Injector's Guide

TO

NEUROTOXINS AND DERMAL FILLER

MEDICAL AESTHETIC ART
INSTITUTE

Our Mission Statement

The greater mission of Medical Aesthetic Art Institute (MAAI) is to educate, empower, and inspire you to become the greatest injector you can be.

Our team of clinical educators are energetic, passionate and dedicated to delivering quality and comprehensive education with tangible tools you can take back to the clinic and implement into your every day practice.

We not only want you to become excellent injectors, it is our hope that you make each interaction with your patients be more than erasing wrinkles and plumping lips. May your intentions be to have a positive impact, to connect, to uplifting, and to make the world even more beautiful one patient at a time.

Disclaimer

- The material and techniques presented in this course and manual represents the clinical experience of the instructor in addition to current publications discussing FDA approved uses as well as off-label uses for Neuromodulators and Dermal Fillers for facial enhancement and facial anti-aging treatments

- Medical Aesthetic Art Institute (MAAI) will not be held responsible for any occurring patient results, side effects or complications due to participant following instruction techniques in this course and manual

- Commercial Support: This activity is supported by an independent educational grant from Merz Aesthetics

Section One:

Understanding Aging

PART A

UNDERSTANDING AGING

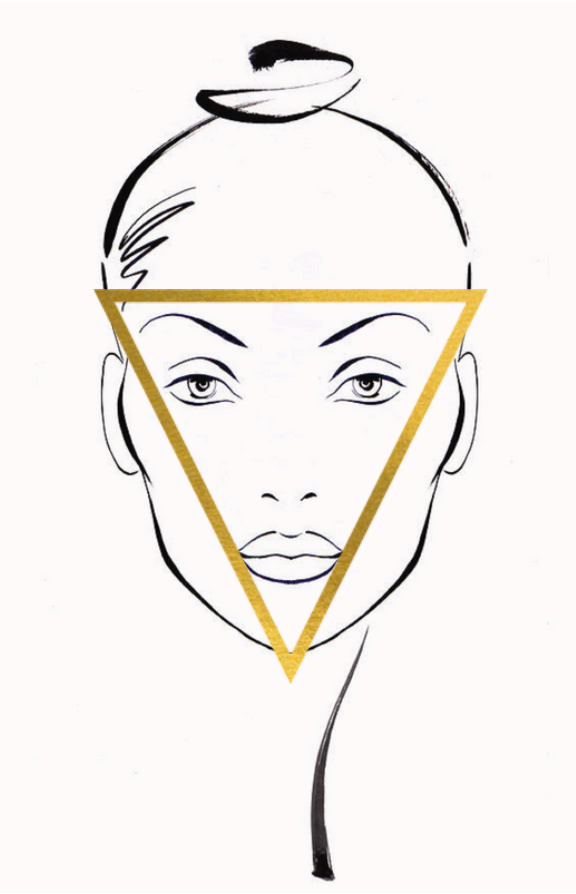
INTRINSIC AGING

- Genetic factors (can't control)
- As you age, you notice that your face begins to look similar to one or both of your parents
- Your deep smile lines might appear similar to those of your mother or father

EXTRINSIC AGING

- External factors (can control)
  - Temperature extremes
  - Pollution
  - Sunlight/wind
  - Exposure to cigarette smoke
  - Poor diet
  - Poor hydration

Triangle of Beauty

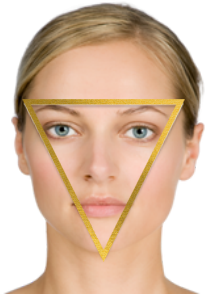


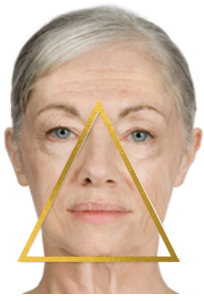
Female

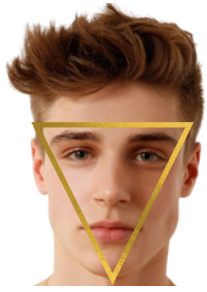
- Facial symmetry
- Large forehead
- Large, wide-set eyes
- Prominent cheek bones
- Small nose and chin
- Full lips
- Smooth facial contour

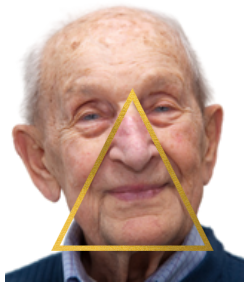
Male

- Small eyes
- High, arched, thick eyebrows
- Wide jaw
- Thinner lips
- Strong Chin



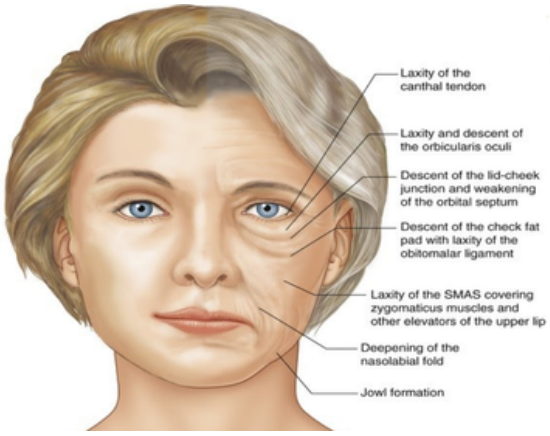




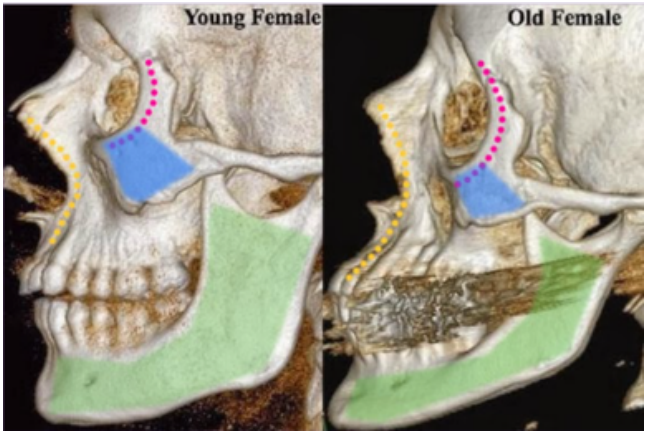


UNDERSTANDING AGING

DEGENERATION OF FACIAL FAT PADS



AGING IN THE BONES AND TISSUE

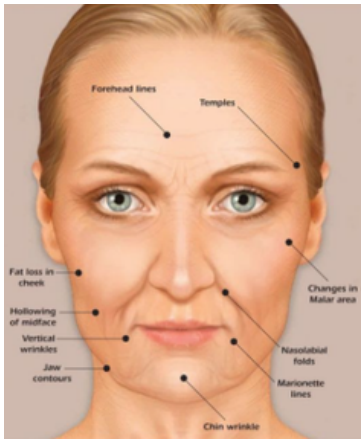


- As we grow older, our facial bones continue to change. Eye sockets, nose, upper jaw.
- Our eye sockets enlarge, and the angle of the bones beneath our eyebrows decreases.
- The length and height of the lower jaw decreases as well

UNDERSTANDING AGING

DEGENERATION OF FACIAL FAT PADS

- Bone Degeneration: an unavoidable product of the aging process, and unfortunately for women, it begins as early as 41 years of age
- Shifting pat pockets: another primary cause of facial sagging is a shifting of subcutaneous fat below the skin of the face
    - Youth is characterized by the arc of the jawline, the hollows of the temples, full cheeks, and a soft forehead. Each of these areas are related to a pocket of subcutaneous fat
- Collagen and elastin deterioriation: collagen plays an important role in the way your skin's main structural component, giving it both firmness and shape
    - Elastin gives the tissues of your body their ability to resume their shape after being stretched or contracted
    - Elastin is the substance that helps your skin return to its original position



Section Two:

NEUROMODULATORS

PART A

HISTORY

- 1960's-1970's - Ophthalmologist in San Francisco, Alan B. Scott was seeking an alternative to surgery for strabismus
- 1977 - Dr. Scott conducted the first clinical trial for humans with strabismus by injecting small amounts into the intraocular muscles
- 1988 - Cosmetic application when Doctors Jean and Alastair Carruthers observed improvement in the appearance of periorbital rhytids in patients treated for blepharospasm
- 1991-1992 - Allergan buys all rights to Oculinum and becomes Botox
- 1998 - Allergan pushed to aggressively research Botox's wrinkle-erasing potential
- 2001 - Sales of Botox had barely passed three hundred million dollars
- 2002 - Allergan gained F.D.A. approval to market Botox as a product that reduces the appearance of frown lines
- 2013 - Sales were nearing two billion dollars and accounted for almost a third of Allergan's revenue

1920's

Botulinum Toxin Type A first isolated

1978

First therapeutic testing in humans with Oculinum

1989

FDA approval of Oculinum for blepharospasm, strabismus

1991

Allergan changes product name to BOTOX®

BOTOX

2000

FDA approval for cervical dystonia

2002

FDA approval for moderate to severe glabellar lines

2004

FDA approval for hyperhidrosis inadequately managed with topical agents

2009

BOTOX® (onabotulinumtoxinA) 20th anniversary

Assess Before You Treat

- Evaluate the patient for expressivity, muscle mass, symmetry, lateral versus medial movement, compensation for brow ptosis, and brow width and height.
- Variations in muscle function should be considered when deciding on the dose of neuromodulator and where the injections will be placed.
- Lightly palpate over the area while the patient actively raises and lowers the eyebrows.
- BDD - higher incidence of dissatisfaction with results

Contraindications

- Breast feeding
- Myasthenia Gravis
- Multiple Sclerosis
- Lambert-Eaton Syndrome
- Amyotrophic Lateral Sclerosis (ALS)
- Parkinson's disease
- Active inflammation at treatment site
- Under the age of 18 or over 65
- Allergy to any of the following:
  - Ingredients in the medication
  - Cow's milk or protein (Casein), Dysport® only
  - Human albumin (all other brands)

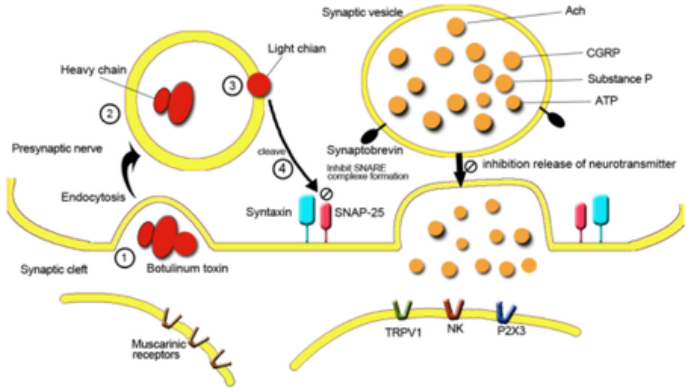
Post- Care

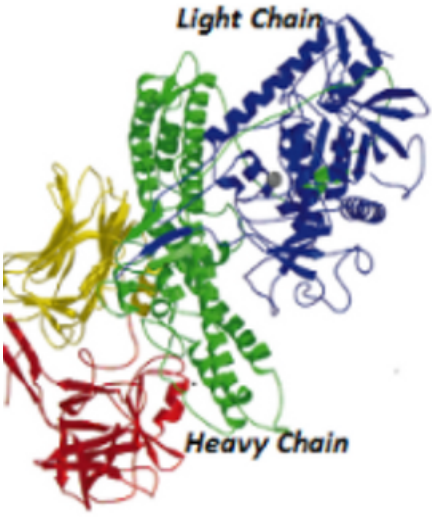
- Refrain from straining, heavy lifting, vigorous exercise for at least 4 hours following treatment
- The treatment may take 2-10 days to take full effect
- It takes the toxin approximately 2-4 hours to bind to the nerve terminal
- Circulation may inadvertently move the botulinumtoxin from where it was injected
- DO NOT lie head down flat, touch, or rub the treated areas for at least 4 hours
- Avoid alcohol, caffeine, Niacin supplement, high-sodium foods, spicy foods, and cigarettes 24-48 hours after your treatment
- Avoid cosmetic treatments such as laser, ultrasound, peels, facials or microdermabrasion for 2 weeks after treatment with neuromodulator
- Try to avoid wearing makeup until the day after treatment. Earlier use may cause pustules
- It is recommended that the touch-up, if needed, be done no later than 2 weeks after the initial treatment
- Avoid wearing hats or headbands after treatment with neurotoxin
- Please report to the Provider any increased pain, increased swelling, redness, blisters, or itching immediately, should it occur following your treatment

*Peaked eyebrows can be corrected with 1-2u of Botox®/Xeomin®/Jeuveau® or 5u Dysport® placed in line with the most peaked portion of the eyebrow, halfway between the forehead.

Structure and Mechanism of Action

1. Binding
2. Endocytosis
3. Acidification of the internalized vesicle
4. Translocation of the light chain across the vesicle membrane
5. Cleavage of SNAP-25
6. Inhibition of Ach release





Neuromodulators consist of a 50 kDa light chain and a 100 kDa heavy chain joined by a disulfide bridge.

- Light chain acts as a zinc endopeptidase with proteolytic activity located at N-terminal
- Heavy chain provides cholinergic specificity and is responsible for binding toxin to presynaptic receptors; also promotes light-chain translocation across endosomal membrane

Safety Profile

- Max dose for any neuromodulator in aesthetics is 360 units in a 3 month time period
- "Black Box Labeling" required for all neuromodulators, due to the spread effect
- Original batch was reformulated in 1997 and has since improved protein load to minimize immunogenicity
- The largest reported therapeutic dose was 1200 units

Comparing Neuromodulators

Onabotulinumtoxin A/Botox®

- First neuromodulator on the market
- FDA approval 2002
- Made by Allergan

Always look for the hologram. Only buy from your area representative.

Price: $622

Abobotulinumtoxin A/Dysport®

- May be more efficacious with strong facial muscles
- Made by Galderma
- FDA approval 2009

Price: $595

Incobotulinumtoxin A/Xeomin®

- The purest/most natural form of neuromodulator, Does not create resistance.
- Best used on new/first time clients, may not be as powerful on older clients.
- Made by Merz Aesthetics
- FDA approval 2012

Price: $482

Prabotulinumtoxin A/Jeuveau®

- Made by Evolus
- FDA approval 2019
- Modern-made neurotoxin using High-Pure technology

Price: $610

Handling & Storage of Neuromodulators

Shipped

- Botox®, Jeuveau®, and Dysport® are shipped frozen on dry ice and must be kept refrigerated at 2-8° C
- Xeomin® is shipped at room temperature and can be placed on a shelf until reconstituted
- It's recommended to use all neuromodulators within 6 weeks of reconstitution

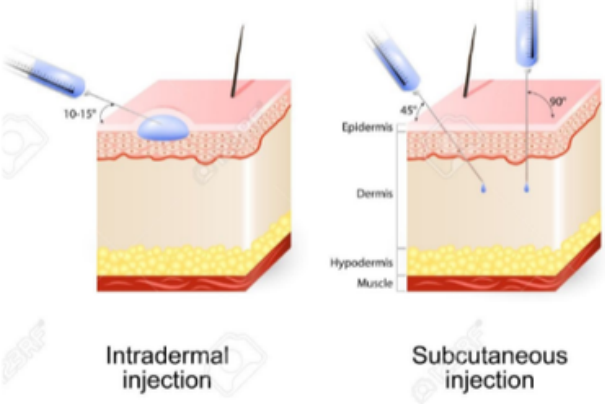
Label

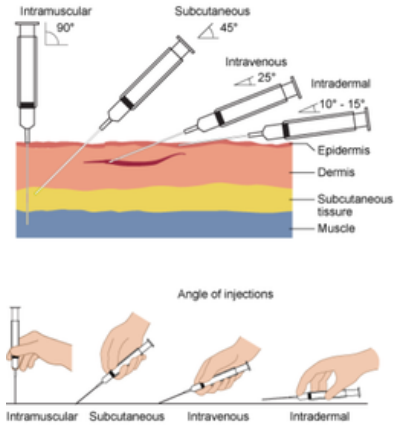
- Once you have reconstituted your neuromodulators:
  - Date
  - Initial
  - Refrigerate or place on ice

Neuromodulator Duration

- The lifespan of neuromodulators is approximately 3 months
- Does = Duration
- If muscles are not fully paralyzed, muscles return to normal function much sooner
- It is safe to re-treat once muscle movement begins to return
- Athletes and those with a fast metabolism may only get 2-3 months on average
- Clients with a slower metabolism may have coverage longer than 4 months
- Counsel clients to return 3-5 months for their next treatment
- In the beginning clients may need treatments more frequently
- Muscles atrophy over time and often require less units and less frequent treatments

Understanding Needle Depth





Reconstitution

Do's:

- Insert the needle at a 45 degree angle into vial and inject saline slowly, so that the diluent runs down the side of the vial.
- Gently swirl the reconstituted vial and record date and time.

Don'ts

- Do not let saline flow too quickly into the vial, bubbling and foaming may result and denature the product.
- Do not shake vial, the product may become denatured.

Bacteriostatic NaCl 0.9% with preservative

22G needle and 3cc sterile syringe

Neuromodulator of choice

Dilution Guide

Botox® & Xeomin® & Jeuveau®

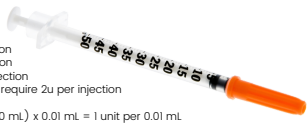
Recommended Dilution for Beginners

Dilution Instructions	Diluent Added (0.9% NaCl Bacteriostatic)	Resulting Dose (Units per 0.01 mL)
100-Unit Vial	1.00 mL	1.00 Units

Once the product is reconstituted with the 0.9% Bacteriostatic saline, the vial will remain active for 4 weeks.

Treatment Area	Female	Male
Frontalis	8-20 Units	10-28 Units
Crow's Feet	6-16 Units	8-24 Units
Glabella	12-20 Units	20-28 Units
Lateral Brow Lift	4-6 Units	Avoid
Bunnny Lines	4-6 Units	6-8 Units

Note:
- Frontalis requires 2u per injection
- Glabella requires 4u per injection
- Crow's Feet requires 4u per injection
- Lateral Brown and Bunny Lines require 2u per injection



Calculation for dilution: (100 u ÷ 1.0 mL) x 0.01 mL = 1 unit per 0.01 mL

When using the 0.33 mL insulin syringe, 1 unit = 0.1 mL volume

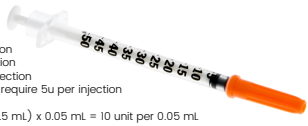
Dysport®

Dilution Instructions	Diluent Added (0.9% NaCl Bacteriostatic)	Resulting Dose (Units per 0.05 mL)
300-Unit Vial	1.5 mL	10.00 Units

Once the product is reconstituted with the 0.9% Bacteriostatic saline, the vial will remain active for 4 weeks.

Treatment Area	Female	Male
Frontalis	20-40 Units	30-50 Units
Crow's Feet	30-40 Units	30-50 Units
Glabella	30-60 Units	50-70 Units
Lateral Brow Lift	5-10 Units	Avoid
Bunnny Lines	5-10 Units	10 Units

Note:
- Frontalis requires 5u per injection
- Glabella requires 10u per injection
- Crow's Feet requires 10u per injection
- Lateral Brown and Bunny Lines require 5u per injection



Calculation for dilution: (300 u ÷ 1.5 mL) x 0.05 mL = 10 unit per 0.05 mL

When using the 0.33 mL insulin syringe, 10 Dysport units = 0.5 mL volume

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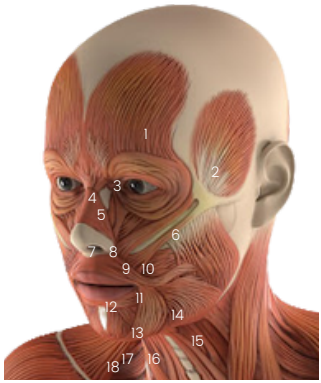
Section Three:

Anatomy- Facial Muscles and Vessels

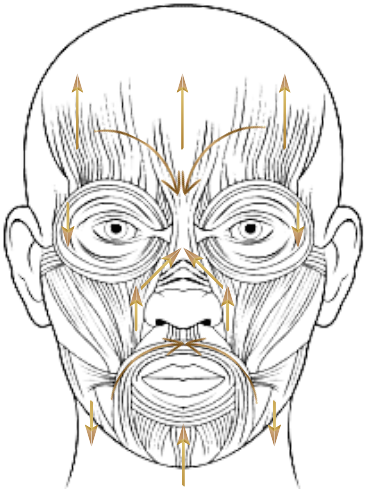
PART A

Facial Muscles

1. Frontalis
2. Temporalis
3. Corrugator Supercilii
4. Procerus
5. Depressor supercilii
6. Orbicularis oculi
7. Nasalis
8. Levator labii superioris alaeque nasi
9. Levator labii superioris



10. Zygomaticus minor
11. Zygomaticus major
12. Orbicularis oris
13. Modiolus
14. Risorius
15. Platysma
16. Depressor anguli oris
17. Depressor labii inferioris
18. Mentalis



Expression Lines	Muscles	Actions
Eyebrow lift	Superior lateral Orbicularis oculi	Superior lateral Eyebrow depressor
Horizontal forehead lines	Frontalis	Eyebrow elevator
Frown Lines	Corrugator Supercilii Procerus Depressor supercilii	Eyebrows drawn medially Medial eyebrow depressors
Crow's feet	Lateral orbicularis oculi	Lateral eyebrow depressor
Bunny lines	Nasalis	Nasal sidewalls drawn medially

Types of Facial Lines

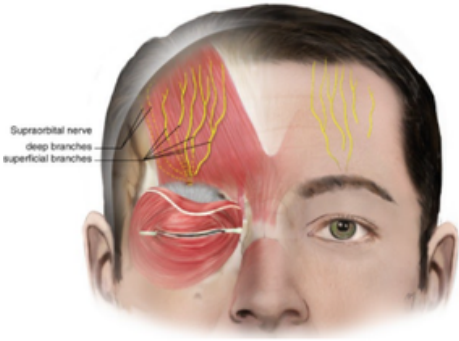
STATIC LINES

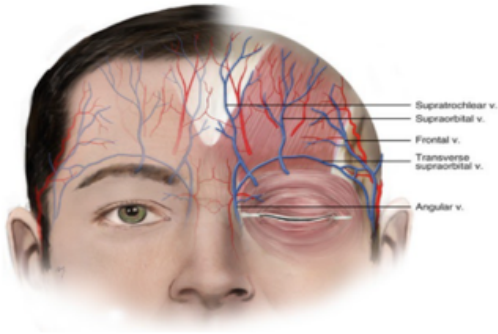
- Found in the morning after sleep
- From sun exposure
- From effects of gravity
- Present at rest
- A result of facial movement

DYNAMIC LINES

- Caused by expressions
- Laughing
- Smiling
- Frowning
- Pursing our lips
- Arching our eyebrows

Nerve Anatomy





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Functional Anatomy

STATIC LINES

- Found in the morning after sleep
- From sun exposure
- From effects of gravity
- Present at rest
- A result of facial movement

DYNAMIC LINES

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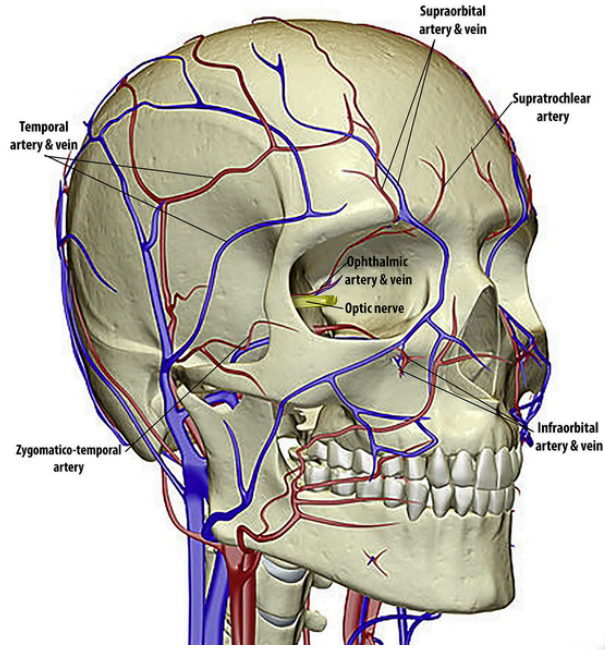
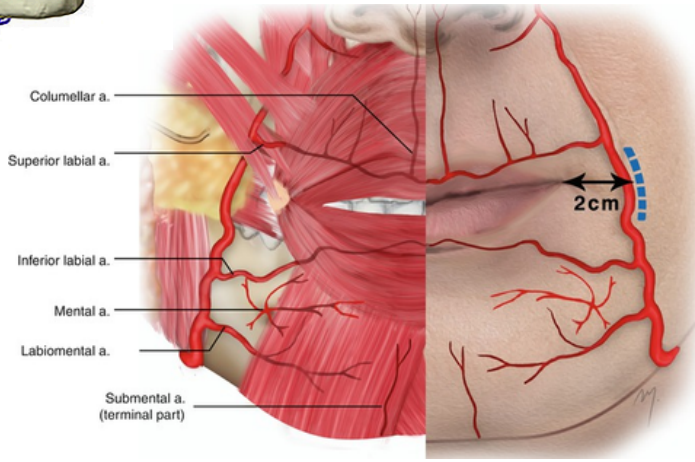
- Laughing
- Smiling
- Frowning
- Pursing our lips
- Arching our eyebrows

Facial Vessels





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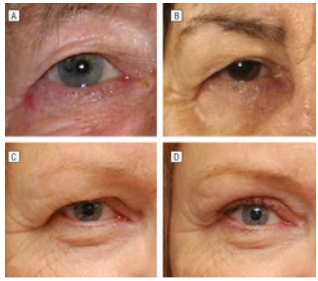
Section Four:

NEUROMODULATOR TREATMENT AREAS

PART A

EYES

Hooding



- You do not want to add too much neuromodulator to the frontalis muscle if your patient has eyelid hooding
- The frontalis muscle is the only muscle that can elevate the brows
- Watch your patients expressions for compensation

Brow Ptosis

- Heavy forehead sensation
- Inability to apply makeup to eyelids
- None or very little eye brow movement
- Injections too low on the forehead
- Fatigue or heaviness around the eye

Risk factors for ptosis include:

- Patient factors (age, lifestyle factors, heavy brow, short forehead, outdoor work resulting in sun damage, loss of elasticity, heavier skin, and a greater reliance on the action of the frontalis muscle)
- Medical conditions (previous facial surgery, neurological conditons, such as myasthenia gravis and caution in multiple sclerosis, previous history of ptosis or Bell's palsy)
- Product factors (product dilution, product quality)
- Treatment factors (injection technique, injection placement, dosage)

Eyelid Ptosis

- Drooping or lowering of the eyelid below its normal position
- This is usually due to unintentional migration or diffusion of the neuromodulator into the levator palpebrae superioris muscle, which functions to elevate the upper eyelid
- Ptosis may occur as early as 3 days and up to 14 days after neuromodulator treatment

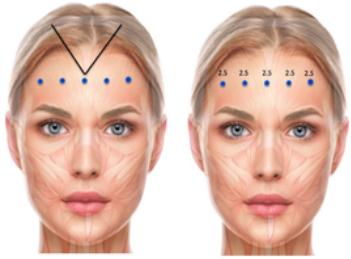
Treatment:

- Prescribe ophthalmic eye drops (Iopidine 0.5% or Upneeq 0.1%) to help raise eyelid and decrease ptosis
- Alpha-adrenergic receptor agonist and a mydriatic agent which causes contraction of Muller's muscle
- The drops may raise eyelid up to 1-3mm by contraction of the Muller's muscle in the upper eye
- The effect of the medication is temporary
- Iopidine or Upneeq should only be prescribed if a true ptosis is present
- Dosage: 1-2 drops 3 times a day

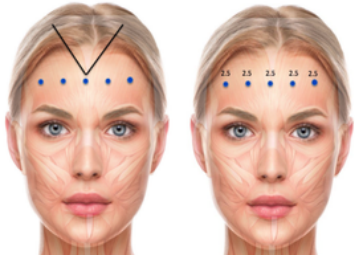
Treatment Patterns

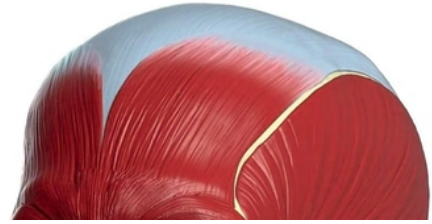
Treatment	Muscle Treated	Botox/Jeuveau/ Xeomin Units	Technique
Glabella	Corrugator Supercillii Procerus	6-14/side 5-10	Mid to deep injection Deep injection
Horizontal Forehead Lines	Frontalis	4-20	Superficial injection. Stay 2cm above brow to avoid brow ptosis/ eyelid drooping
Crow's Feet	Orbicularis Oculi	3-15/side	Superficial injection. Keep lateral to pupillary line, outside of orbital rim. Low dose units on lower lid.
Lateral Brow Lift	Orbicularis Oculi	3-7/side	Superficial injection
Medial Brow Lift	Procerus	5-10	Deep injection
Bunny Lines	Nasalis	2-3/side	Superficial injection

Glabella



Crow's Feet Frontalis

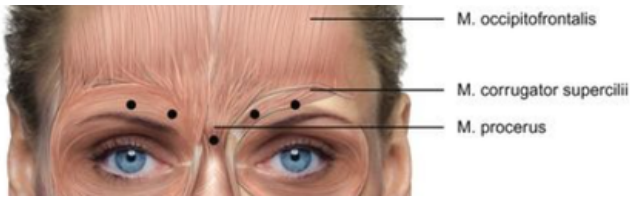




Treatment Patterns

The Five Glabella Patterns of De Almeida

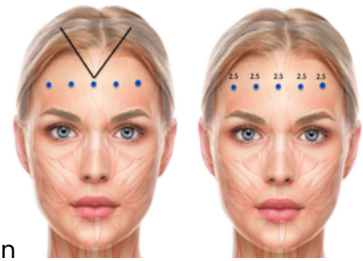
Technique: Intramuscular Injection



- When treating the glabella, inject 1 cm above the bony orbital ridge at the mid-pupillary line
- Do not inject lateral to the mid-pupillary line. The corrugators typically do not extend lateral to the mid-pupillary line
- Each injection should be given in a 10, 5 or 2.5 unit dose for Dysport® or 4, 2 or 1 unit dose for Botox®/Xeomin®/Jeuveau®, depending on the muscle strength of the area being treated

*It isn't always necessary to inject the procerus muscle. Inject if a horizontal line appears in the glabellar region.

Frontalis

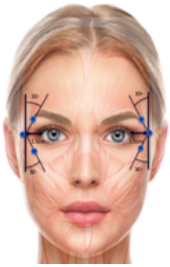


Technique: Subdermal Injection

- First assess the position in which the eyebrows rest
- When treating the frontalis, do not inject lower than 2 cm above the bony orbital rim
- Each injection should be given in a 5 or 2.5 unit dose for Dysport® or 2 or 1 unit dose for Botox®/Xeomin®/Jeuveau®, depending on the muscle strength of the treatment area
- Often the most difficult area to treat. Poor technique is this area can produce an odd-shaped brow

Treatment Patterns

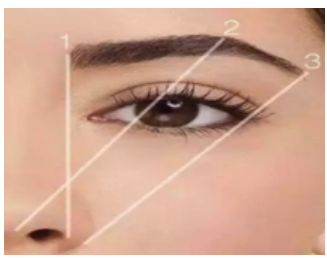
Crow's Feet

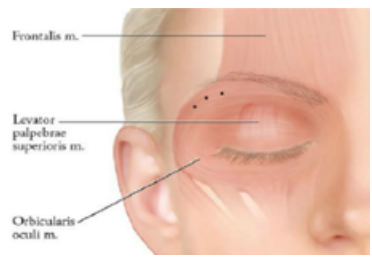


Technique: Subdermal Injection

- Place 3-4 injections radially in the area of the crow's feet
- A total of 8-20 Botox®/Xeomin®/Jeuveau® units or 20-60 Dysport® units in each side
- Inject 1 cm lateral to the bony orbital rim, especially above the lateral canthus as a lid lag can occur
- It is helpful to place a finger on the non-injecting hand at the lateral orbital rim as a guide
- The orbicularis oculi is superficial, by keeping injection superficial you will avoid bruising

Lateral "Spa" Brow Lift





Technique: Subdermal Injection

- Injections are kept approximately 1 cm above the orbital rim
- Neuromodulator is injected into the muscle in two or three spots along the lateral brow, each injection should be given in a 5 unit dose for Dysport® or 2-3 unit dose for Botox®/Xeomin®/Jeuveau®
- Over treatment of the frontalis muscle will negate any possible elevation achieved with these techniques
- Clients with severe brow ptosis are less likely to obtain a significant lift from a neuromodulator
- Not all clients will be able to achieve significant brow elevation

Treatment Patterns

Bunny Lines

Technique: Subdermal Injection

- This area is highly vascular, apply ice prior to prevent bruising
- Treatment in this area needs to be kept more medial, to avoid relaxing the nearby levator superioris alaeque
- A single injection should be given in a 5 unit dose for Dysport® or 2-4 unit dose for Botox®/Xeomin®/Jeuveau® ploaced on each side

- Injections are kept approximately 1 cm above the orbital rim
- Neuromodulator is injected into the muscle in two or three spots along the lateral brow, each injection should be given in a 5 unit dose for Dysport® or 2-3 unit dose for Botox®/Xeomin®/Jeuveau®
- Over treatment of the frontalis muscle will negate any possible elevation achieved with these techniques
- Clients with severe brow ptosis are less likely to obtain a significant lift from a neuromodulator
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MEDICAL AESTHETIC ART
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Section One:

DERMAL FILLER

PART B

Indications

Youthful face has ideal volume distribution.
- "V" Shape
- Firm Skin
- Perfect facial contours

Aging face has increased volume deficit.
- Inverted "V"
- Widening chin line
- Flaccid contours

- FDA approved for the correction of moderate to severe facial wrinkles and folds
- Lip augmentation
- Correcting deep nasolabial folds and marionette lines
- Correcting age related volume loss in the cheeks and chin
- Firming the skin and smoothing of wrinkles
- Facial contouring and sculpting

Benefits

- Plumps thin lips
- Enhance volume in cheeks
- Correct shape of nose
- Correct facial asymmetries and proportions
- Reduces smile lines
- Soften facial creases and wrinkles
- Improve the appearance of recessed scars
- Reconstruct contour of deformities in the face
- Decrease or remove the shadow of the lower lids
- Reshape jowl line
- Improves smoker lines

Contraindications

- Pregnancy
- Breastfeeding
- Allergy to gram positive bacteria
- History of severe allergies manifested by anaphylaxis or history of presence of severe allergies
- Any history of facial implants in treatment area
- Active inflammation process at the injection site
- Under age of 18
- Dermal fillers are recommended for age 65 and under for optimal results
- Lidocaine Allergy

Clients should not schedule any invasive procedures for 2 weeks before or after with dermal fillers. These can include but are not limited to:

- Dental cleaning or dental work
- Lesion excision or biopsy
- Internal device placement
- Tattoo or permanent makeup
- Immunizations

Types and Duration

Temporary

- Hyaluronic Acid fillers will typically last from 6 to 18 months
- FDA approved HA fillers include:
  - Juvéderm products: Juvéderm XC, VOLUMA, VOLBELLA, VOLLURE
  - Restylane products: Restylane, Restylane Silk, Restylane Lyft, Restylane Refyne, Restylane Defyne, and Kysse
  - Belotero Balance
  - Revanesse Versa, Revanesse Versa Lips
  - Teoxane

Semi-permanent

- Poly-L-lactic can last more than 2 years. FDA approved as Sculptra®
- CaHA filler will typically last longer than HA fillers, about 12 months for most clients. FDA approved as Radiesse®

Permanent

- PMMA fillers will also contain collagen, a naturally occurring substance in the skin that provides structure and firmness for up to 5 years. FDA approved as Bellafill® (formerly known as Artefill)
- Autologous fat injections are the only injectable filler treatment that requires surgery and are meant to last indefinitely

HA (Hyaluronic Acid)

- Hyaluronic Acid (HA) is a naturally occurring polysaccharide polymer that retains water
  - 1g HA can bind up to 6L of water
  - Natural component of the skin - hydrates, lubricates, stabilizes connective tissue
- The affinity of HA to water helps replace age related to volume loss
- Nonallergenic, therefore no need for allergy testing prior to treatment
- Reversible
  - Dissolves over 6-12 months
  - Can be dissolved with Hyaluronidase
- Differences in HA concentration, cross-linking technology, hydration, viscosity, gel properties and longevity alter the mechanical behavior of the product
- The nature of dermal fillers also allows for incremental administration, giving the client a sense of control and security

Why choose HA?

- HA concentration
- Cross-linking
  - Type of technology
  - Degree of cross-linking
  - Percentage of HA cross-linked vs. non cross-linked
- G' (elastic modulus)
- Viscosity (η*)
- Needle size required
- Particle size
- Presence of lidocaine
- Naturally-occurring HA has short half-life and must be cross-linked before use as a soft tissue filler
- HA is stabilized by cross-linking molecules in a 3D network
  - Manufacturing method determines type and extent of HA cross-linking, size and concentration of HA particles
  - Cross-linking prevents rapid in vivo enzymatic and oxidative degradation
  - Degree of cross-linking and HA concentration effect elastic molecules (G') ability to resist deformation
  - Higher G' = firmer, harder, more elastic gel with lower G'

Types and Duration

PLLA or Sculptra

- Poly-L-lactic acid (PLLA): PLLA is a biodegradable, biocompatible man-made polymer with microspheres that stimulate fibrosis and neocollagenesis
- FDA approved in 2004 for HIV-associated lipodystrophy
- FDA approved in 2009 for correction of shallow to deep NLF contour deficiencies and other facial wrinkles
- PLLA is a long-lasting filler material that is given in a series of injections over several months
- The effects of PLLA generally becomes increasingly apparent over time (period of several weeks) and its effects last up to 2 years
- Requires specialized injecton training

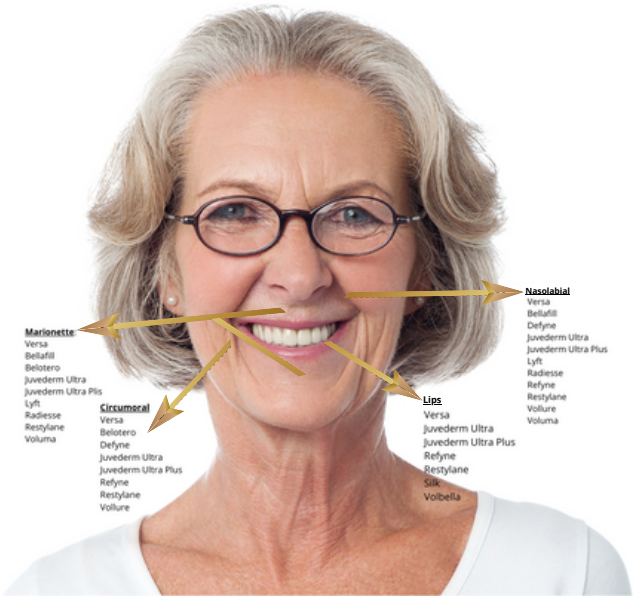
CaHA or Radiesse

- Calcium hydroxylapatite: 30% CaHA microspheres suspended in 70% aqueous polysachharide gel carrier
- Microspheres stimulate fibrosis and neocollagenesis
- FDA approved in 2006 for subdermal correction of moderate to severe facial wrinkles and folds (NLFs)
- FDA approved in 2015 for volume loss in dorsum of hands
- Formulation with integral 0.3% lidocaine approved by US FDA in 2015
- Particle size: 25-45 µm
- The effects of this material last approximately 12-18 months

PMMA or Bellafill

- Polymethylmethacrylate beads (PMMA microspheres): Bellafill is a non-biodegradable, biocompatible, man-made polymer
- FDA approved in 2006 (Artefill), rebranded in 2014 as Bellafill
- Bellafill beads are tiny, round, smooth particles that are not absorbed by the body. When used as a soft tissue filler, PMMA beads are suspended in a gel-like solution that contains cow (bovine) collagen and injected into the face
- Requires skin testing prior to injection (bovine collagen)
- Contraindicated for lip augmentation

Trade Name of HA Fillers	Placement Location
(Allergan) Juvederm Voluma XC $404	Deep (subcutaneous and/or supraperiosteal) injection for cheek augmentation to correct age-related volume deficit in the mid-face in adults over the age of 21
Juvéderm Vollure XC $365	Injection into the mid to deep dermis for correction of moderate to severe facial wrinkles and folds (such as NLF)
Juvéderm Volbella XC $365	Injection into the lips for lip augmentation and for correction of perioral rhytids in adults over the age of 21
Juvéderm Ultra Plus XC $339	Injection into the mid to deep dermis for correction of moderate to severe facial wrinkles and folds (such as NLF)
Juvéderm Ultra XC $339	Injection into the mid dermis for correction of moderate to severe facial wrinkles and folds (such as NLF)
(Galderma) Restylane Refyne $340	Indicated for injection into the mid-to-deep dermis for the correction of moderate to severe facial wrinkles and folds (NLF)
Restylane Defyne $340	Indicated for injection into the mid-to-deep dermis for the correction of moderate to severe facial wrinkles and folds (such as NLF) in patients over the age of 21
Restylane Lyft $299	Moderate to severe facial folds and wrinkles or in patients over the age of 21
Restylane Silk $287	Indicated for lip augmentations and dermal implantation for correction of perioral rhytids (wrinkles around the lips) in patients over the age of 21
Restylane $281	Injection into the mid to deep dermis for correction of moderate to severe facial wrinkles/folds (such as nasolabial folds) and for lip augmentation in those over the age of 21 years
Restylane Contour $	Restylane Contour
Restylane Kysse $356	Restylane® Kysse is indicated for injection into the lips for lip augmentation and the correction of upper perioral rhytids in patients over the age of 21
(Merz) Belotero Balance $356	Injection into facial tissue to smooth wrinkles and folds, especially around the mouth
(Prollenium) Revanesse Versa $400	Injected mid to deep dermis to even out wrinkles as well as a lip filler for better lip volume
Revanesse Versa Lips $400	used for submucosal implantation for lip augmentation
Trade Name of NON-HA Fillers	**Placement Location**
(Merz) Radiesse (CaHA) $300	Subdermal implantation for correction of moderate to severe facial wrinkles and folds (such as nasolabial folds) Volume loss in dorsum of the hands
(Galderma) Sculptra (PLLA) $386	Injected deeply in a supraperiosteal location at the temple and along the zygoma, maxilla, and mandible
(Suneva) Bellafill (PMMA) $400	Injection into facial tissue to smooth wrinkles and folds, in the nasolabial folds


Marionette
Versa
Belafill
Belotero
Juvederm Ultra
Juvederm Ultra Plis
Lyft
Radiesse
Restylane
Voluma
Circumoral
Versa
Belotero
Defyne
Juvederm Ultra
Juvederm Ultra Plus
Refyne
Restylane
Vollure
Nasolabial
Versa
Bellafill
Defyne
Juvederm Ultra
Juvederm Ultra Plus
Lyft
Radiesse
Refyne
Restylane
Vollure
Voluma
Lips
Versa
Juvederm Ultra
Juvederm Ultra Plus
Refyne
Restylane
Silk
Volbella

MEDICAL AESTHETIC ART
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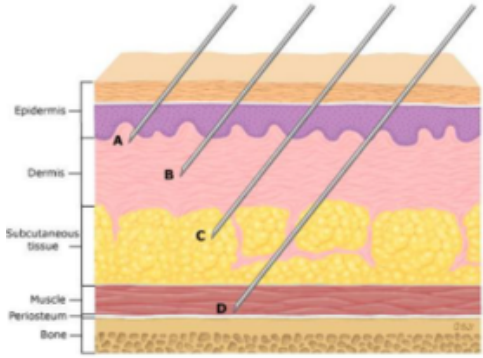
Section Two:

Dermal Filler Treatment Techniques

PART B

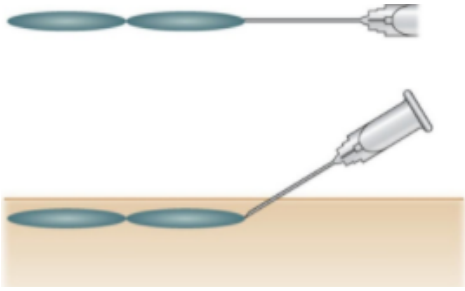
Product Placement

- Epidermis is 0.3mm
- Dermis is 0.18 - 1.8 mm
- 30G needle has outer diameter of 0.3 mm and bevel length of 0.75 mm
- If dermal fillers are injected at too great a depth, the client will be left with unnoticeable and disappointing results
- If injections are too superficial, you may create undesirable lumpiness or granuloma formation
- By altering the angulation of your needle you can adjust the depth of administration
- As a general rule, you should be able to visualize the outline of the needle under the skin but not its grey color



Needle VS. Cannula

- Most HA injected into the vermillion border after either microcannula or needle injection resides within the orbicularis oris muscle rather than in a subcutaneous/submucosal location.
- In

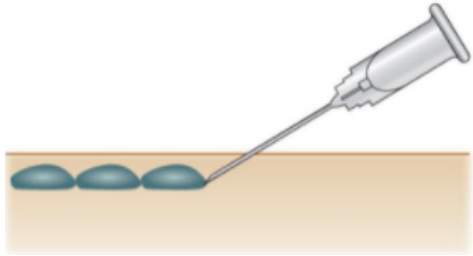


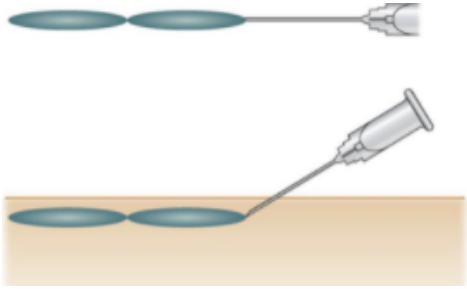
Linear Threading

- Insert needle into skin 30˚ parallel to length of wrinkle or fold
- Filler is deposited linearly as you withdraw needle
- Threading is most commonly practiced
- Gently massage injection site
- Best used for: NLF, Philtral column, lips, vermillion border

Serial Puncture

- Insert needle ~10˚ parallel to length of wrinkle or fold
- Serial puncture involves multiple, closely spaced injections along wrinkles or folds
- Although serial puncture allows precise placement of the filler, it produces multiple puncture wounds that may be undesirable to some clients
- Best used for: NLF, marionette lines, lips, vermillion border



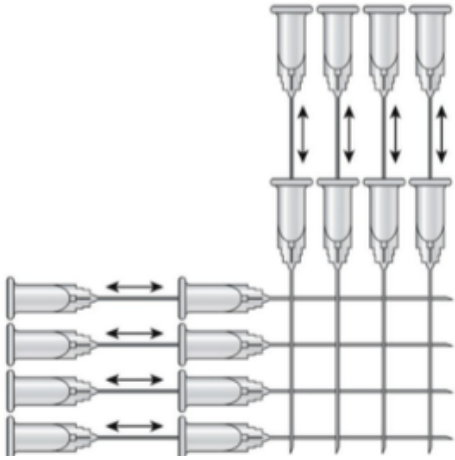


Fanning Technique

- Single needle insertion point placing dermal filler product in a triangular area
- Withdraw the needle partially then redirect the needle using small angulations, advance needle to hub again to deliver product and repeat in a "fanning" motion
- Best used for: NLF, marionette lines

Cross - Hatching

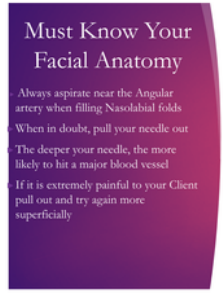
- Multiple insertion sites are used to form a grid pattern
- Insert the needle at the desired depth, advance the needle to the hub, and inject filler in a linear thread as the needle is withdrawn
- Reinsert the needle in an adjacent area and place another linear thread parallel to the first thread
- Repeat at 90 degrees to the first thread until desired correction
- Best used for: NLF, marionette lines

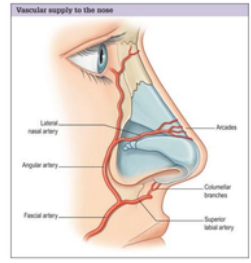


Treatment Areas

Nasolabial Folds

- The injection technique should be mostly perpindicular to and medial to the fold so as not to augment lateral to the fold
- The second injection is approximately 1 cm superior to the first injection
- Fanning or threading technique
- Varrying depths, may layer product for deeper folds
- Aspirate near alar artery





Philtral Column

- The two vertical lines just beneath the nose that connect the nasal septum to the lips
- To increase the philtral column, insert the needle at the junction of the cupid's bow and philtral column, and advance superiorly, injecting a small amount of product in a slow retrograde technique
- Try to inject a slightly greater amount of filler inferiorly to create a natural contour of the column. Inject 0.025 to 0.05 mL per column

Vermilion Border

- The vermilion border of the lips is to be injected with a linear retrograde technique to follow the inner border of the lip on the pink side of the border
- The filler usually tracks along the vermilion border in a natural tunnel or canal that exists in this area
- The vermilion border can be treated to diminish the appearance of the perioral rhytids, "lipstick" lines, or "smoker's" lines
- Treating the vermilion border can also evert the border of the lips slightly
- This injection requires a very small amount of product, each injection should be placed with 0.05 cc's per thread

Lips and Vermilion Border

- To increase the size of the lips, insert the needle 1-2 mm away from the vermilion border towards the mucosa border to evert the lips
- To increase the volume of the lips, insert the needle 3-5 mm away from the vermilion border near the wet-dry border to plump the lips

Lip Body

- This is the part of the lip where we wet mucosa meets the dry epidermis
- Identify the first injection point in the body of the upper lip by laying the needle against the mucosa at the wet-dry border
- Insert the needle into the lip mucosa at a 30 degree angle to the lip, directing it parallel to the lip body
- The product is slowly injected along the length of lip with the linear retrograde technique. Each injection should be placed with 0.1 mL in each thread
- The serial puncture and serial threading technique can be used to add small additional amounts to achieve symmetry
- Watch for tissue blanching or other ischemic signs or symptoms

Perioral Wrinkles

- Thinning of the skin and subcutaneous tissues causes increased wrinkling of the lips and surrounding areas
- These changes are most obvious in people who have pursed their lips repeatedly, such as smokers
- Deep wrinkles across the vermilion border cause "lipstick bleeding"
- The ordinary actions of the orbicularis oris accentuates these wrinkles

Perioral Injections

- Inject the radicular lines above and below the vermilion border on the face
- Injection along the vermilion border may also help these lines outside of the lips
- Insert the needle with the bevel pointing up towards the surface of the skin
- Introduce the needle into the submucosal layer
- As a beginner, we recommend filler injections of 0.05 cc per injection (We DO NOT recommend that you inject 0.1cc per insertion in the lips during training sessions)

Marionette Lines

- Marionette lines are long vertical lines that laterally circumscribe the chin
- They are important landmarks for the general impression of the face, and often project sadness
- Marionette lines are a common area for injectable fillers
- Fanning or cross-hatching technique
- Mid to deep dermis

Marionette Injections

- Insert the needle at a 30 degree angle to the skin, direct it superiorly toward the lip and advance the needle to the hub
- Apply firm and constant pressure on the syringe plunger while gradually withdrawing the needle to inject a linear thread of filler in the mid to deep dermis
- Without fully withdrawing the needle from the skin, redirect the needle medially using small angulations, advance the needle to the hub again and repeat until desired correction

Oral Commissures

- The corners of the mouth, also known as the oral commissures, can turn downward as you age and lose volume below the mouth
- This downturned appearance of the mouth can make you look like you are frowning or even mad
- In addition, volume loss in this area often leads to the formation or the deepening of already formed marionette lines

Oral Commissure Injection

- Oral commissures: product is injected into the mid to deep dermis with linear retrograde, serial threading/fanning, and/or serial puncture techniques
- Injection technique involves placing an X-like injection at the oral commissure
- A depot of product inferiorly also can help turn the commissure upward

Section Three:

COMPLICATIONS

PART B

Cautions

- Surgery on the face, previous or planned
- Sunburned skin
- Irritated skin from: waxing, bleaching, depilatory creams, AHA >10%, Retinoids, recent cosmetic facial treatments
- History of semi-permanent filler. It is advised to wait 6 months before treating the same area
- Use of blood thinning agents or anti-coagulants
- Lip liner tattoo. It must be fully healed and 6 weeks post-treatment
- History of peri-oral herpes - may require pre-treatment with antiviral medication
    - If the client currently has a Herpes outbreak in the area, reschedule until it is resolved

Complications

- **Assymetry:** Provide comfort and reassurance that this can be corrected. This can be corrected up to 3 days prior to the product settling. It is recommended to wait 7 days for a touch-up to allow initial edema to subside.
- **Bruising:** Apply pressure and a cold compress to the area. Avoid using aspirin. Unless contraindicated, apply Arnica (gel or tablet).
- **Edema:** Apply cold compress for the first 24-36 hours, and increase water intake. Arnica gel is recommended, and instruct client to avoid high sodium foods.

Key Areas of Concern:

- The lips are an area of high vascularity, muscle activity, and are the most variable feature of the face.
- Ageing brings loss of volume and elasticity in the perioral areas with loss of support from underlying bone and subcutaneous fat
- Key areas of concern for clients are:
    - Nasolabial folds (due to soft tissue volume loss and dermal atrophy)
    - Perioral wrinkles (due to thinning of the skin and loss of skin tone)
    - Marionette lines (due to repeated muscle action & loss of collagen and subcutaneous fat)

Medical Emergencies

Vasovagal Episode

- Fall Precautions - provide support to head
- Assist client to chair or bed
- Elevate feet
- Provide cool damp cloth to forehead and back of neck
- CALL 9-1-1

Tachycardia

- Monitor guest
- CALL 9-1-1

Severe Reaction

- Anaphylaxis, cardia arrest, seizure, etc.
- CALL 9-1-1
- Provide supportive care

Adverse Events

Early Onset

Immediate to 15 days

Due to procedure, not filler related:

- Bruising
- Swelling at injection site
- Infection (viral or bacterial)

Due to filler behavior and placement technique:

- Over correction
- Misplacement (palpable or visible)
- Angioedema
- Vascular Occlusion

Late Onset

From 15 days to years

Due to procedure, not filler related:

- Chronic Infection

Due to filler behavior and placement technique:

- Skin discoloration (yellow after CH)
- Migration of implants
- Nodules (product accumulation)
- Granulomas
- Recurrent Edema
- Tindal Effect
- Hypersensitivity (type IV reaction)
- Biofilm
- Hypertrophic scarring

Signs of Vascular Occlusion

Venous Occlusion

- Does not produce immediate pain or blanching
- Process is slower
- Venous congestion (intradermal bleeding)
- Gradual area of darkening, dusky appearance

Arterial Occlusion

- Immediate pain
- Immediate blanching followed by livedo reticularis