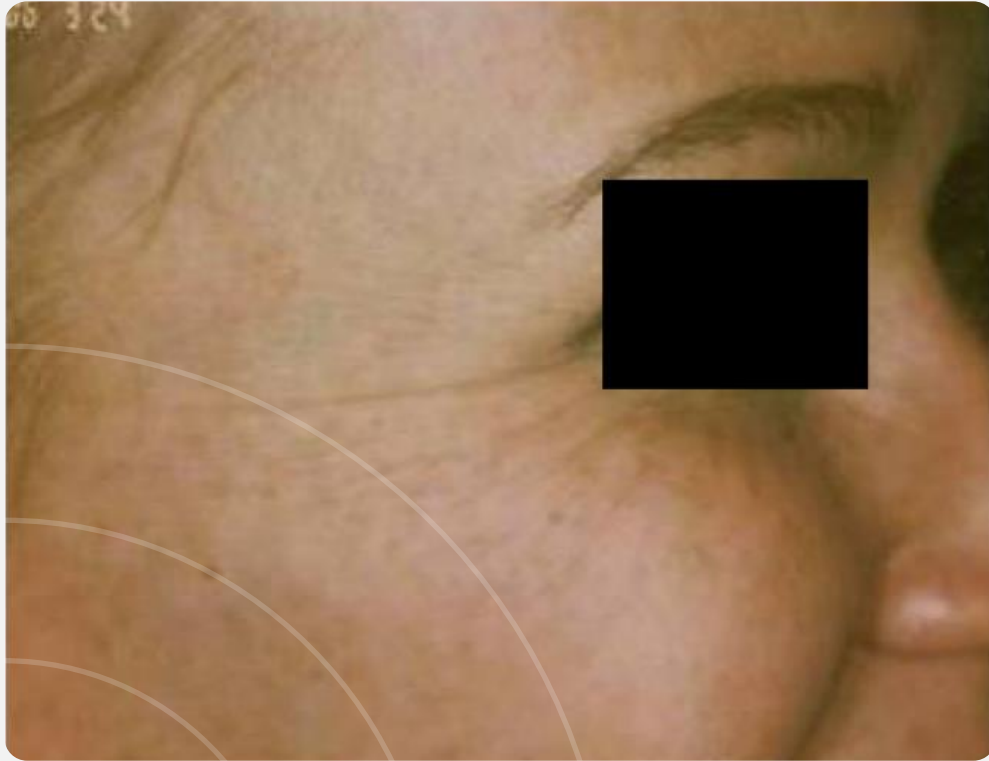
Before & After



Before & After



Before & After



Before & After



Before & After



Before & After Botox®



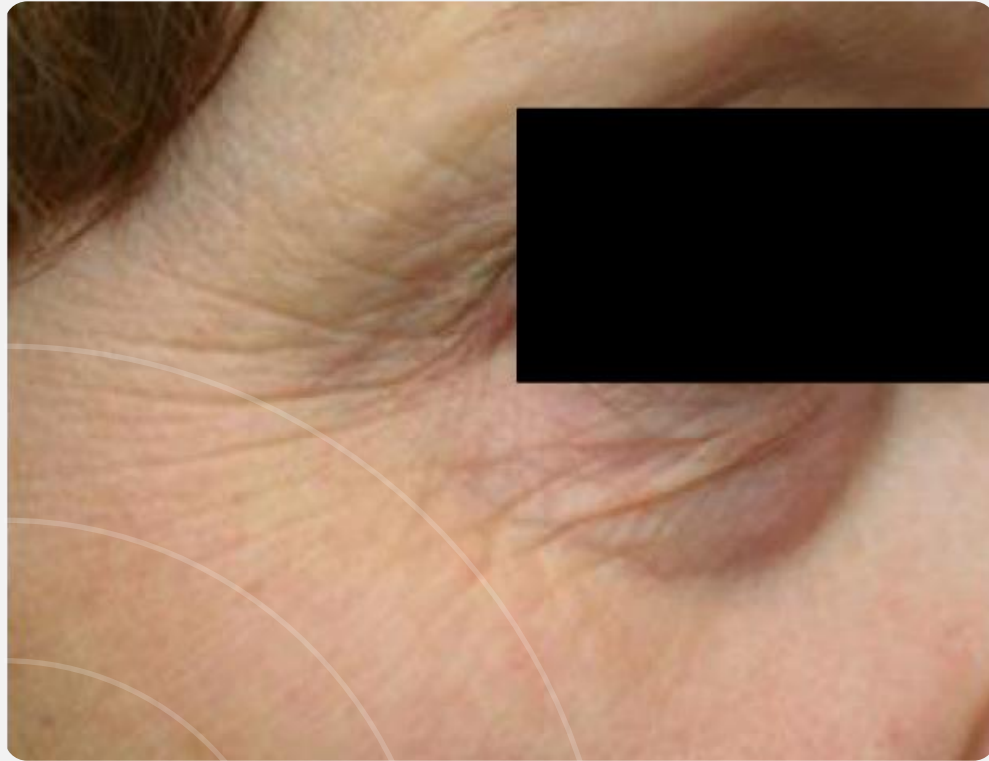
Before & After Dysport®



Before & After Dysport®



Before & After Xeomin®



Before & After Xeomin®



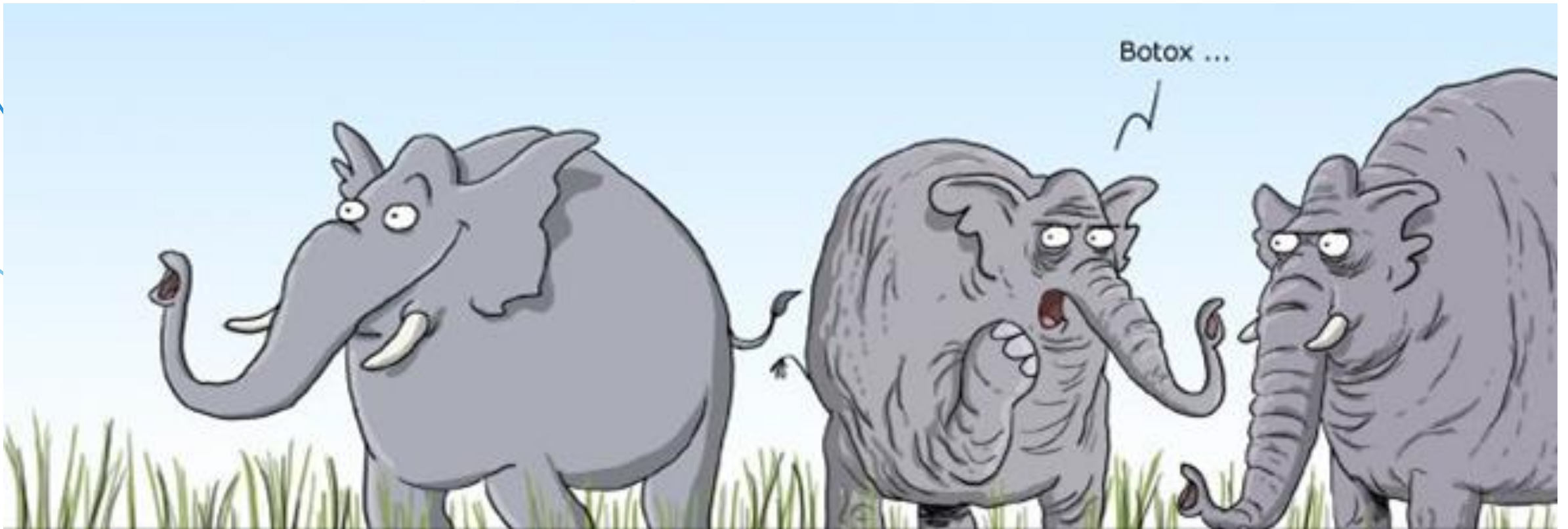
Before & After Xeomin®



15

Break Time

Botulinum Toxin After Treatment



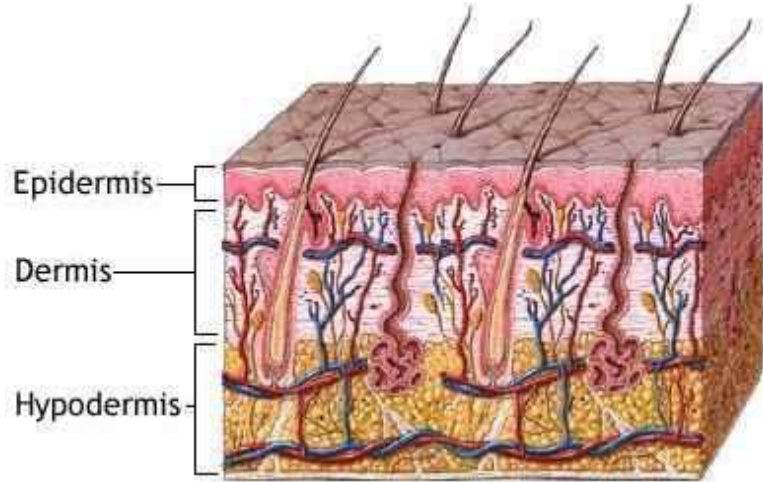


Injectable Dermal Fillers

PART 1

OVERVIEW OF
INJECTABLE FILLERS





Where is Collagen Found?

01.

Collagen is a natural protein that provides structural support.

02.

It is found throughout the body in skin, muscle, tendon, and bone. Fibers of collagen are woven together, like threads in fabric.

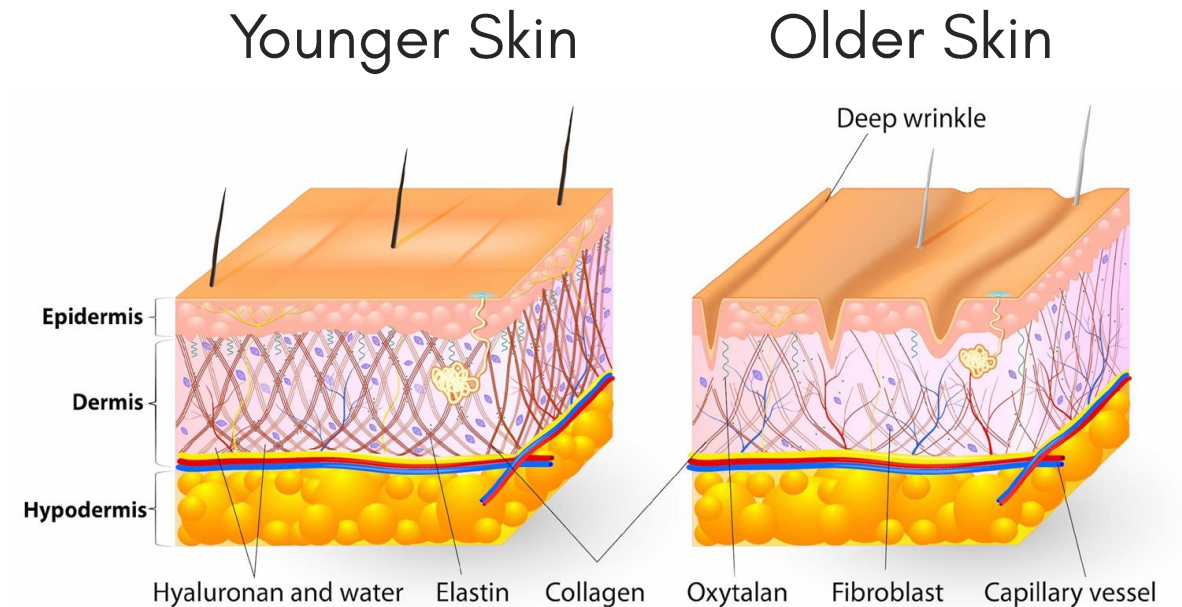
03.

It forms a framework into which new cells can grow. Collagen provides the texture, resiliency, and shape to skin.

What Weakens Collagen?

In addition to being a natural part of aging, other factors weaken the collagen fibers:

01. Exposure to the environment (esp. sun)
02. Injury
03. Heredity
04. Lifestyle



Skin Integrity **Changes** over time



<https://www.womenshealthmag.com/beauty/a19926713/how-your-face-changes-as-you-age/>

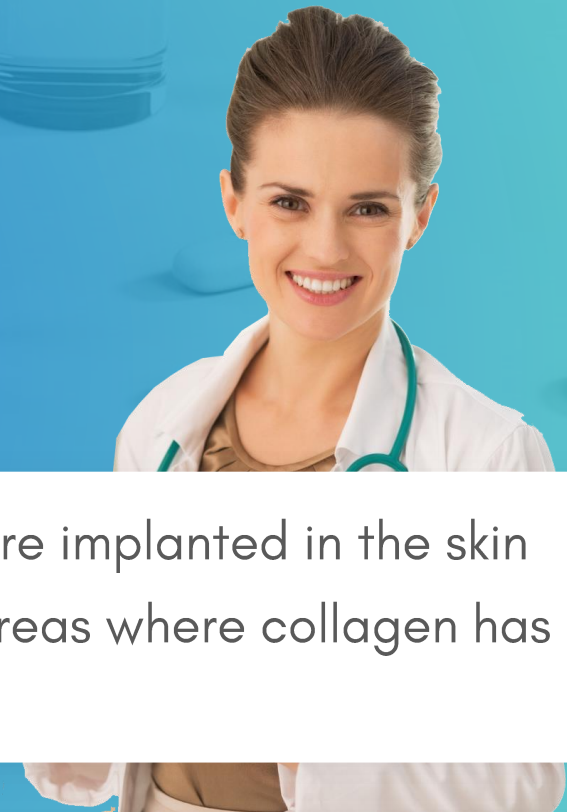
Why Injectable Fillers?

The way your skin looks is directly related to the way your skin is supported.

Collagen is the naturally occurring component of skin that is part of the support structure of skin. Wrinkles form when this natural collagen layer thins during aging.

Injectable fillers are implanted in the skin directly into the areas where collagen has weakened.

Depressions in the skin can be raised to the level of the surrounding skin. Thus, lines and scars can be minimized.



Why Not Collagen Creams?



Creams and moisturizers work only on the skin's surface as a temporary barrier to help retain water.

Injectable products are placed in the skin to replace what has been lost.

Although, they don't reverse aging they do make aesthetic improvement.

Temporary Injectable Fillers



- Bovine Collagen—Zyderm/Zyplast
(*No longer in the market*)
- Requires Allergy Testing 30 days prior to injection
 - Human Collagen – no allergy test needed
 - Foreskin Fibroblast Culture
 - *CosmoDerm/CosmoPlast*
 - Human Cadaveric Fibroblast Culture
 - *Cymetra, Dermalogen, Fascian*
- Longevity: 3–6 months

Temporary Injectable Fillers



✓ Hyaluronic Acid Products

✓ Trade Name:

Restylane-L (Medicis/Valeant),

Juvederm Ultra XC, Juvederm Ultra Plus XC (Allergan),

Belotero (Merz /version with Lidocaine coming soon to market)

Revanesse Versa

Versa +

✓ Most are synthetically derived

✓ Allergy testing not required

✓ FDA approved

✓ **Longevity: varies by product, but typically anywhere from 4 - 18 months**

Restylane Family of Fillers Galderma Aesthetics

877-520-0500

Restylane-L	1ml	\$291.47/1
Restylane Lyft	1ml	\$309.81/1
Restylane Kisse	1ml	\$368.55/1
Restylane-L	0.5ml	\$172/1
Restylane Silk	1ml	\$297.79/1
Restylane Defyne	1ml	\$352.58/1
Restylane Refyne	1ml	\$352.58/1

* Pricing varies on volume. Call Valeant / Galderma for most recent product pricing

Allergan's Family of Juvederm Fillers

800-377-7790

Juvederm Ultra-XC	1ml	\$677/2 (\$338.50/1)
Juvederm Ultra Plus-XC	1ml	\$677/2 (\$338.50/1)
Juvederm Voluma	1ml	\$808/2 (\$404/1)
JUVÉDERM VOLBELLA® XC	1ml	\$730/2 (365/1)
JUVÉDERM VOLLURE™ XC	1ml	\$730/2 (365/1)

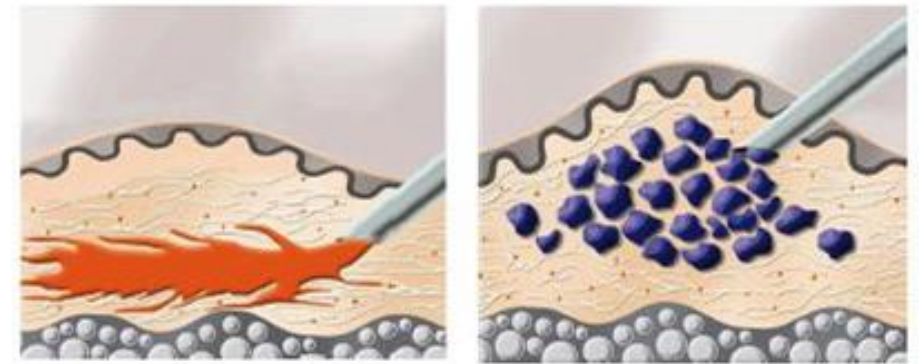
* Pricing varies on volume. Call Allergan for most recent product pricing

Hyaluronic Acid Volumizer

- Trade Name: Juvederm Voluma XC
- Allergan
- FDA Approved: November 2013
- Injected into Submuscular /Subdermal plane
- 1ml prefilled syringes
- Vycross technology—90 % LMWHA+10%HMWHA

Hyaluronic Acid Cohesive Gel

- 01.** Trade Name: BELOTERO Balance
- 02.** Merz Aesthetics: 866-862-1211
- 03.** FDA Approved: 11/16/11
- 04.** Injected into Mid-deep dermis
- 05.** 1ml prefilled syringes, \$240
- 06.** Cohesive Polydensified Matrix Technology



Semi- Permanent Fillers



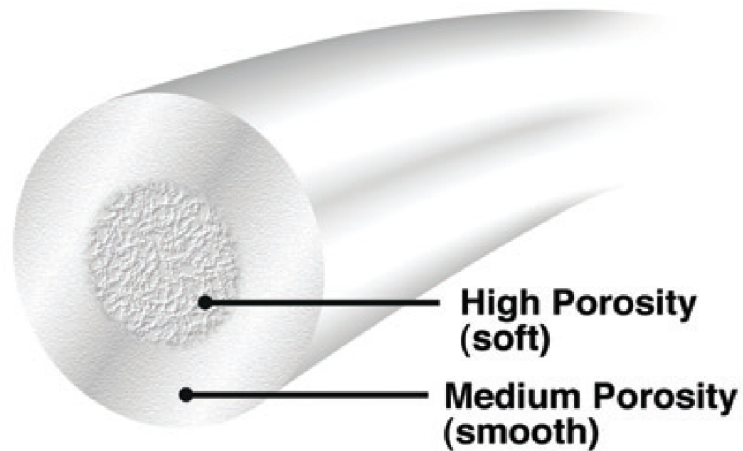
- | Calcium hydroxylapatite | Trade Name: Radiesse (Merz)
- | FDA approved 2006 for treatment of facial wrinkles and folds.
- | Not for lip augmentation
- | Longevity: 12+ months
- | Subdermal injection
- | This filler “improves” over time
- | 1.5ml--\$362

Semi-Permanent Fillers

- ✓ Poly-L-lactic acid
- ✓ Trade Name: Sculptra (Galderma)
- ✓ Must be reconstituted with sterile water at least 2 hours prior to injection
- ✓ FDA approved for restoration and/or correction of HIV-associated lipoatrophy and cosmetic applications
- ✓ Longevity: 1-3 years
- ✓ \$801/2 vials



Advanta™ Dual Porosity Design



Permanent Fillers

- ✓ Expanded Polytetrafluoroethylene (ePTFE)
- ✓ Trade Name: Gore-Tex, Gore S.A.M., SoftForm, Advanta
- ✓ Solid implants requiring small incision
- ✓ Best when supplemented with other fillers
- ✓ Not approved for cosmetic use, used off-label
- ✓ **Longevity:** Permanent unless removed

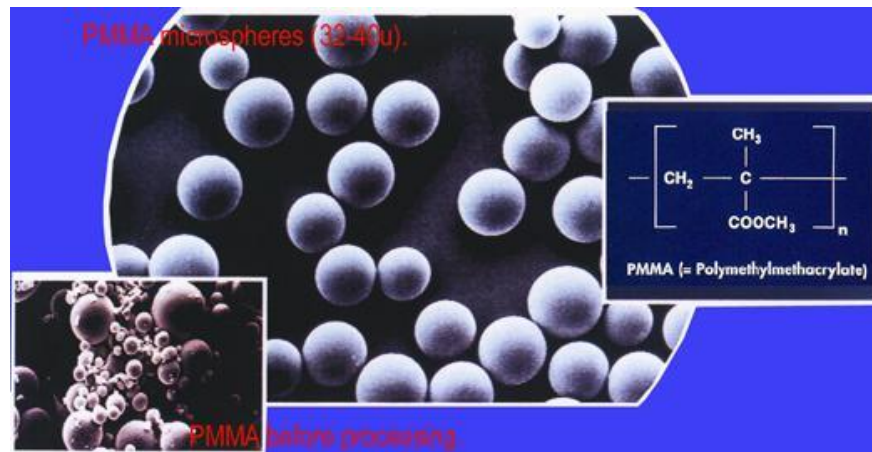
Permanent Fillers

- ✓ Silicone Oil
- ✓ Trade Name: Silikon 1000, Vitresil
- ✓ Indicated for retinal detachment, not FDA approved for cosmetic use but is used off-label
- ✓ **Longevity:** Permanent



Permanent Fillers

bellafill®



- ✓ Polymethylmethacrylate (PMMA)
- ✓ Trade Name: ArteFill, Bellafill
- ✓ Suneva Medical, Inc., 858-550-9999
- ✓ Suspended in bovine collagen, so must be allergy tested
- ✓ Contains 0.3% Lidocaine
- ✓ FDA approved 2006 for nasolabial folds.
- ✓ FDA approved 1/2015 for acne
- ✓ **Longevity:** Permanent

Autologous Growth Factor

- ✓ PRP/platelet rich fibrin matrix (PRFM)
- ✓ Trade names: Selphyl (UBS aesthetics) and
- ✓ MyCells (Kaylight Corporation), harvest PRP
- ✓ Patient's blood is drawn into an anticoagulant in a specialty tube or prep pack
- ✓ After centrifugation, the platelets and fibrin form a matrix.
- ✓ PRP is injected to stimulate cell proliferation.
- ✓ Volume is increased and the skin is
- ✓ Rejuvenated by targeted tissue regeneration.
- ✓ Selphyl \$1100/\$700 per kit (Check current pricing in your area), harvest-buy centrifuge then disposables



Kim Kardashian



Injectable Dermal Fillers

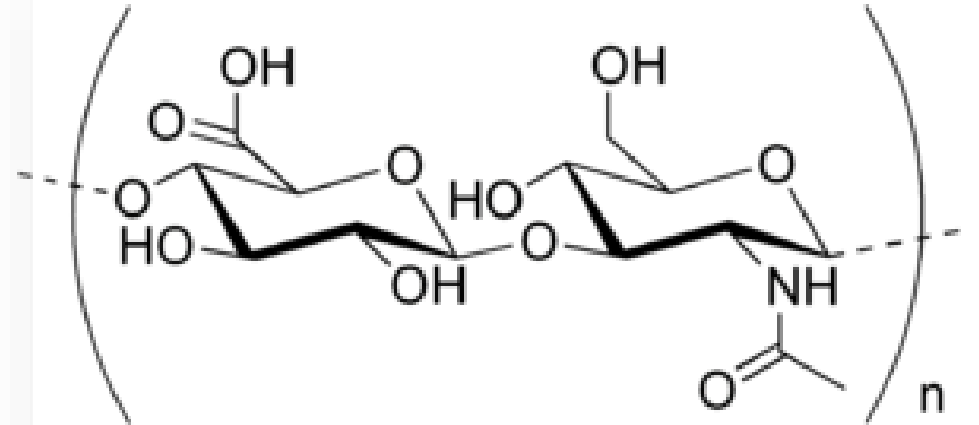
PART 2

FOCUS ON
HYALURONIC ACIDS



What Is Hyaluronic Acid (HA)?

- 01.** HA is a naturally occurring substance that, in the skin, forms the fluid matrix in which collagen fibers are embedded
- 02.** It is negatively charged and binds enormous amounts of water, giving skin its supple, resilient quality
- 03.** The amount of HA in the skin decreases with age, resulting in reduced dermal hydration and increased wrinkling



HA Physiochemical Attributes



- ✓ The half-life on natural HA in tissue is only 1-2 days.
- ✓ HA molecule are chemically cross-linked, forming more stable macromolecules which have the same biocompatibility as native HA, but are water-insoluble.
- ✓ 'Shear-thinning' gels: Under pressure of injection, gel can pass through a relatively small gauge needle, but removal of the shearing force causes increased viscosity.
- ✓ Viscosity also decreases with warmer temperature.

Classification Methods

01. Source of HA

02. Method and degree of cross-linking

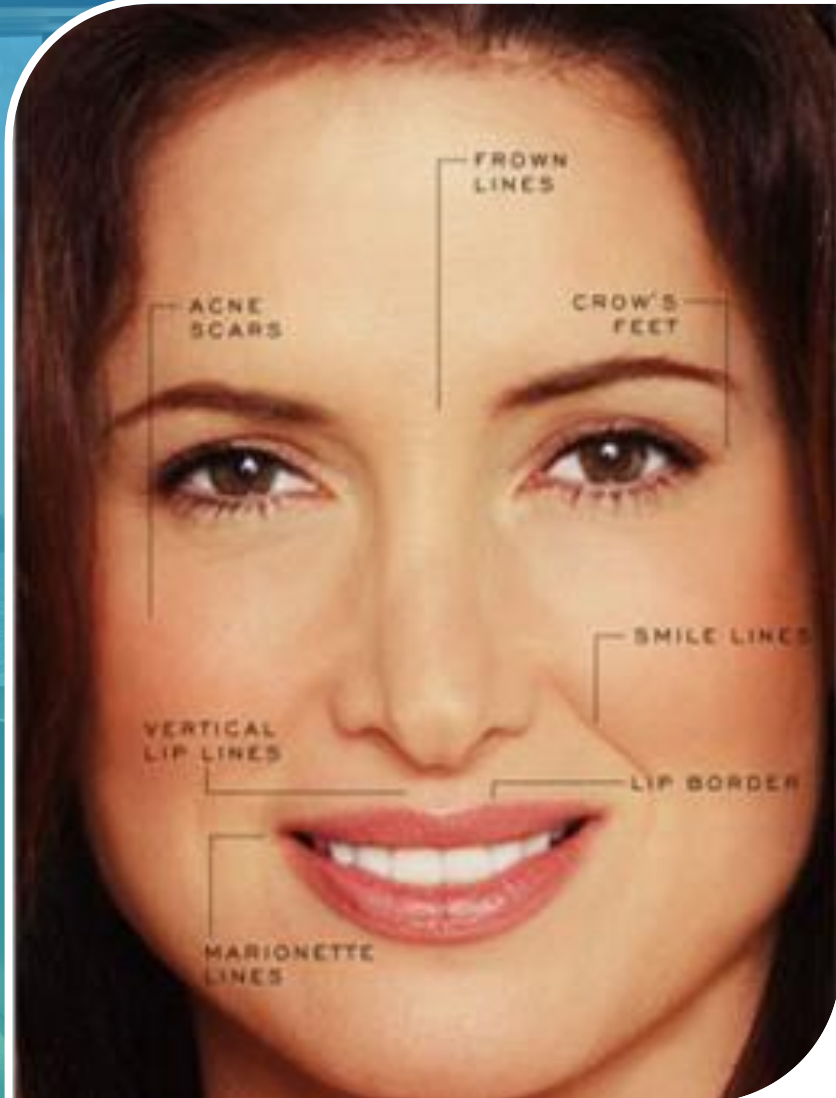
03. HA concentration

04. Particle size



*** Perlane has been renamed Restylane Lyft**

Indications



01. Nasolabial folds
 02. Melomental folds
(oral commissures or marionette lines)
 03. Acne scars
 04. Mental crease
 05. Lip sculpture
- ✓ Volume enhancement
 - ✓ Philtral crest definition
 - ✓ Vermillion border definition
 - ✓ Oral commissure effacement

Note: Advanced dermal filler procedures also shown

NOT Suggested For :



- 01.** Dynamic rhytids
- 02.** 'Ice pick' and other non- distensible scars
- 03.** Widened surgical scars
- 04.** Actinic damage of lips
- 05.** Extensive facial rhytids

Contraindications



Absolute

- ✓ Previous serious reaction to hyaluronic acid derivatives
- ✓ History of anaphylactic reactions
- ✓ Patients with multiple severe allergies
- ✓ Pregnancy and lactation

Relative

- ✓ History of hypertrophic or keloid scars
- ✓ Active inflammation at site to be treated
- ✓ Patient has important social function in next 72 hours
- ✓ Unrealistic patient expectations

Side Effects

Herpetic outbreak – prophylaxis recommended.

85 Infection – good aseptic technique a must

Swelling/Bruising – common, self-limited. Ice recommended post-op. Avoid ASA/NSAIDs prior to injection.

Nodules (depending on product injected)
Respond to massage, or to local injection of corticosteroid and massage.

Tenderness – will resolve in 1-3 days

Pain – Recommend good topical anesthetic or dental block.

Erythema

Itching

Antiviral Prophylaxis

- 01.** Acyclovir—800mg TID x 5 days
- 02.** Famciclovir—500mg, 3 once
- 03.** Valacyclovir—1000mg, 2 BID x 1 day



Consultation

- ☐ Assess expectations – “silk purse from a sow’s ear”. Attempt to determine if expectations are reasonable.
- ☐ Medical History – make sure there are no contraindications to treatment
- ☐ Medications – ASA’s, NSAID’s should be avoided prior to treatment. Accutane – avoid treatment until off for six months.
- ☐ Use manual stretching of skin to demonstrate how well a particular perceived imperfection may or may not respond to filler.
- ☐ Supplements beginning with “g”: Ginger, Ginko, Garlic, and Fish Oil as these can thin the blood as well.
- ☐ Assess patient’s pain tolerance
- ☐ May use ice, topical anesthetic or nerve blocks
- ☐ Be sure patient understands that the results are temporary
- ☐ Explain treatment and risks and determine level of understanding
- ☐ **Have patient sign informed consent!**
- ☐ **Pre-procedure photographs recommended**

Anesthesia

Topical Anesthesia

EMLA-Eutectic Mixture of Local Anesthetics is a eutectic mixture of Lidocaine and Prilocaine.

LMX-5 is 5% Lidocaine in a liposomal encapsulated system, may be superior (LMX4 is OTC)

BLT-Benzocaine, Lidocaine and Tetracaine. This is usually compounded at a local or regional compounding pharmacy. Applied 15-45 minutes prior to the procedure. Apply like icing with a Q-tip.

Cetacaine-benzocaine, aminobenzoate and tetracaine. Rapid onset. Runny at body temp.

Anesthesia

Vibration Anesthesia

- 01.** Any vibratory massager may be used. One study has shown that the pain sensitivity gradually declines as vibration amplitude increases.
- 02.** Gate theory of pain control explains how this works.
- 03.** Massager is applied 2-3 seconds prior to the injection 1-2 cm from the site on a bony prominence and continued throughout the procedure.



Treatment Techniques



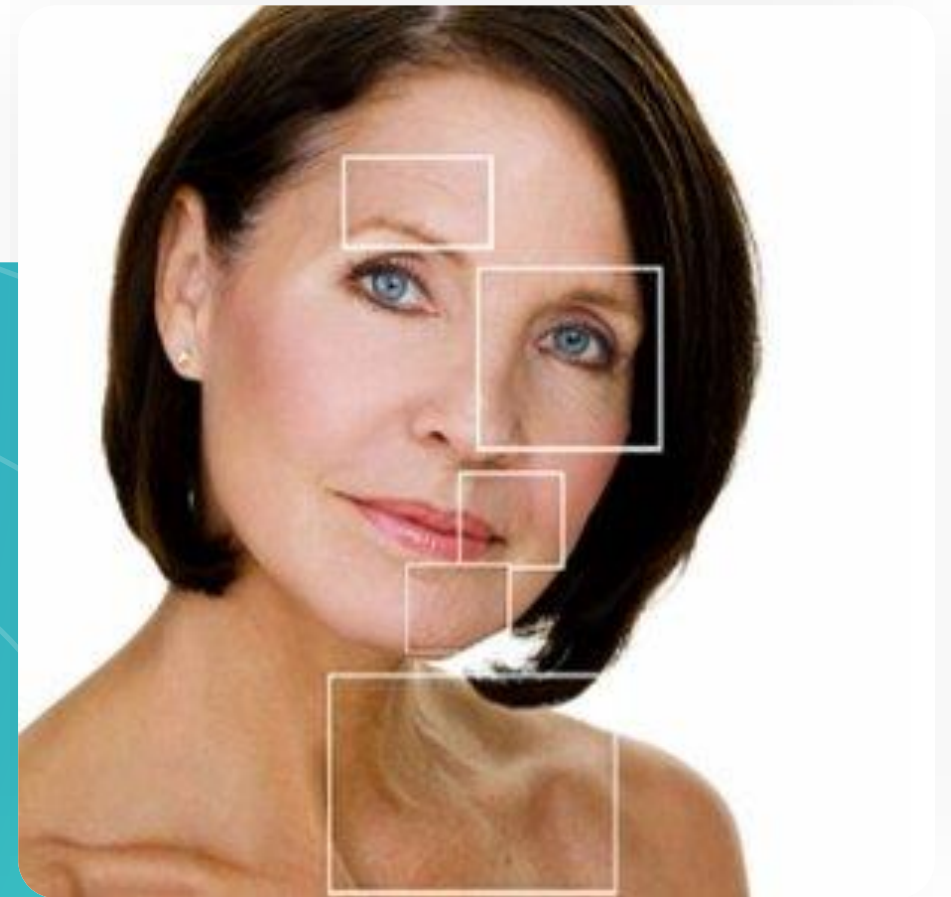
Remove make-up and cleanse area with alcohol prep pad or other antiseptic.



Apply/perform appropriate anesthesia, if required



Warming the syringe in your hand prior to injection may reduce the injection pressure needed.



Treatment Techniques



Ensure that the needle is snugly screwed onto the syringe



Prime the needle--before injecting, press the plunger carefully until a glisten or single droplet is visible at the tip of the needle



Determine appropriate injection technique.



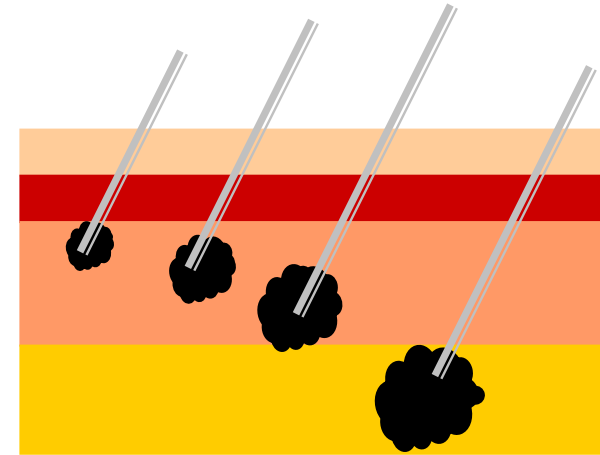
Treatment Techniques

The depth of the needle should be high dermis for superficial lines, mid-dermis for more substantial wrinkles, and deep dermis for heavy folds.

Good rule of thumb

01.

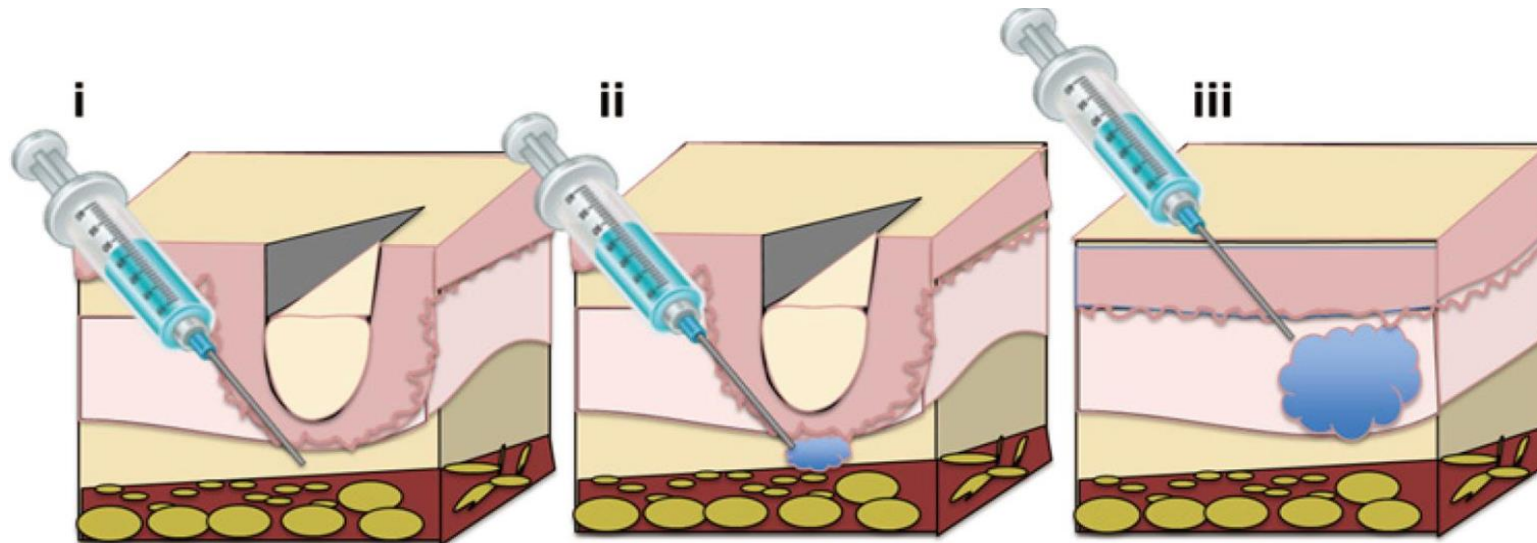
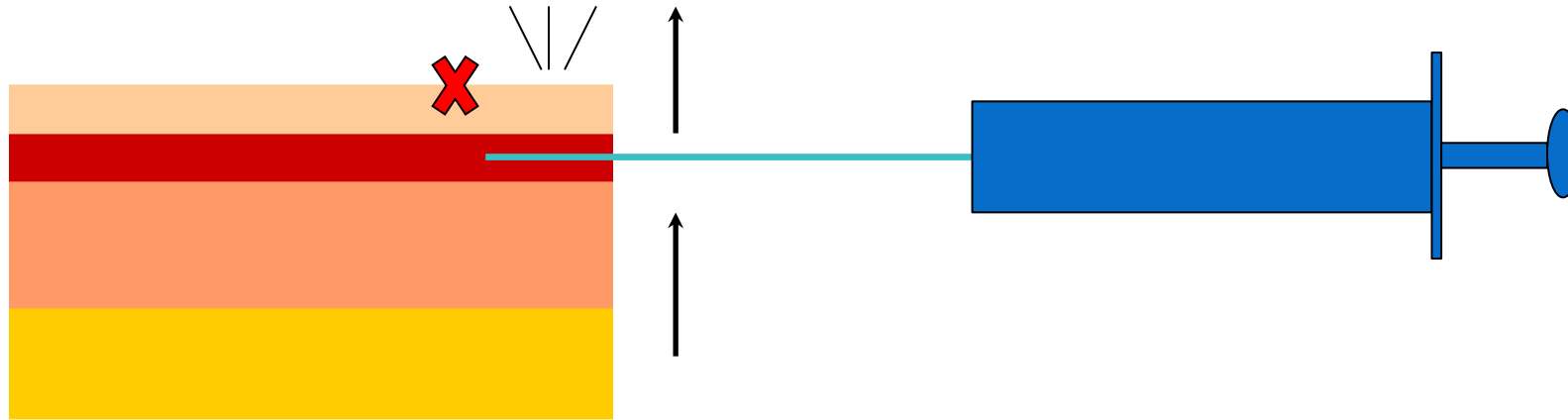
For mid-dermis placement, the contour of the needle should be visible, but not its color.



02.

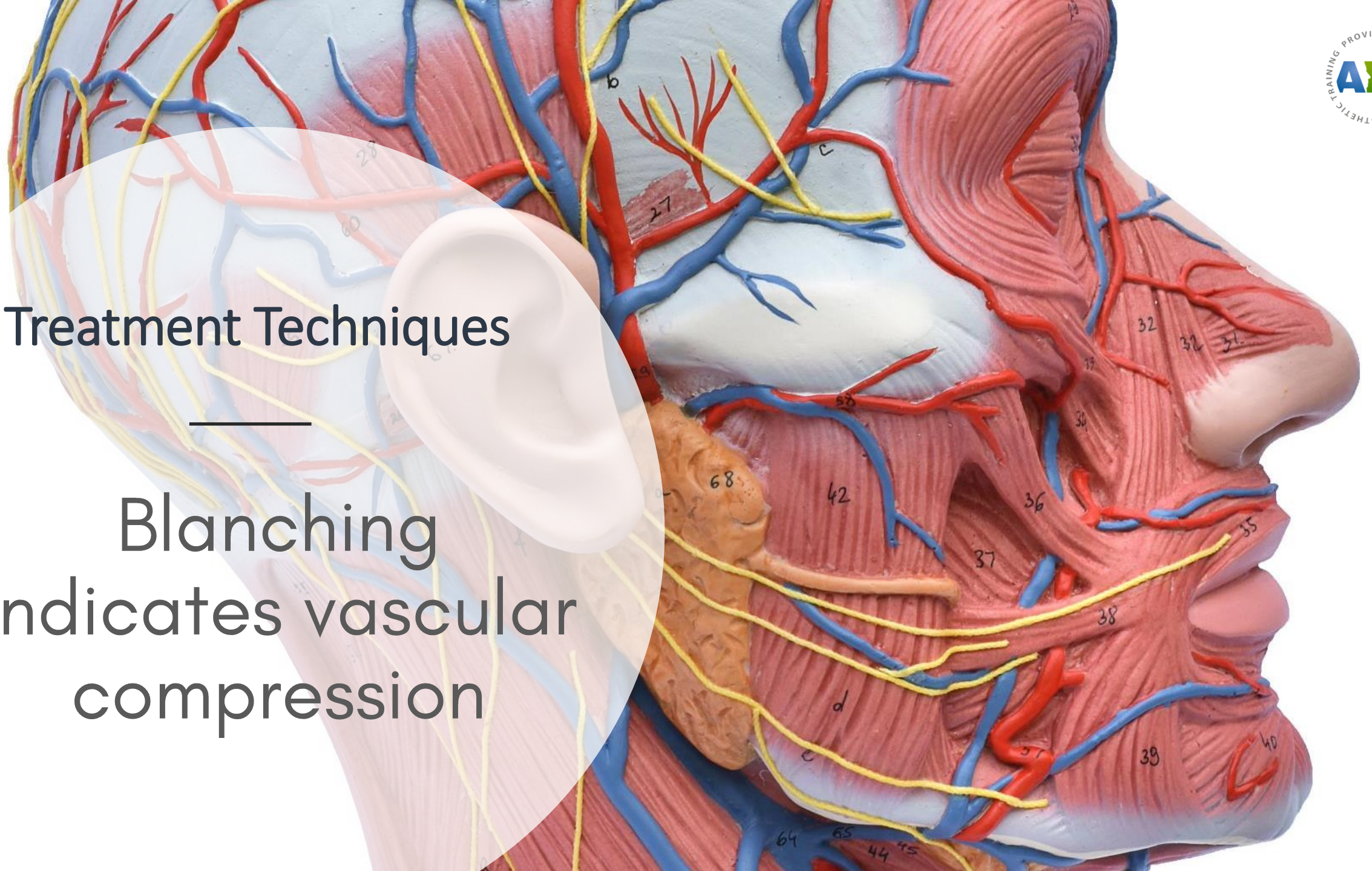
Better to err on the side of injecting too deeply if unsure, as superficial injections can leave surface irregularities.

Dermal Depth Of Injection

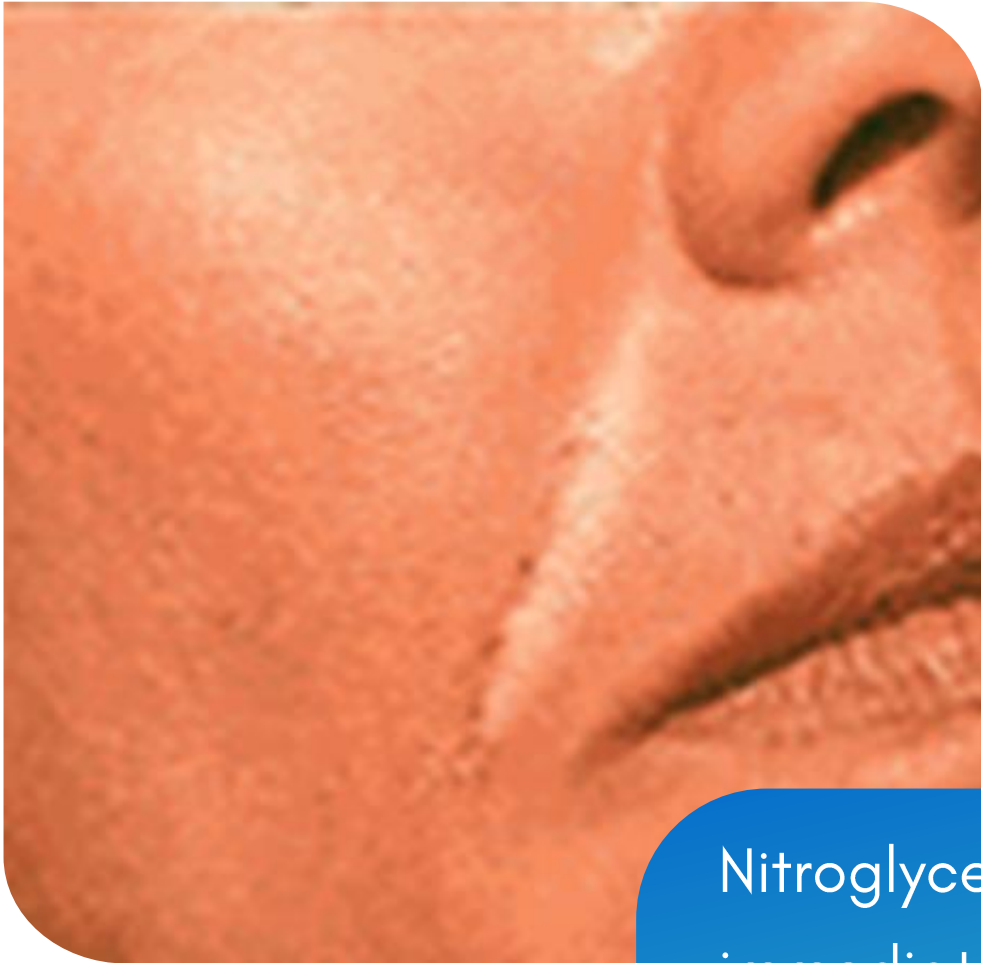


Treatment Techniques

Blanching
indicates vascular
compression



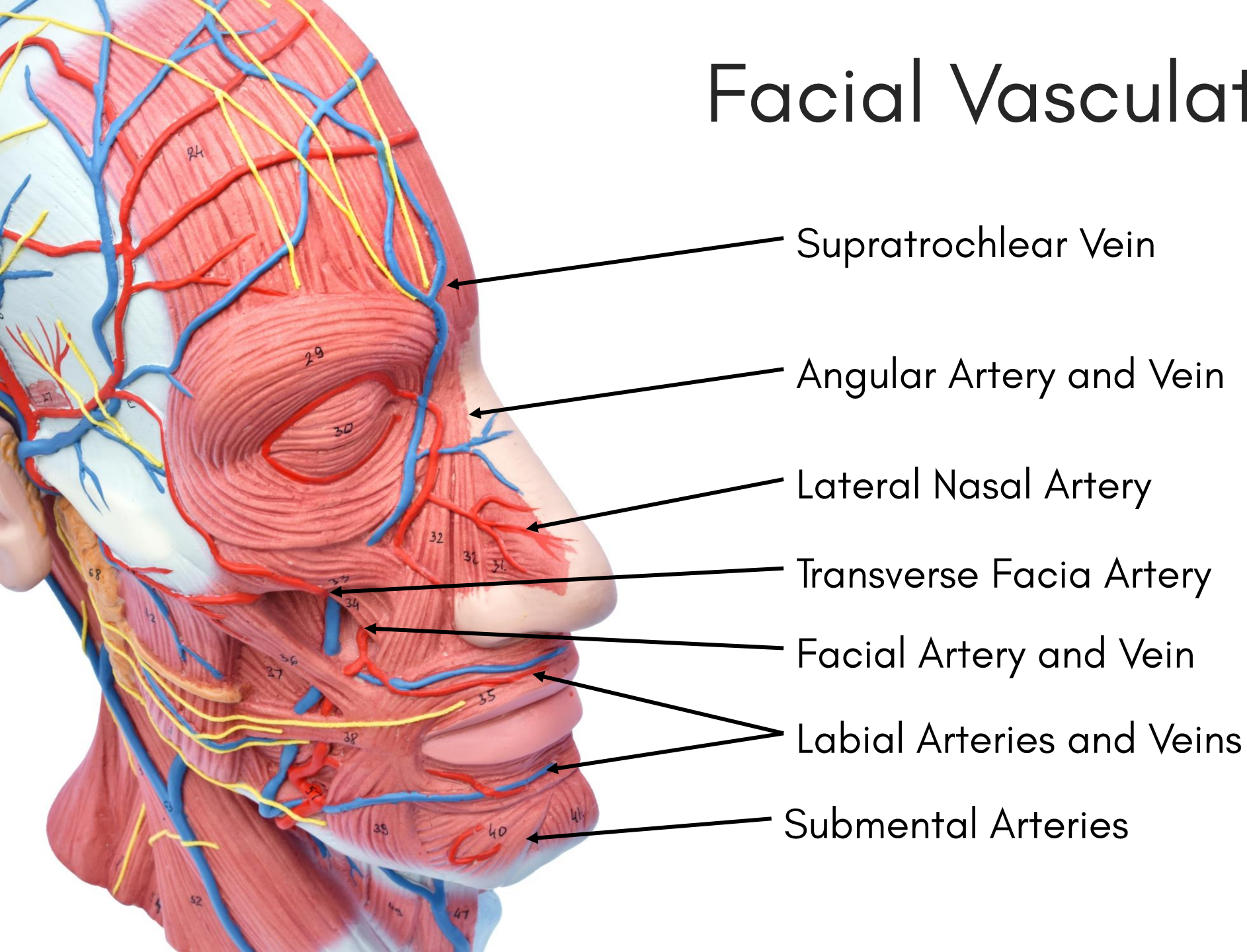
Treatment Techniques



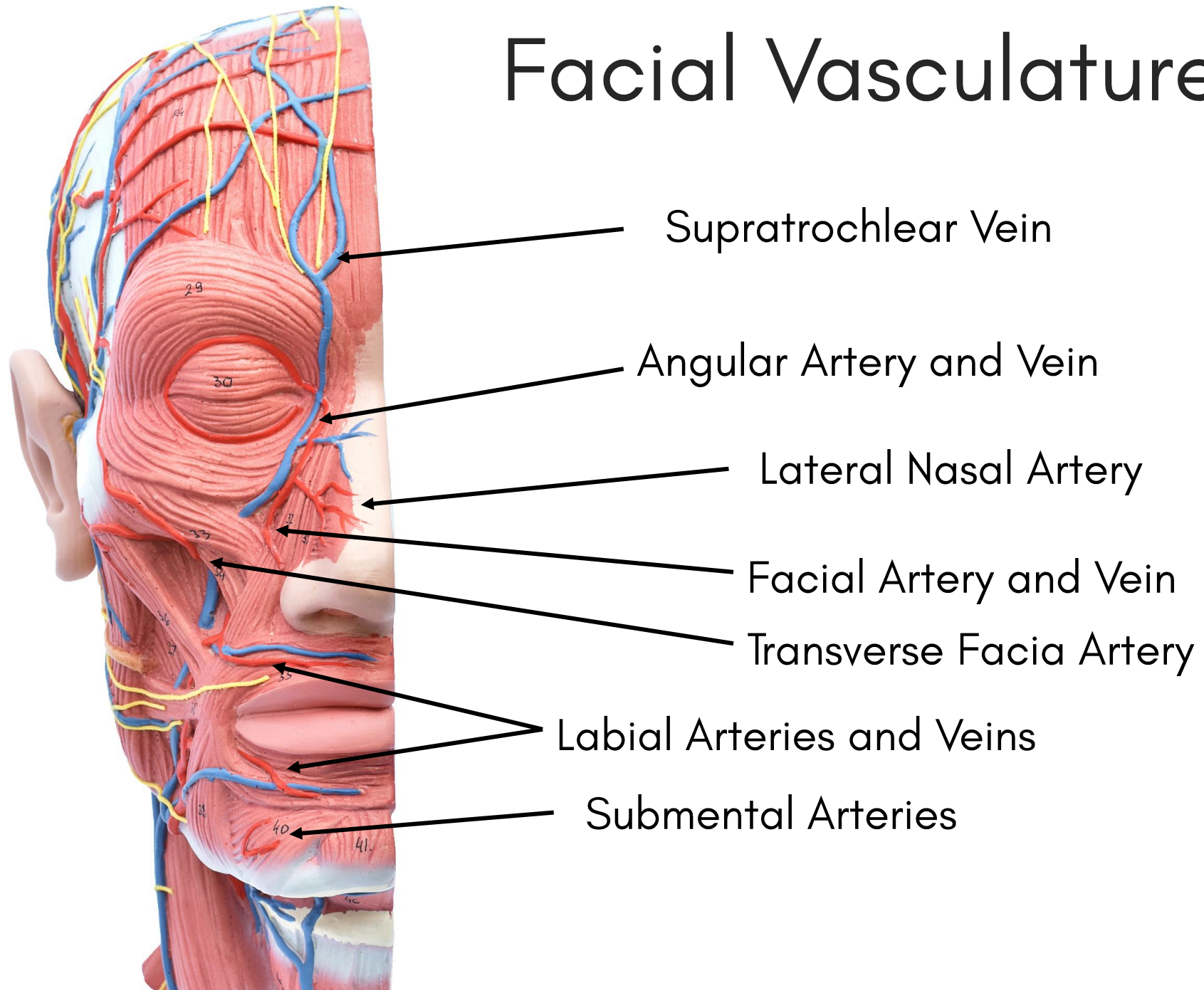
- ✓ Blanching—indicates vascular compression
- ✓ If blanching is seen, then the provider should immediately stop injecting and massage the skin until normal color is returned.

Nitroglycerin paste or ointment can be applied immediately to dilate the vessels and re-establish good circulation if massage is ineffective.

Facial Vasculature



Facial Vasculature



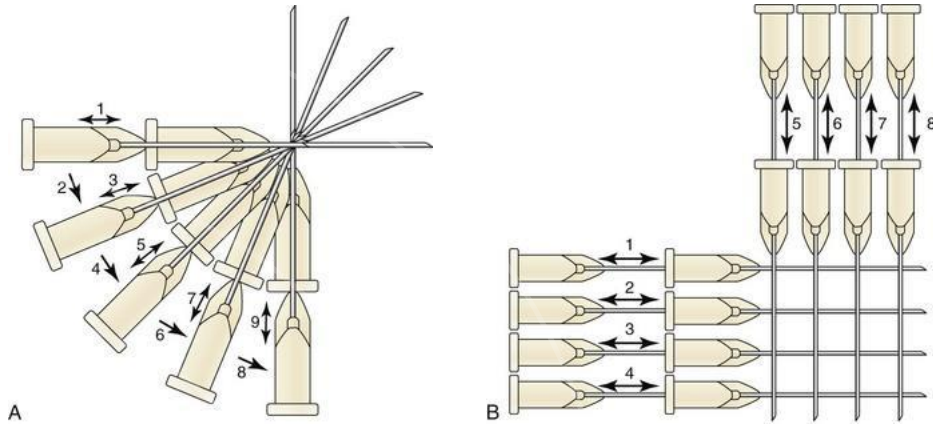
Treatment Techniques

- ✓ Treatments should not over correct but should be corrected to 100% during session.

-
- ✓ The correction site should be massaged to be consistent with surrounding tissue contour



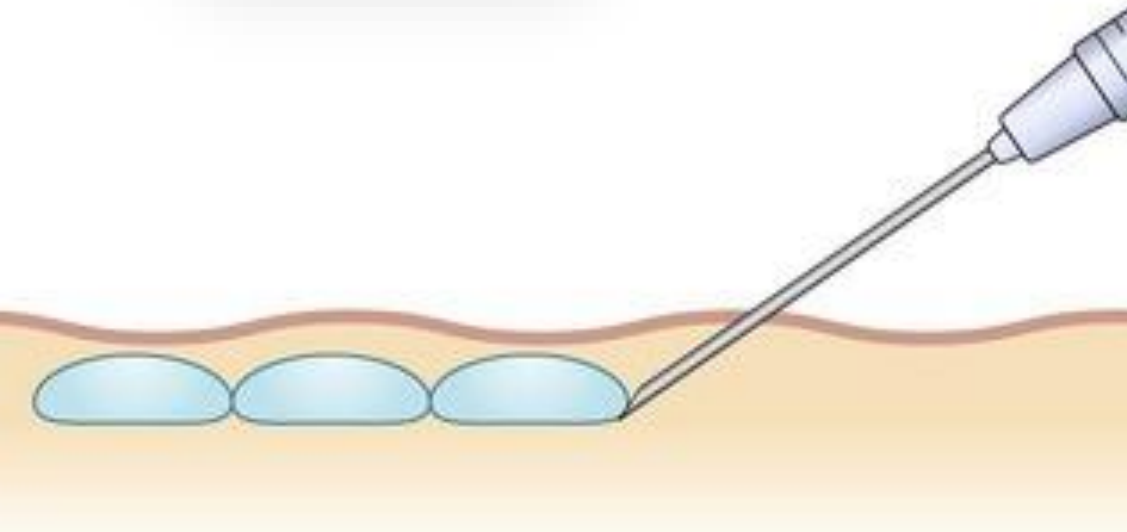
Methods of Filler Implantation



- ✓ Serial Puncture
- ✓ Linear Threading
- ✓ Fanning
- ✓ Crosshatching
- ✓ Layering
- ✓ Microdroplet
- ✓ Ferning
- ✓ Push Ahead
- ✓ Tower Technique
- ✓ Liquid Threadlift® (ArqueDerma®)

Methods of Filler Implantation

Serial Puncture



Multiple punctures to implant small amounts at a time.

Smooth or mold after filler injected

Easiest technique, and often preferred by beginners

Needle enters the skin at desired depth, a small amount of filler is deposited, and the needle is withdrawn.

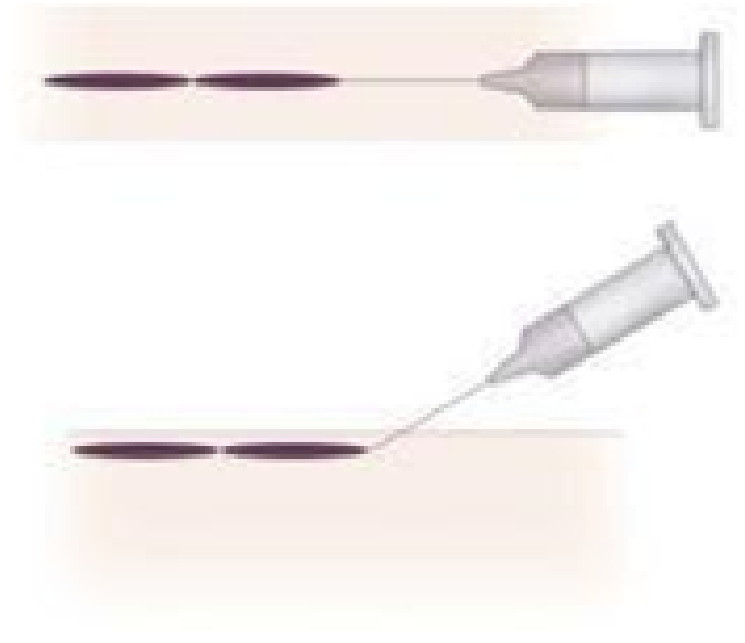
Serial Puncture



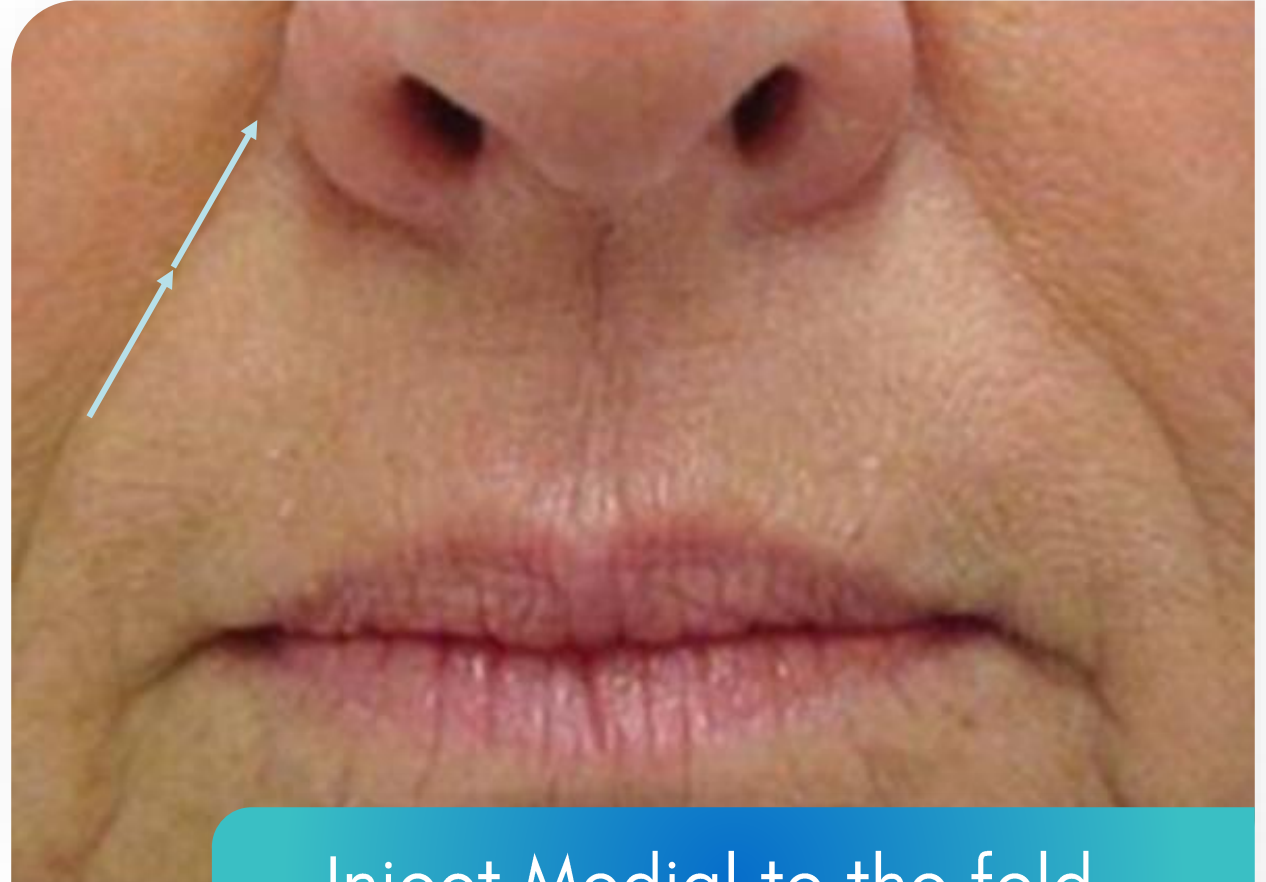
Methods of Filler Implantation

Linear Threading/Tunneling

- ✓ Hold the syringe parallel to the length of the area to be treated, pierce the skin and advance the needle to its fullest extent.
- ✓ While slowly withdrawing the needle, apply even pressure to the plunger
- ✓ Relieve pressure just before withdrawing.
- ✓ Frequently used with longer needles
- ✓ Smooth or mold after filler injected



Linear Threading



Inject Medial to the fold

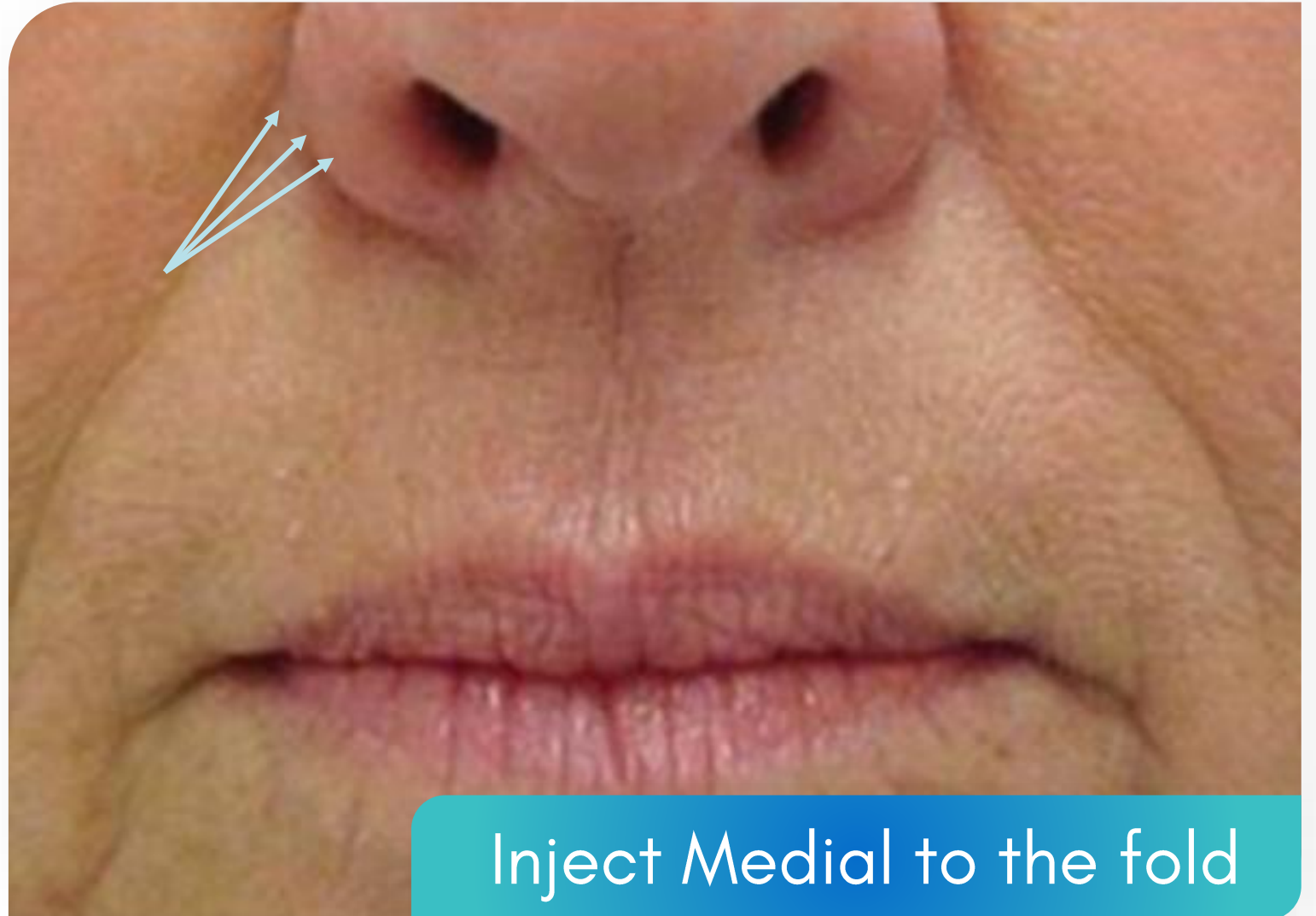
Treatment Techniques

Fanning and cross-hatching techniques are variations of the linear threading technique.



Used when placing a larger amount of filler more deeply.

Fanning



Inject Medial to the fold

Treatment Techniques

Layering

Implant layers of product at different levels to improve the wrinkle.

Avoids a “blob” of product in one area

Lends to different products—placing a firmer product (Juvederm UltraPlus-XC, Restylane Lyft, Radiesse) deep then softening the more superficial layer with a softer product (Juvederm Ultra-XC, or Restylane)



Ferning and Stabilizing Bars

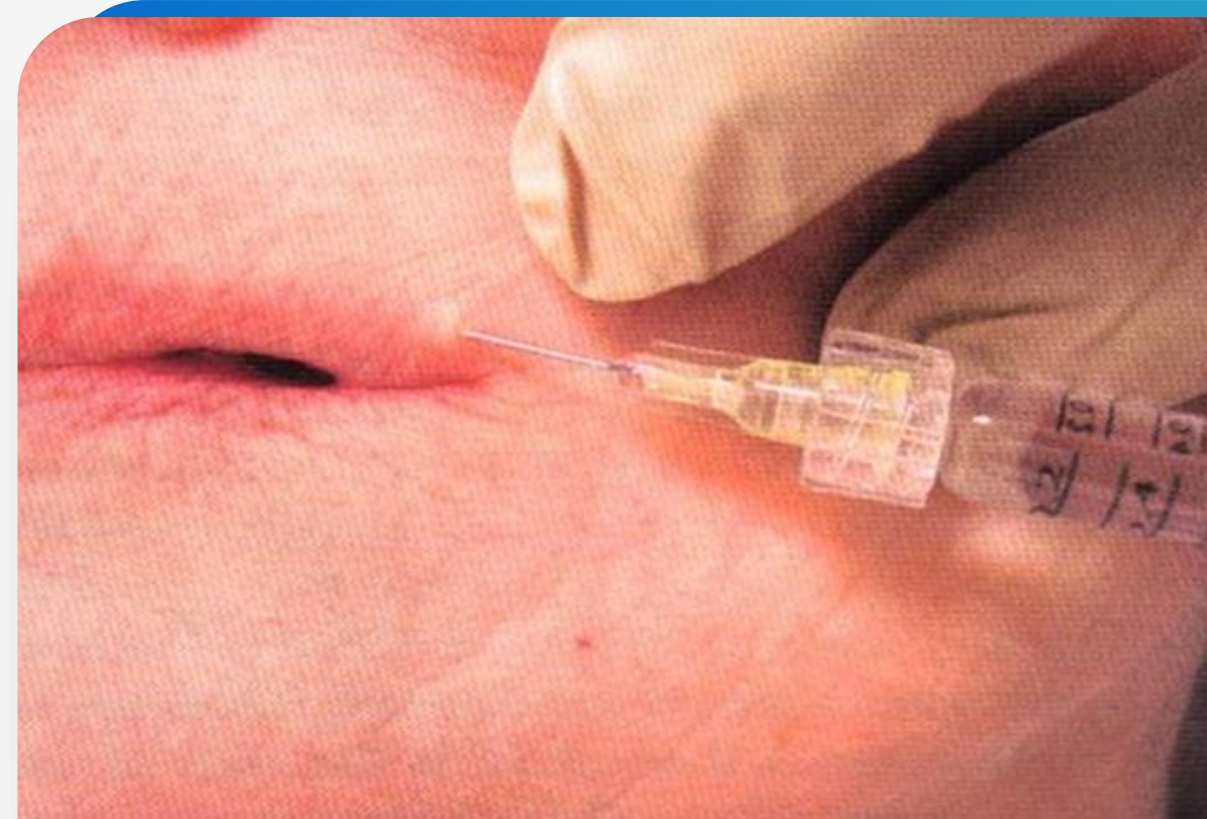
A modification of threading



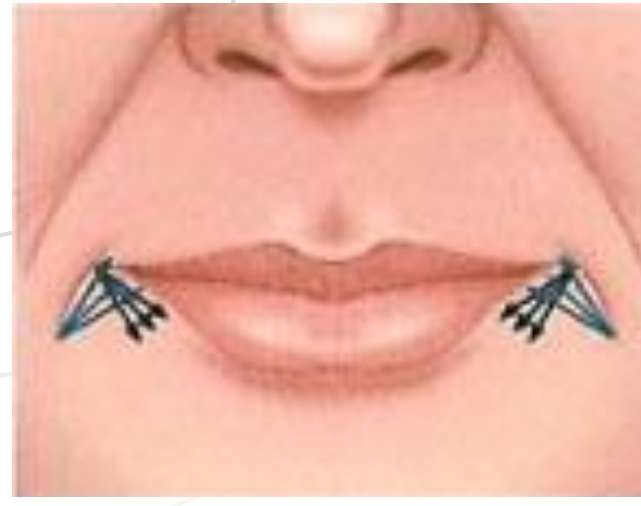
Treatment Techniques

Push-ahead Technique:

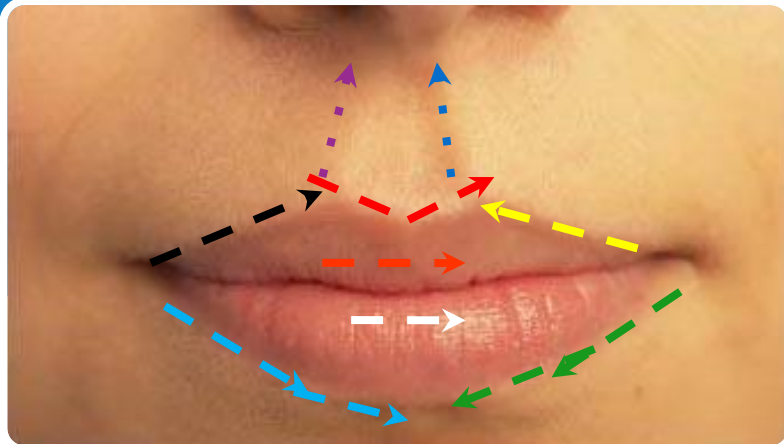
01. Insert the needle and inject as you advance the needle.
02. Should only be used in areas where vessels cannot be embolized.
03. Great technique in lips that have been treated previously (vermillion border)



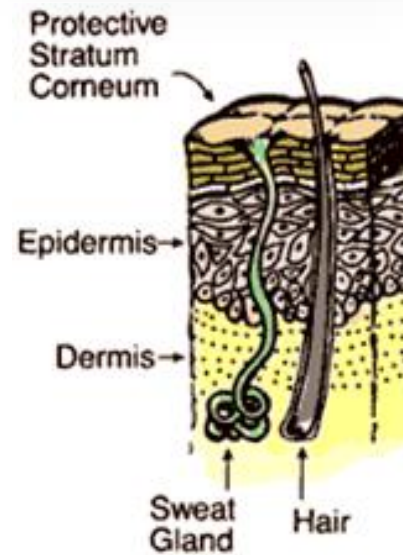
Treatment Techniques



Lip Augmentation



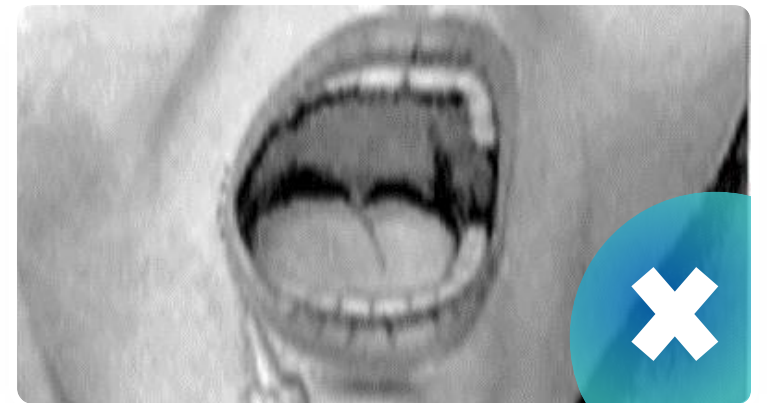
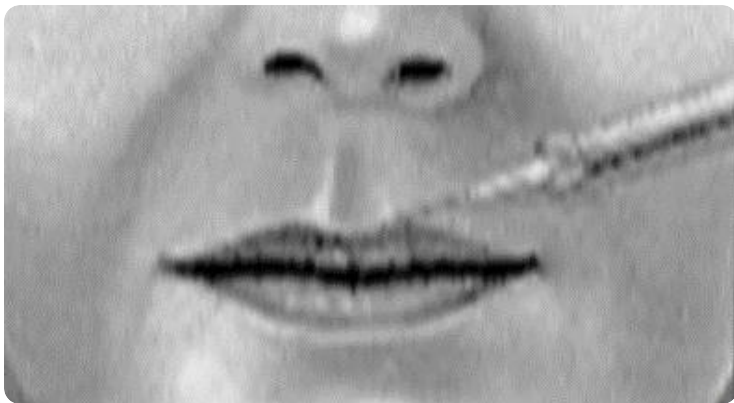
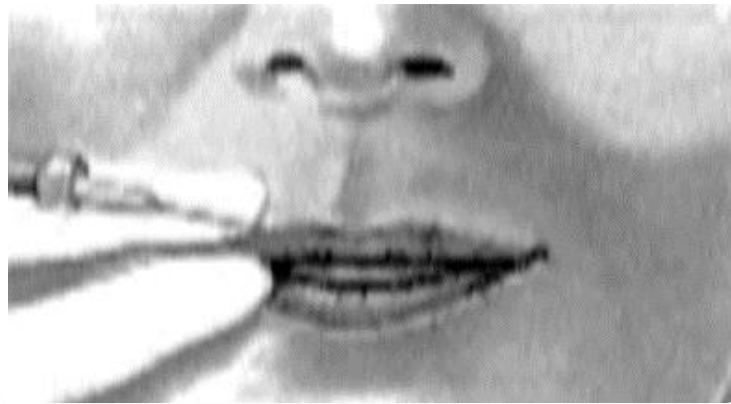
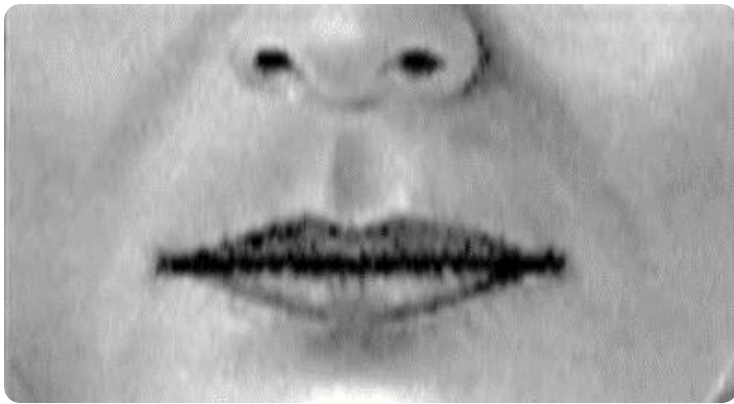
Regular Skin



Lip Skin



Lip Enhancement





Lip Enhancement

01.

Ensure comfort. Recumbent position is recommended

03.

Clean the lips with mouthwash or something that does not taste bad

02.

Adequate pain control

04.

Several enhancement techniques are possible

A close-up photograph of a woman's face and neck. She has light brown hair pulled back, and her eyes are closed. She is resting her chin on her hand. The background is a soft blue gradient with some white curved lines.

After Care

Ice to area frequently for remainder of day.

Explain that swelling/bruising are to be expected.

Prophylaxis offered if applicable-Valtrex, Famvir or Acyclovir

NSAIDS post-op (only) if necessary for pain or swelling

Explain signs and symptoms of infection

Make sure that patient understands that with a temporary product, touch ups will be needed, and estimate how soon the patient can anticipate needing to come back.

If considering any long term filler , use a temporary filler first to demonstrate results.

Bruising

01. Ice
02. Gentle pressure on bleeders
03. Arnica montana cream or gel
04. Arnica montana tablets
05. Vitamin K cream
06. Covermark, Dermablend



Hyaluronidase

If overfill occurs or lumpiness that cannot be molded out, Hyaluronic Acid Fillers can be degraded or broken down with Hyaluronidase.

Commercially available: Vitrase contains 200 units/ml. (STATDDS \$119.95), Hylenex contains 150 units/ml (\$80.75 x 6) (Henry Shein)

Compounding Pharmacies: 4 licensed in US. \$21 for 150 units/ml

Ideally, allergy test at least 15 minutes before administering

Inject 10-30 units at a time. More is not indicated.

After 2-3 days, re-evaluate and re-inject if needed.

If new filler is needed to fill the void, wait 2 weeks before the injection to avoid breakdown

Protocol for Impending Embolization with Risk for Necrosis

Based on Articles by Steven H. Dayan, M.D.

- 01.** Hyaluronidase—10–30 units mixed 50/50 with 0.9% saline. Inject into the area and massage gently to disperse
- 02.** Nitroglycerin Ointment 2% applied to the overlying area
- 03.** Aspirin 325mg daily with food
- 04.** Warm compresses and massage
- 05.** Topical Dermacyte (Oxygen cosmeceutical) QID
- 06.** See patient daily. If no improvement, repeat regimen and add a Medrol Dosepak
- 07.** Refer to a Plastic Surgeon if no improvement seen



Before & After Juvederm®



Before & After Juvederm®



Before & After Juvederm®



Before & After Belotero®



Before & After Belotero®



Before & After Belotero®



Before & After Bellafill®



Before & After Bellafill®

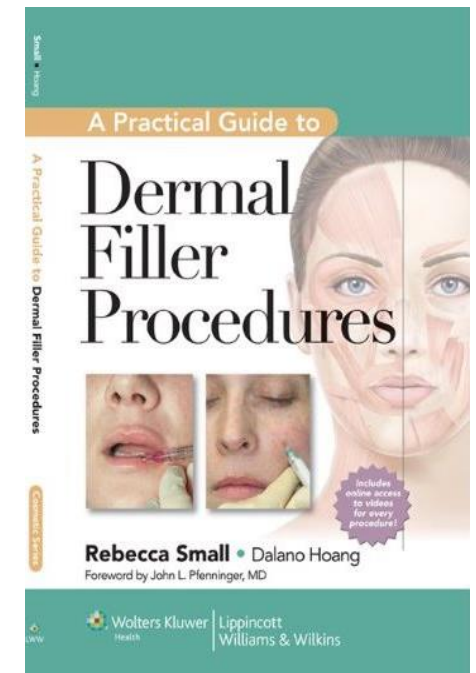
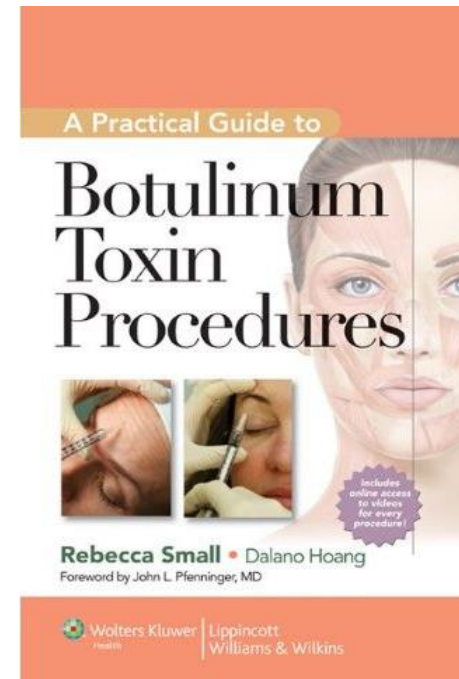
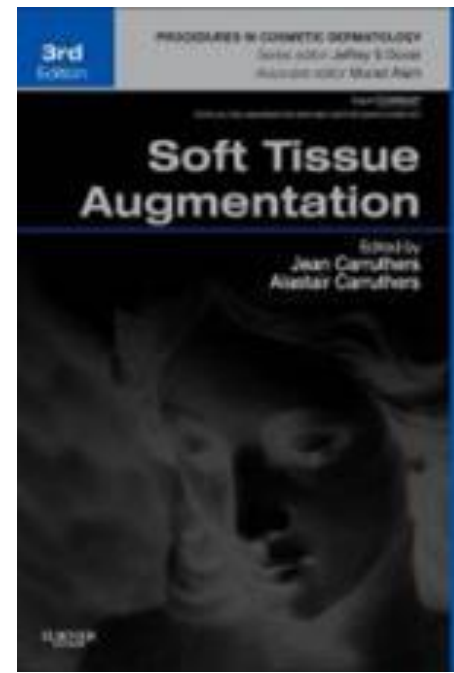
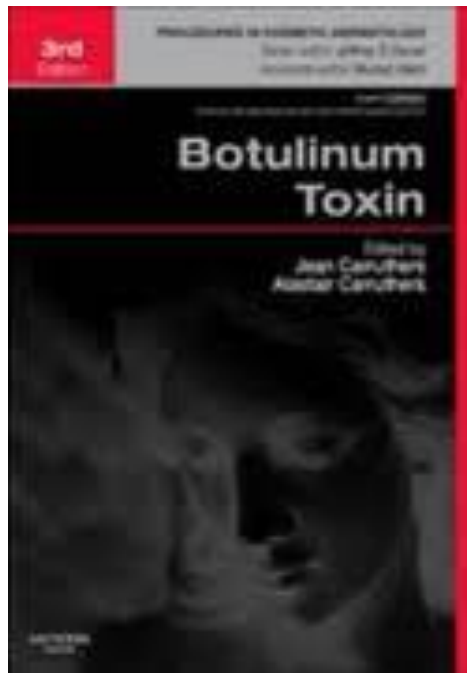


Before & After Bellafill®



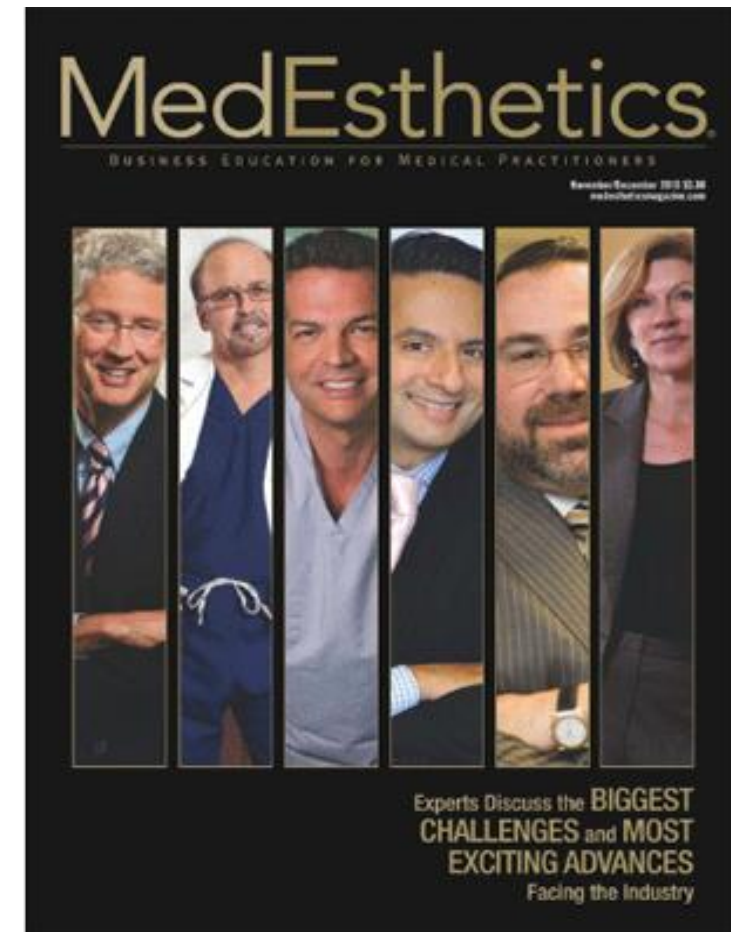
**THANK
YOU**

AMET: Recommended Books

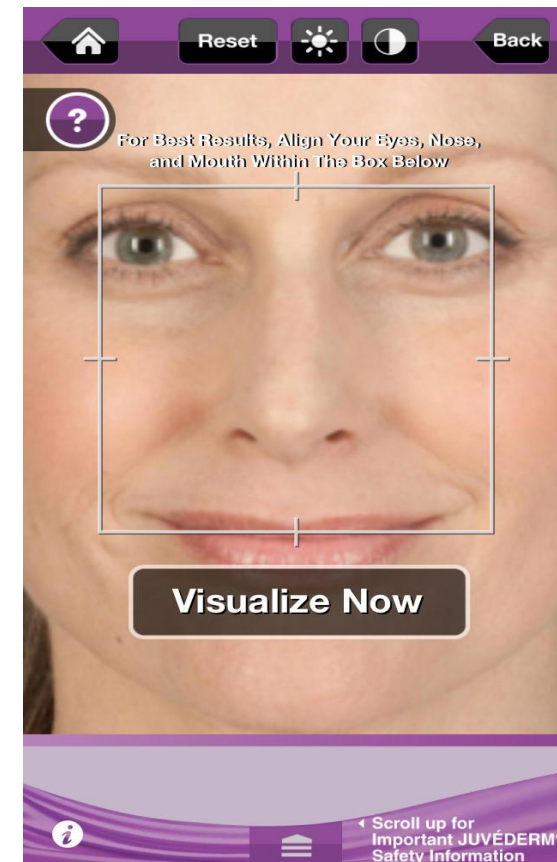


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BIBLIOGRAPHY



Carruthers A, Carruthers JDA, Botulinum-toxin in the treatment of glabellar frown lines and other facial wrinkles. In: Therapy with Botulinum-Toxin, Jankovic J, Hallett M (eds) 1994, Marcel Dekker, New York. 577-589

Lowe N, Wieder J, Maxwell A, Harper H (1995) Botulinum A exotoxin for glabellar folds: a double-blind, placebo-controlled study with an electromyographic injection technique. J Am Acad Dermatol 35: 569-572

Keen M, Kosh M (1995) Botulinum toxin type A injection for hyperfunctional facial lines. Laryngoscope 105: 1134-1137

Blitzer A, Brin M, Keen M, Ayiv J (1999) Botulinum-Toxin or the treatment of hyperfunctional line of the face. Arch Otolaryngol Head Neck Surg 119: 1018-1022

BIBLIOGRAPHY



Foster JA, Barnhorst D, Papay F, Oh PM, Wulc AE (1998) The use of botulinum A toxin to ameliorate facial kinetic frown lines. *Ophthalmology* 103: 618-622

Burney J (1998) Get the most out of Botox without overdoing it. *Skin & Allergy News* 29: 29

Bosniak S, Zilkha MC (1999) *Cosmetic blepharoplasty and facial rejuvenation*. Lippincott Williams Wilkins, Philadelphia

Keen M, Kopelman JE, Aviv JE, Binder W, Brin M, Blitzner A (1994) Botulinum toxin A: a novel method to remove periorbital wrinkles. *Facial Plast Surg* 10: 141-146

Childs N (1998) Second batch of Botox may be more potent than the first. *Skin & Allergy News* 19: 1

Scott AB Injection of botulinum immune globulin to reduce side effects from botulinum toxin.

Website: Smith Kettlewell Inst./Alan B Scott's Lab, http://www.ski.org/ABScott_lab/, last access 2001

BIBLIOGRAPHY



Nidecker A (1997) Avoiding drooping eyes, brows in Botox injections. Skin & Allergy News 28: 46

Garcia A, Fulton JE Jr (1996) Cosmetic denervation of the muscles of facial expression with botulinum toxin. A dose-response study. Dermatol Surg 22: 39-43

Bates B (1997) Botox can create a temporary brow lift. Skin & Allergy News 28: 41

Carruthers A & J (1992) Treatment of glabellar frown lines with C. botulinum-A exotoxin. J Dermatol Surg Oncol 18: 17-21

Boschert S (1998) Electromyography helps place Botox injections. Skin & Allergy News 19: 30

Klein AW Cosmetic therapy with Botulinum-Toxin: Anecdotal Memoires. University of California, Center of Health, June 1996

BIBLIOGRAPHY



Peck P (1998) Botox is easy service to offer your patients. Skin & Allergy News 29: 29

Jancin B (1998) Botox recommended for facial rejuvenation. Skin & Allergy News 19: 30
www.revance.com/products

money.cnn.com/2006/04/03/news/companies/allergen_botox/index

Carruthers, Alastair & Carruthers, Jean (2005) Procedures in Cosmetic Dermatology: Botulinum Toxin

Carruthers, Jean & Carruthers, Alastair (2003) Using Botulinum Toxins Cosmetically
The Wall Street Journal (Jan 13, 2007) Firms Face Off Over Wrinkles

BIBLIOGRAPHY



Hotta T. Dermal Fillers. The next generation. Plast Surg Nurs. 2004 Jan-Mar;24(1):14-9

de Maio M. The minimal approach: an innovation in facial cosmetic procedures. Aesthetic Plast Surg. 2004 Sep-Oct;28(5):295-300

Bauman L. CosmoDerm/CosmoPlast (human bioengineered collagen) for the aging face. Facial Plast Surg. 2004 May;20(2):125-8.

Laeschke K. Biocompatibility of microparticles into soft tissue fillers. Semin Cutan Med Surg. 2004 Dec;23(4):214-7.

BIBLIOGRAPHY



Engelman De, Bloom B, Goldberg DJ. Dermal Fillers: complications and informed consent. J Cosmet Laser Ther. 2005 Mar;7(1):29-32.

DeVore DP, Hughes E, Scott JB. Effectiveness of injectable filler materials for smoothing wrinkle lines and depressed scars. Med Prog Technol. 1994;20(3-4):243-50.

Bryant Rebecca. Fillers beef-up botulinum results. Derm Times 2005 May.

Davis Alice Hart. Smoothing out the wrinkles. What exactly is being injected facially to combat ageing – and is it all safe? <http://news.scotsman.com/features.cfm?id=357142005>

Chrestensen Jen. Healthbeat: Non-Surgical Eye Lift.
<http://www.hoinews.com/news/features/4/1348662.html>.

Wynn Paul. Assessing Hyaluronic acid fillers. Derm Times 2005 Feb

BIBLIOGRAPHY



Artes Medical. Revolutionary FDA Study Confirms Efficacy of Permanent Wrinkle Filler.
<http://www.cosmeticsurgery-news.com/article2300.html>.

Carruthers, Jean & Carruthers, Alastair (2005) Procedures in Cosmetic Dermatology: Soft Tissue Augmentation

Petrou, Ilya. Fillers on the horizon abound. Derm Times 2007 Jan

Jesitus, John. Longevity buoys hyaluronic acid's success. Derm Times 2006 Jul

J Drugs Dermatol. 2007 Aug;6(8):805-8. A novel method to inject hyaluronic acid: the Fern Pattern Technique. van Eijk T, Braun M.

12 January/February 2009 | *MedEsthetics. Injectable Thread Lift*. Leslie Fletcher, RN
www.plasticsurgery.org

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REFERENCES



GFX

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