

BOTOX TRAINING MODULE

ADVANCED AND COMPREHENSIVE



**Treatment of
Myofascial Pain, TMDs and Tension Headaches**

***Created and Presented by
Sky Naslenas***

Course Introduction

Botox Module

About the Speaker:

Dr. Sky Naslenas

- Orthodontic certification in 2005 from the University of Toronto
- Masters Degree in 2005 (Hospital for Sick Kids Craniofacial Department)
- A presenter and invited speaker at several of the industry's top events: the Canadian Association of Orthodontists, the American Association of Orthodontists, and the American Cleft Lip and Palate Association
- Associate Staff at the Hospital for Sick Children
- Creator of Botox and Filler Training Centre for Dentists
- Owner of Orthodontic Studio @ Royal York and @Roncy



Royal College of
Dental Surgeons of Ontario

Ensuring Continued Trust



- The College's view that Ontario dentists are **not permitted** to carry out the injection of Botox™, or any other agent material, into the extra-oral/facial tissues of a patient for ***cosmetic procedures***
- One possible **exception** would be the use of Botox™ for ***temporo-mandibular disorders***, as the management of such conditions clearly falls within the scope of the practice of dentistry
- However, such use of this agent is currently considered ***off-label and experimental*** and should only be employed by highly-trained and very experienced practitioners, usually in a hospital-based multidisciplinary clinic.

Botox approved to treat migraines in Canada

THE GLOBE AND MAIL 

Health Canada has given doctors the green light to use Botox injections in adults who suffer from migraines 15 or more days a month.

Nov. 14, 2011



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COUNCIL MEETING – DENTISTS USE OF BOTOX AND DERMAL FILLERS

Council approved the use of botulinum toxin and dermal fillers by dentists within the scope of practice of dentistry provided the injection of botulinum toxin or dermal fillers is **given intra-orally for a therapeutic or cosmetic purpose** or the injection of botulinum toxin is given **extra-orally for a therapeutic purpose**. All other used of botulinum toxin and dermal fillers are considered not within the scope of practice of dentistry in Ontario.

MAY 9, 2013



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Dental Surgeons of Ontario**

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Educational requirements for Ontario dentists

- be conducted by persons who have had recognized education and training, and significant experience
- include a didactic component with formal evaluation that addresses:
 - pharmacology of these substances;
 - physiological activity of these substances;
 - diagnosis of relevant conditions;
 - indications for the use of these substances, as well as other first-line treatment modalities;
 - contraindications for the use of these substances;
 - related head and neck anatomy;
 - adverse reactions and their management;
- include a hands-on clinical or clinical simulation component with formal evaluation;
- promote the critical evaluation of research and literature on related topics.

Course Overview

- A personal retrospective of my interest in Botox Therapy
- History and Development of Therapeutic Botox
- Pharmacology, Physiology and Mechanisms of Action
 - Part I – Neuromuscular Junction
 - Part II – Peripheral Nociception Blockade
- Diagnosis (Indications)
- Alternatives to treatment with Botox
- Clinical Handling of Botox
- Relevant Head and Neck Anatomy
- Injection Techniques
- Additional Applications of Botox in Dentistry
- Adverse Reactions and Complications
- Contraindications
- Botox Integration into your office
- Final steps to certification – Hands on Component

Who is a typical patient?

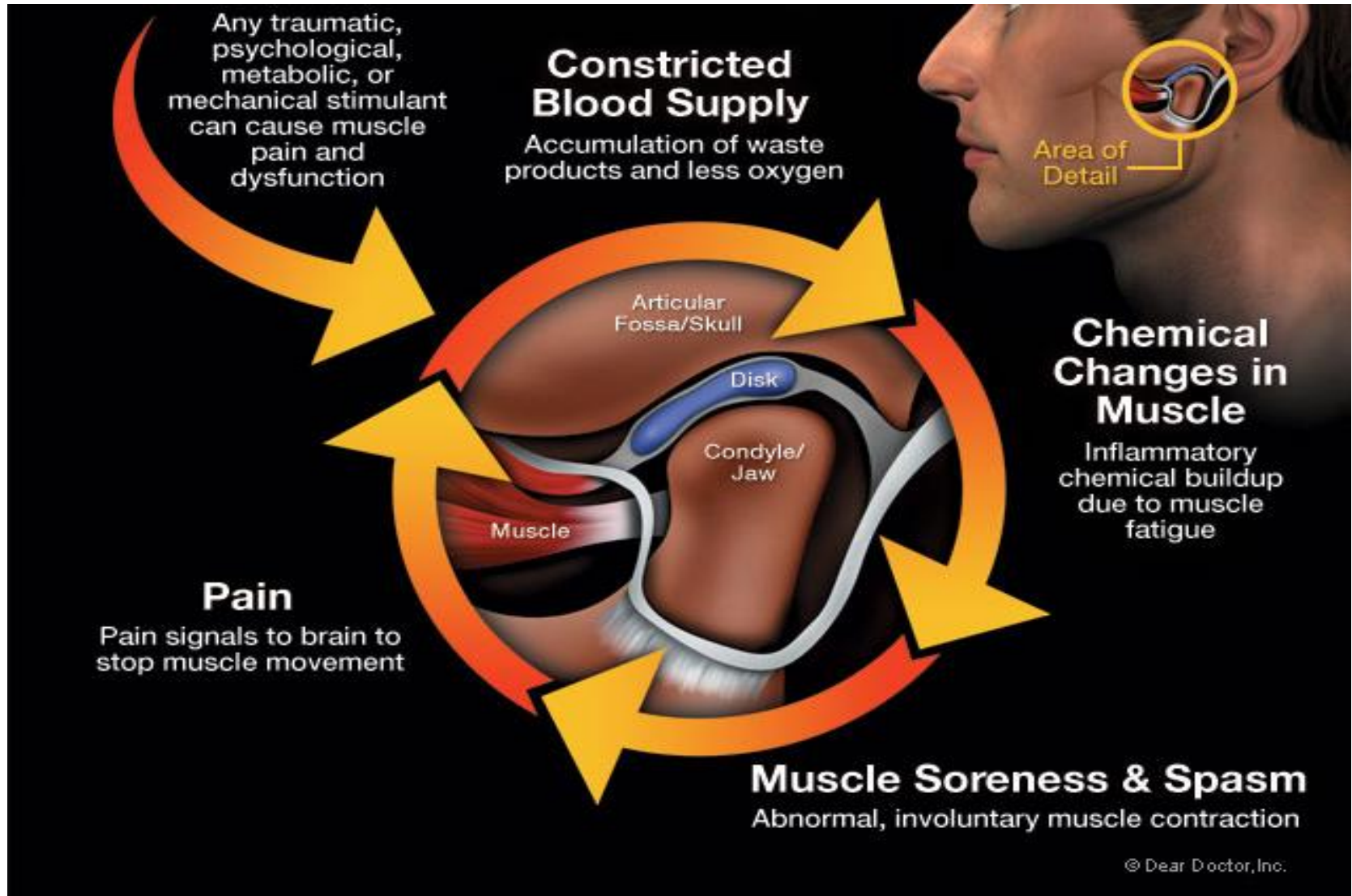
**A personal
retrospective**

Case – Daphne



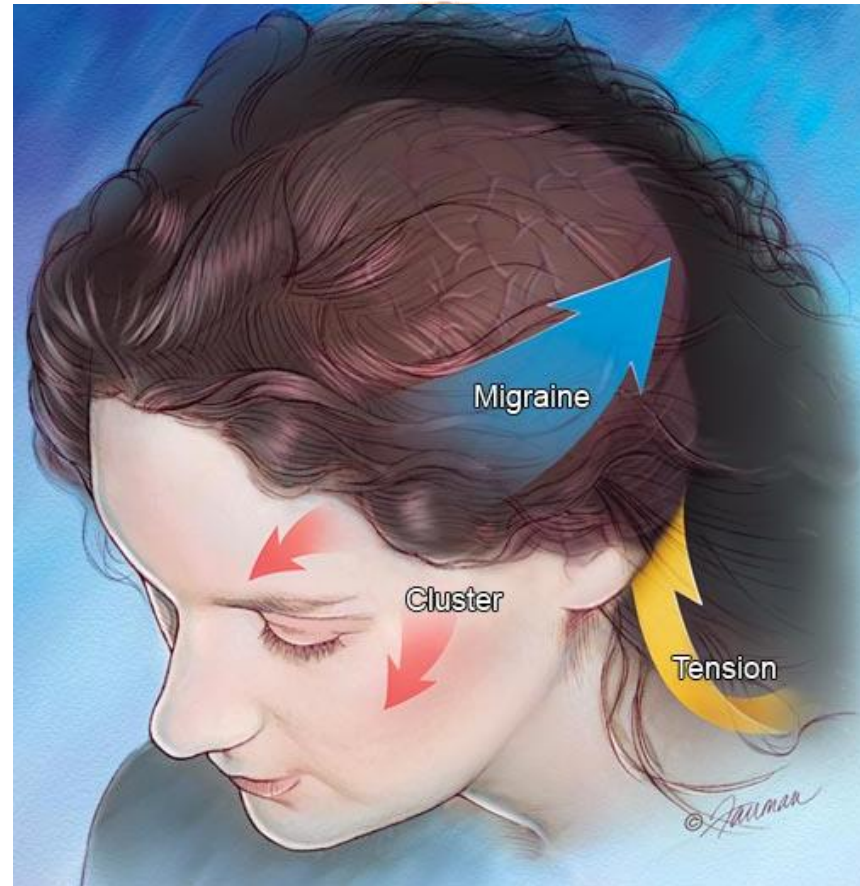
- 25 year old female, healthy
- C/C:
 - “Clicking, popping, locking, painful TMJ”
 - “Tender mastication muscles”
 - “constant **headaches**”
 - “can’t open wide”
 - “ front teeth don’t touch”
 - “nightguard does not really help”
 - The back of my head and my neck are sore

TMD Pain Cycle



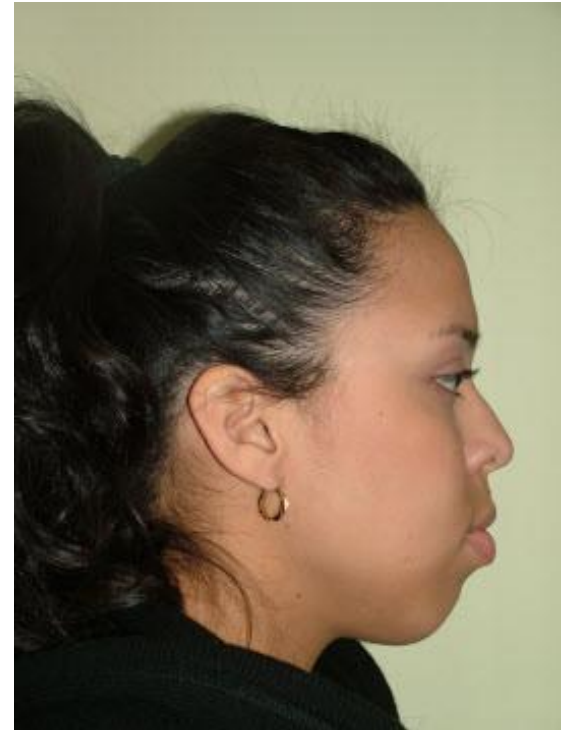
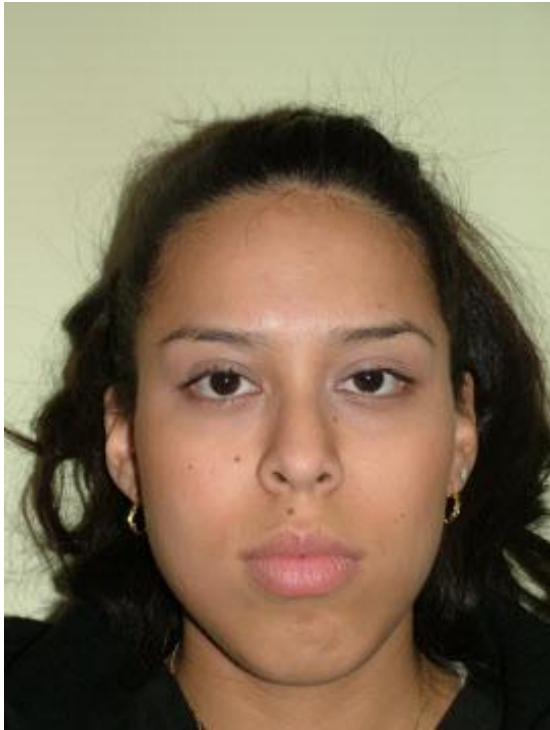
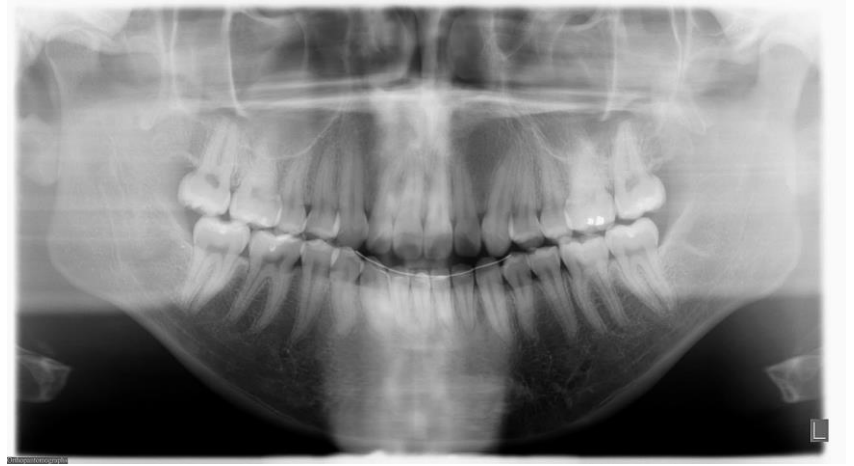
SYMPTOMS OF TMD

- Tension Headaches, dizziness, chronic facial pain
- Migraines
- Tooth pain
- Limited jaw opening
- Grinding of teeth
- Neck ache
- Back ache



“TMJ is subject to most complex vector forces arising from parafunction”

Dr. Goodheart



Occlusion is ONE of the contributing factors in TMD

- Canine protected
- Mutually protected or Group Function
- Occlusal tripod







Bite pads



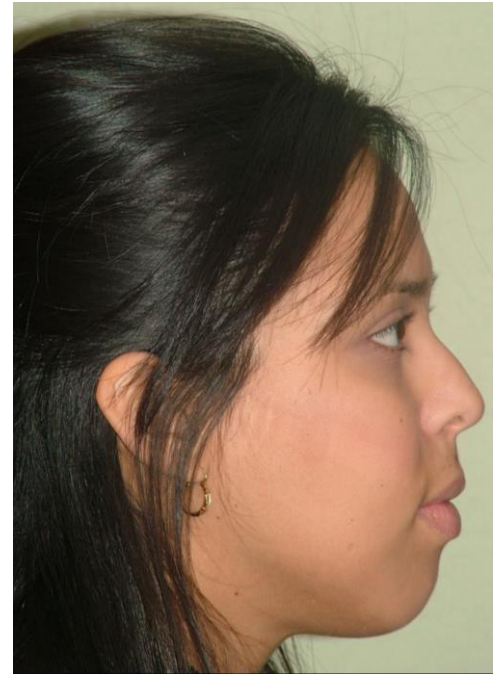
12 months into treatment...



18 months into treatment...

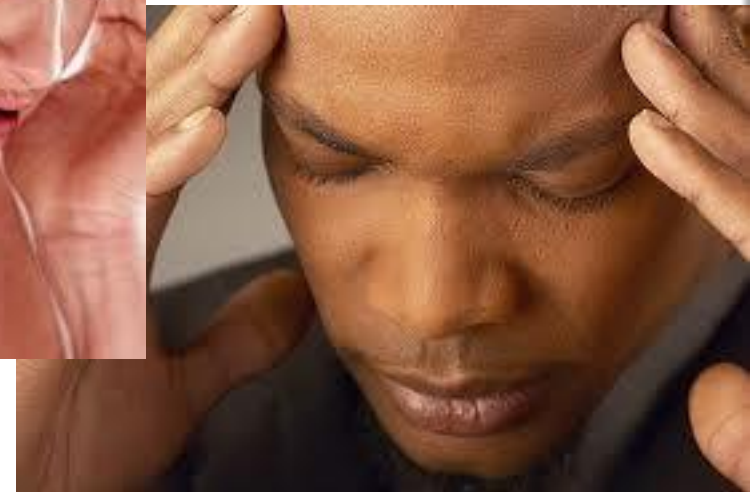


24 months Treatment Completed



Perfect Occlusion, BUT...

- Jaw Muscles still sore
- Still suffering from headaches...

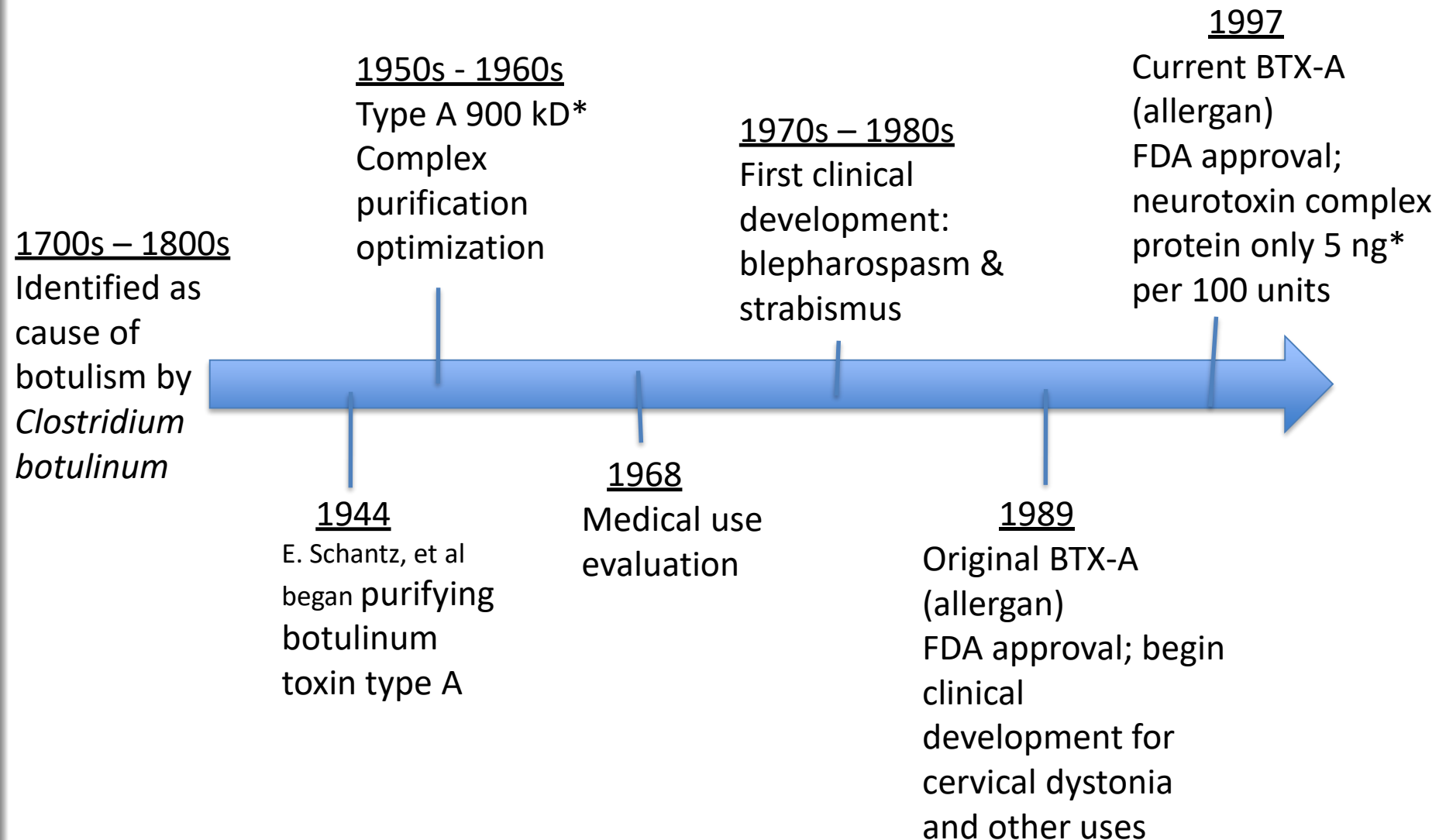


BOTOX

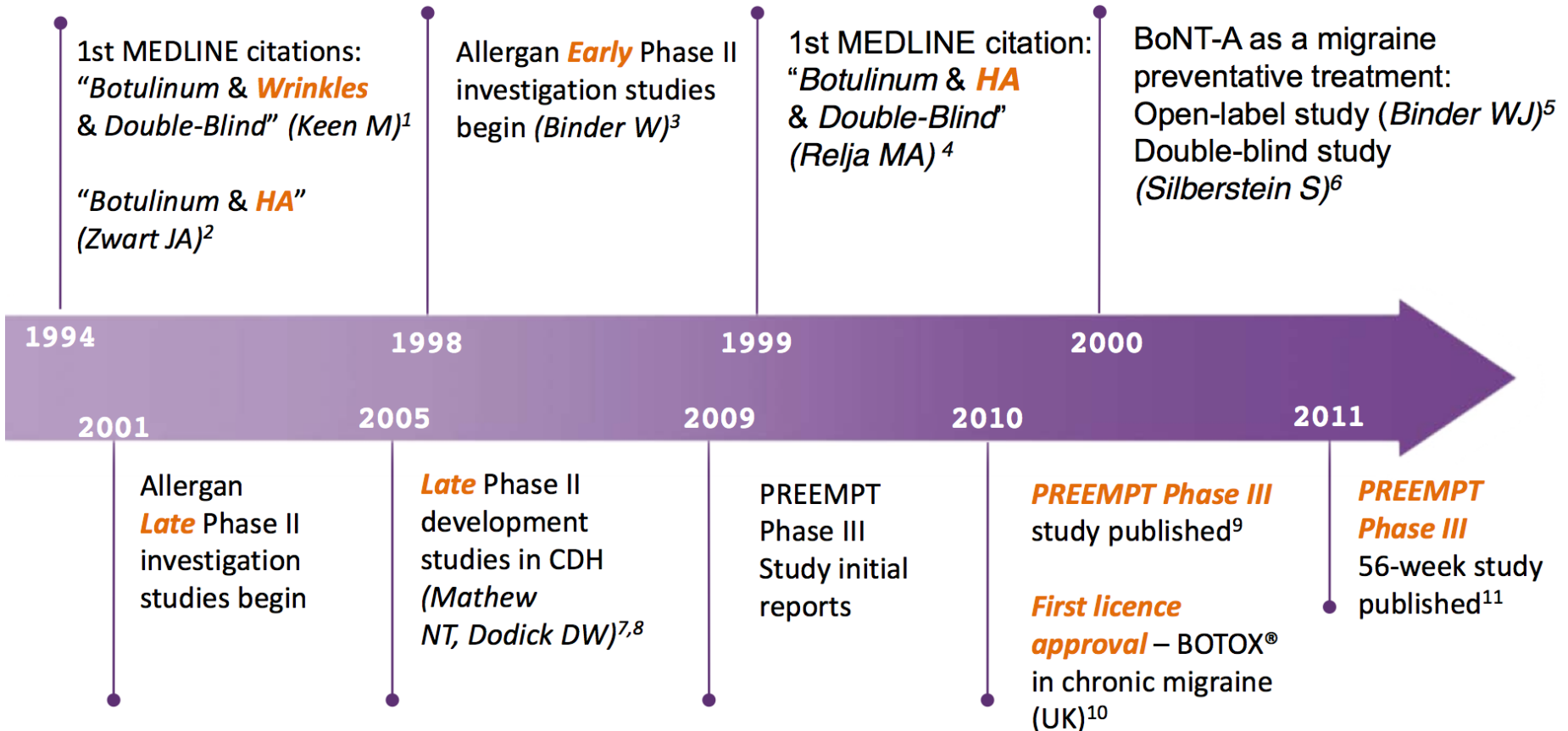
Botulinum (BotN) toxin is a polypeptide produced by the gram-positive anaerobic bacterium *Clostridium botulinum*

Development of Therapeutic & Cosmetic Botox

Chronology of Development and Clinical Uses



Botox in Chronic Migraines



1. Keen M et al. *Plast Reconstr Surg* 1994;94:94–9. 2. Zwart JA et al. *Headache* 1994;34:458–62.
3. Binder W et al. *Mov Disord* 1998;13(Suppl 2):241. 4. Relja MA et al. *Neurology* 1999;52(Suppl 2):A203 P03.035.
5. Binder WJ et al. *Otolaryngol Head Neck Surg* 2000;123:669–76. 6. Silberstein S et al. *Headache* 2000;40:445–50.
7. Mathew NT et al. *Headache* 2005;45:293–07. 8. Dodick DW et al. *Headache* 2005;45:315–24.
9. Dodick DW et al. *Headache* 2010;50:921–36. 10. Allergan Summary of Product Characteristics. Allergan Ltd. 2011. 11. Aurora SK et al. *Headache* 2011;51:1358–73.

Why you should have confidence in Botox

- Botox[®] has been proven as a safe and effective therapy, and has been widely used for more than 25 years.
- Over the past 30 years, Botox[®] has been evaluated in more than 200 studies specific to approved indications in the US, Canada and Europe

Pharmacology and Mechanisms of Action

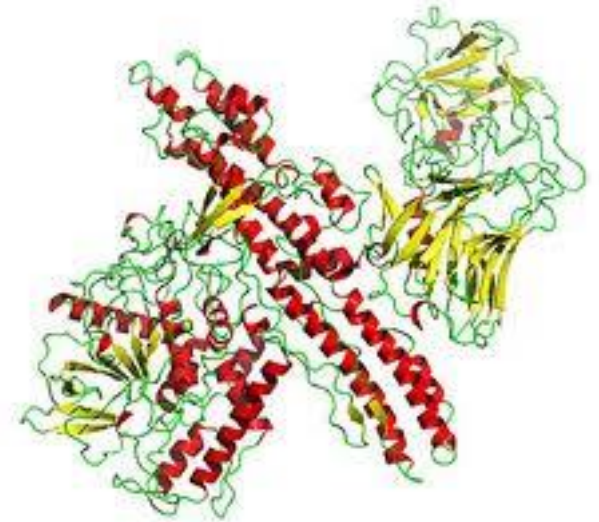
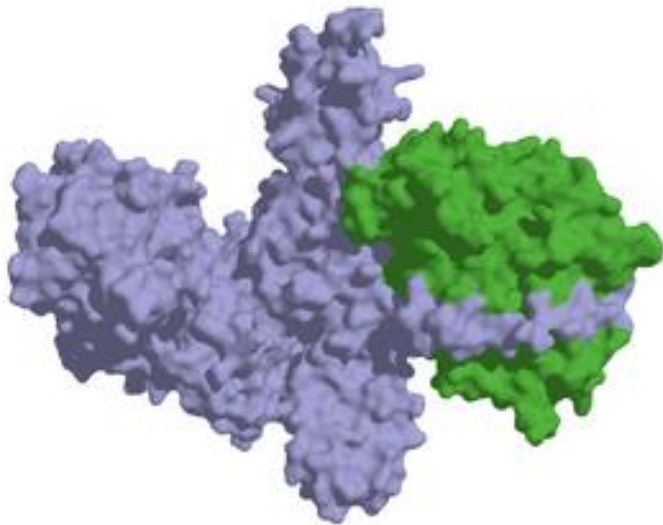
Part I

Physiological activity at the
Neuromuscular Junction

Botulinum A Molecular Structure



Botulinum Toxin Structure



Types of Neurotoxins

- All three, Botox, Xeomin and Dysport originate from *Clostridium botulinum* and are synthesized as **Botulinum Toxin type A**. Serotype A of neurotoxins share molecular structures and mechanisms of action, but exhibit important differences in distribution/diffusion patterns and risk/benefit profiles.
- Myobloc and Neurobloc neurotoxins are synthesized from ***Clostridium Botulinum type B strain (Bean strain)***. Both type A and type B block the neurotransmitter acetylcholine, but they do so by breaking up different proteins within the nerve cell.
- Serotypes D, E, F exist but have limited clinical applications at this time

Botulinum Toxin type A

- **Botox (OnabotulinumtoxinA) - Allergan**
 - **Best safety margin**
 - Protein complex of ~900 kDa
- **Dysport (AbobotulinumtoxinA) - Medicis**
 - Protein complex of ~800 kDa
 - Faster onset (2-3 days), wider area of perfusion (higher frequency of adverse effects ?)
 - Alternative to Botox resistant patients
- **Xeomin (IncobotulinumtoxinA) - Merz**
 - Botox without protective proteins – greater diffusion area, a.k.a. NAKED INJECTABLE
 - Less risk of an allergic rx due to absence of protein components

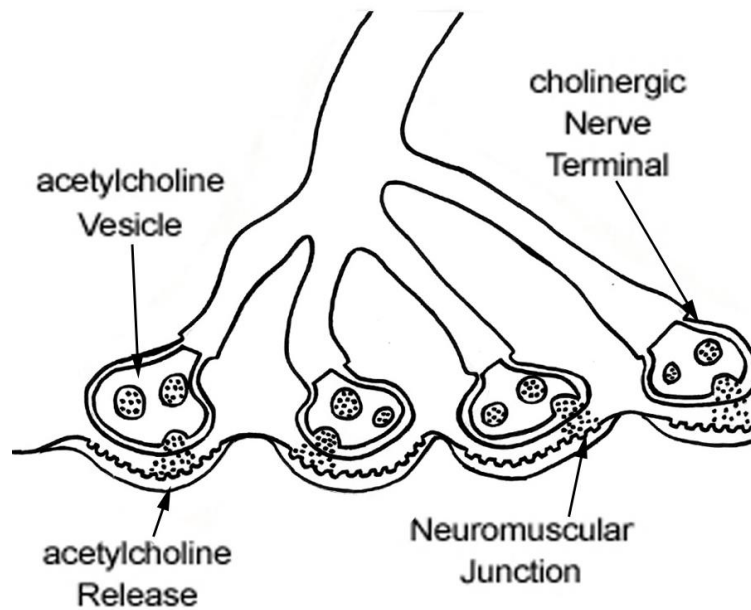
Botulinum Toxin type B

- **MyoBloc and Neurobloc (RimabotulinumtoxinB) – Solstice Neuroscience**
 - Not approved for use in Canada
 - Greater area of perfusion, Shorter duration, Burning sensation upon injection
 - BTX-B is often the only effective BTX available when patients develop antibodies to type A.

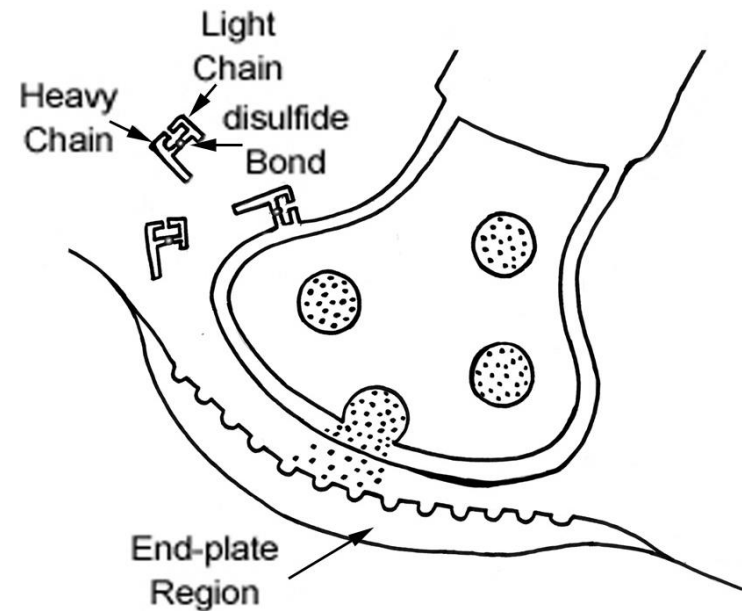
Mechanism of Action: (Neuromuscular Junction)

1st STEP/4 key steps

Toxin bonds to specific receptors on the surface of the presynaptic cell surface. ***Time line : 30 minutes****



Normally functioning synapse

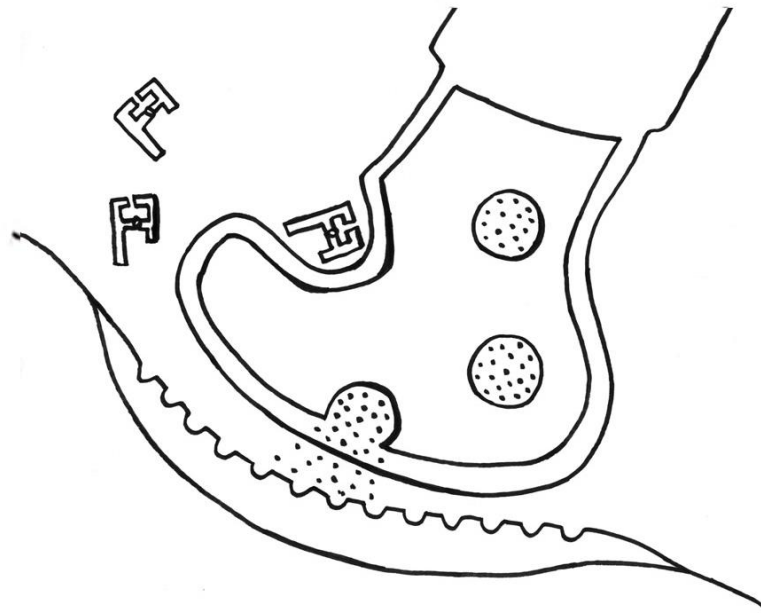


The binding step

Mechanism of Action: (Neuromuscular Junction)

2ND STEP/4 key steps

The toxin-receptor complex is internalized inside the nerve terminal.



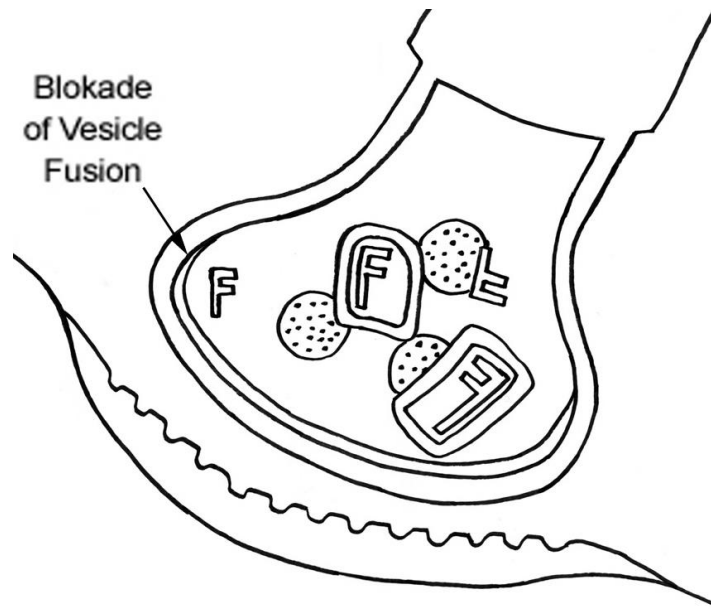
Internalization/Engulfing step

Mechanism of Action: (**Neuromuscular Junction**)

3rd STEP/4 key steps

Translocation – the light chain of the toxin molecule is released into the cytoplasm of the nerve terminal.

Timeline: 2-4 hours*



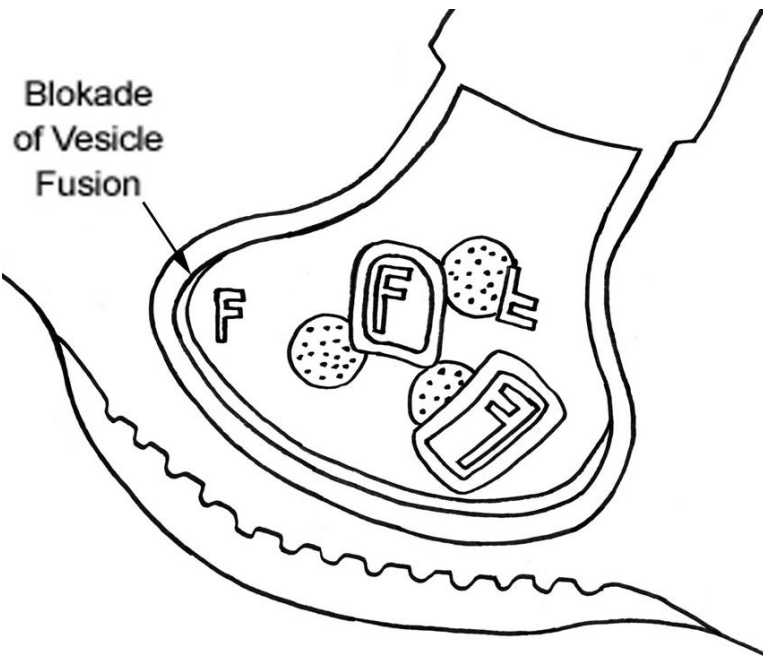
The translocation step

Mechanism of Action: (Neuromuscular Junction)

4th STEP/4 key steps

The light chain of serotypes A inhibits acetylcholine release by cleaving a cytoplasmic protein (SNAP-25) required for the docking of acetylcholine vesicles on the inner side of the nerve terminal plasma membrane. Botulinum toxin type B affects the VAMP/synaptobrevin protein.

Timeline: 3-12 days for maximum blockade to occur*



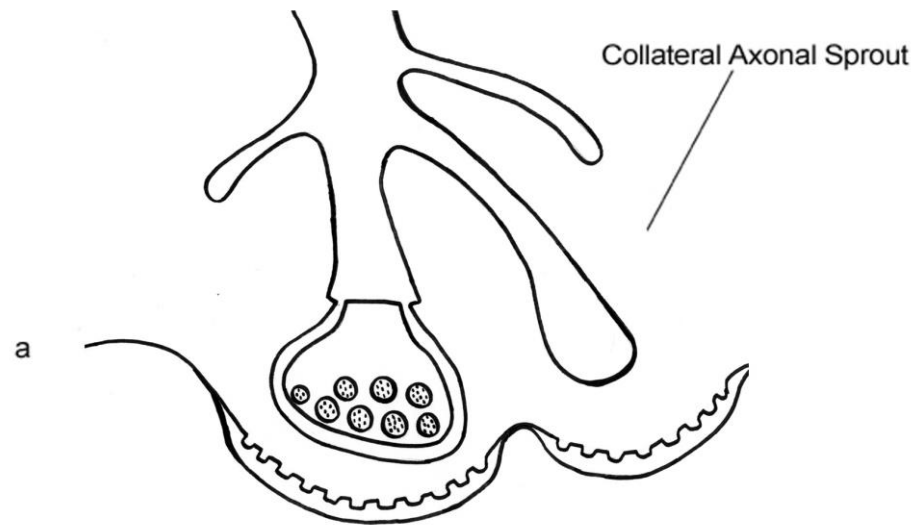
The blockade-the neurotransmitter not released and the nerve is paralyzed

Mechanism of Recovery: (Neuromuscular Junction)

1st STEP/2 key steps

After an injection of BOTOX[®], the axon terminal proliferates external collateral sprouts.

This occurs 3-4months after the initial injection*



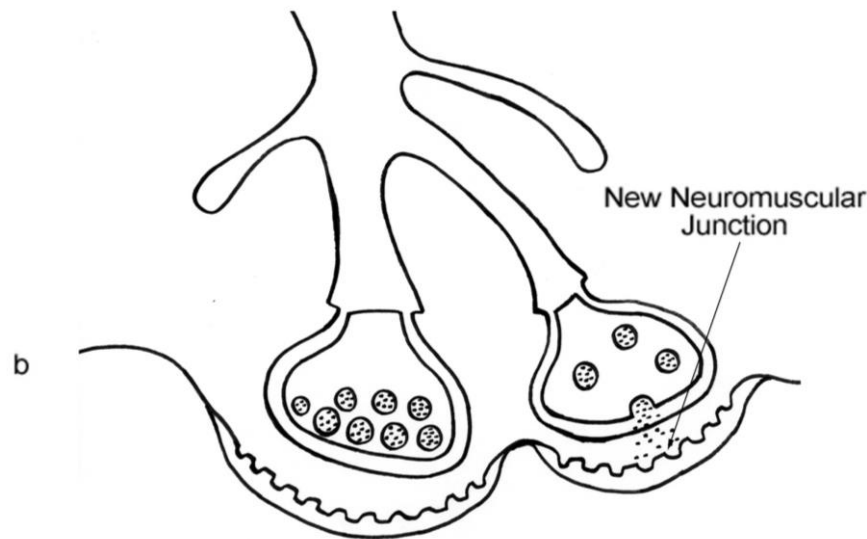
Sprouting of collateral axons

Mechanism of Recovery: (**Neuromuscular Junction**)

2nd STEP/2 key steps

Sprouts subsequently retract and are eliminated; parent terminal is re-established. (Bendetto AV, 1999)

**** *Clinical Significance - Resistance Vs. Immunity***



Development of a new neuromuscular junction



BOTOX® at **Neuromuscular Junction**- Clinical Effects on TMD/Clenching/Tension headaches

- Decrease in pain
- Decrease in teeth sensitivity
- Decrease in clenching intensity (force)
- Decrease in clenching duration (time)
- Decrease in number of episodes

NO LIMITATION OF CHEWING FUNCTION

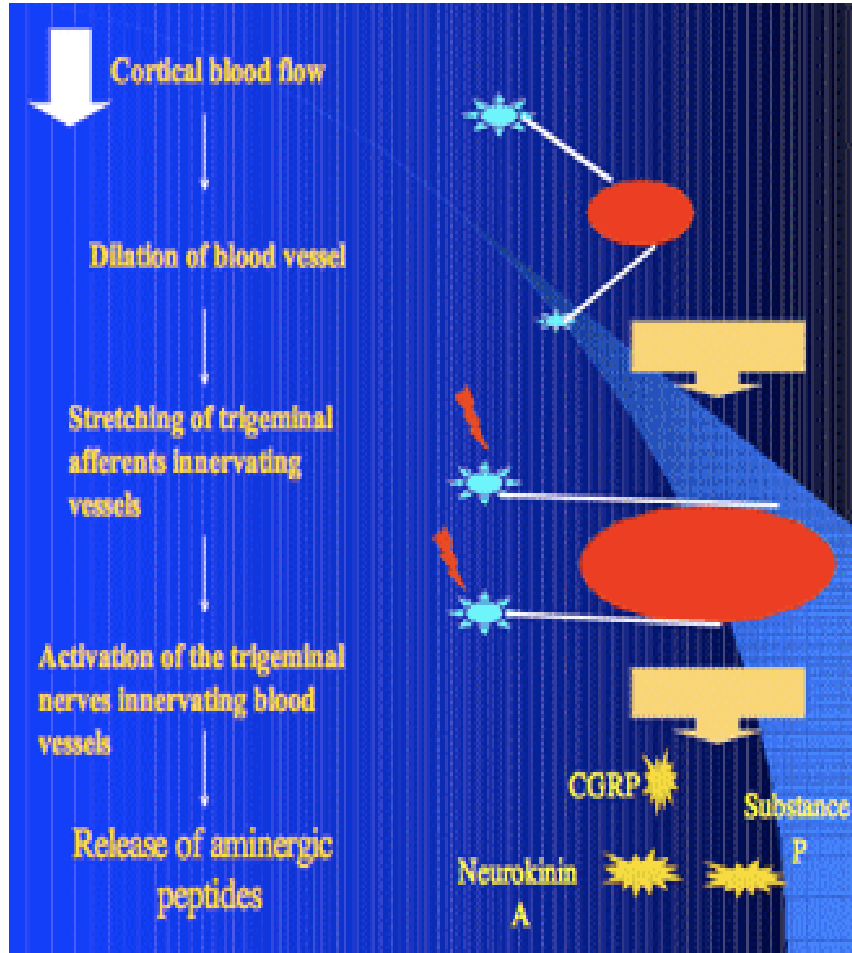
Pharmacology and Mechanisms of Action

Part II

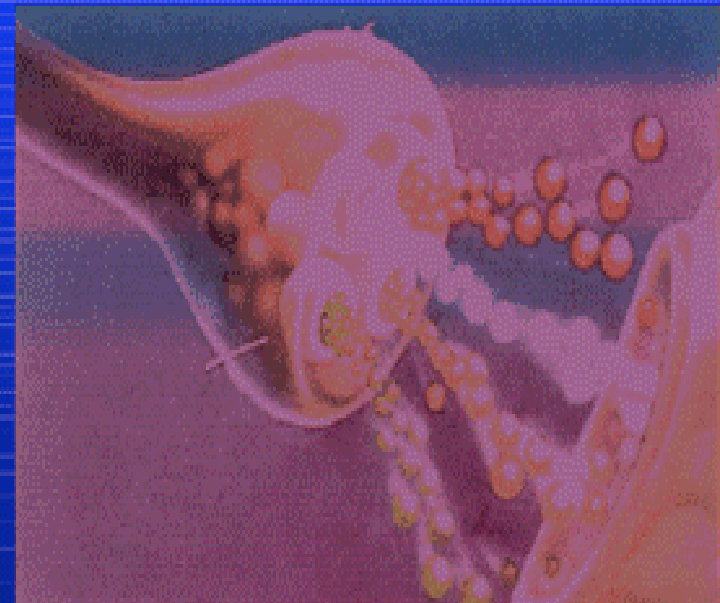
Physiological effects on
Peripheral Nociception Blockade

Neurogenic Pathway of Migraine Control

Pathophysiology of a migraine attack



Release of neuroinflammatory, nociceptive, and vasoactive peptides: Substance P, calcitonin gene-related peptide (CGRP), and neurokinin A from perivascular nerve bundles stimulates the release of glutamate



Hypothesis: Onabotulinum toxin A in Anti-nociception

- Animal and human studies indicate that BoTN inhibits the release of nociceptive mediators:
 - CGRP,
 - Glutamate,
 - substance P

cGRP = calcitonin gene-related peptide.

1. Aoki KR. Headache. 2003;43(suppl 1):S9-S15. 2. Aoki KR. Neurotoxicology. 2005;26:785-793.
3. Cui M. Pain. 2004;107:125-133. 4. Durham PL. Headache. 2004;44:35-42.
5. Gazerani P. Pain. 2006;122:315-325. 6. Gazerani P. Pain. 2009;141:60-69.

Hypothesis: Onabotulinum toxin A in Anti-nociception

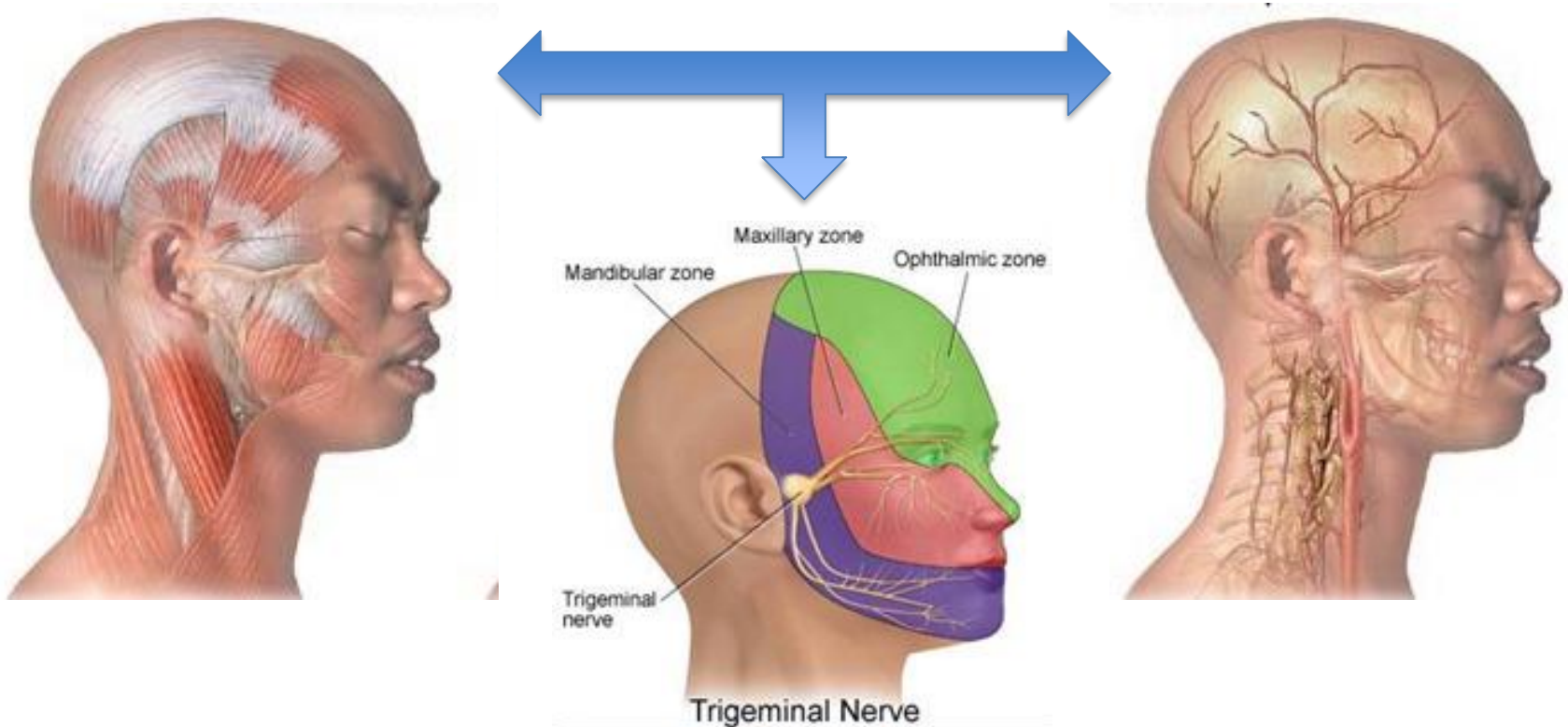
- Blocking the release of these neurotransmitters may inhibit the sensitization of peripheral nociceptive nerve fibers
- As a result the pain signals are not being relayed to the central nervous system = indirect blockade

cGRP = calcitonin gene-related peptide.

1. Aoki KR. Headache. 2003;43(suppl 1):S9-S15. 2. Aoki KR. Neurotoxicology. 2005;26:785-793.
3. Cui M. Pain. 2004;107:125-133. 4. Durham PL. Headache. 2004;44:35-42.
5. Gazerani P. Pain. 2006;122:315-325. 6. Gazerani P. Pain. 2009;141:60-69.

Dual Role of BotN in Tension Headache AND Migraine relief

- BotN toxins can reach nerve terminals because there is no myelin around the pain nerve fibers.



Can ALL headaches be helped???

Sinus:
pain is usually behind the forehead and/or cheekbones



Cluster:
pain is in and around one eye



Tension:
pain is like a band squeezing the head



Migraine:
pain, nausea and visual changes are typical of classic form



Diagnosis

Patient selection for Botox Injections

Headaches

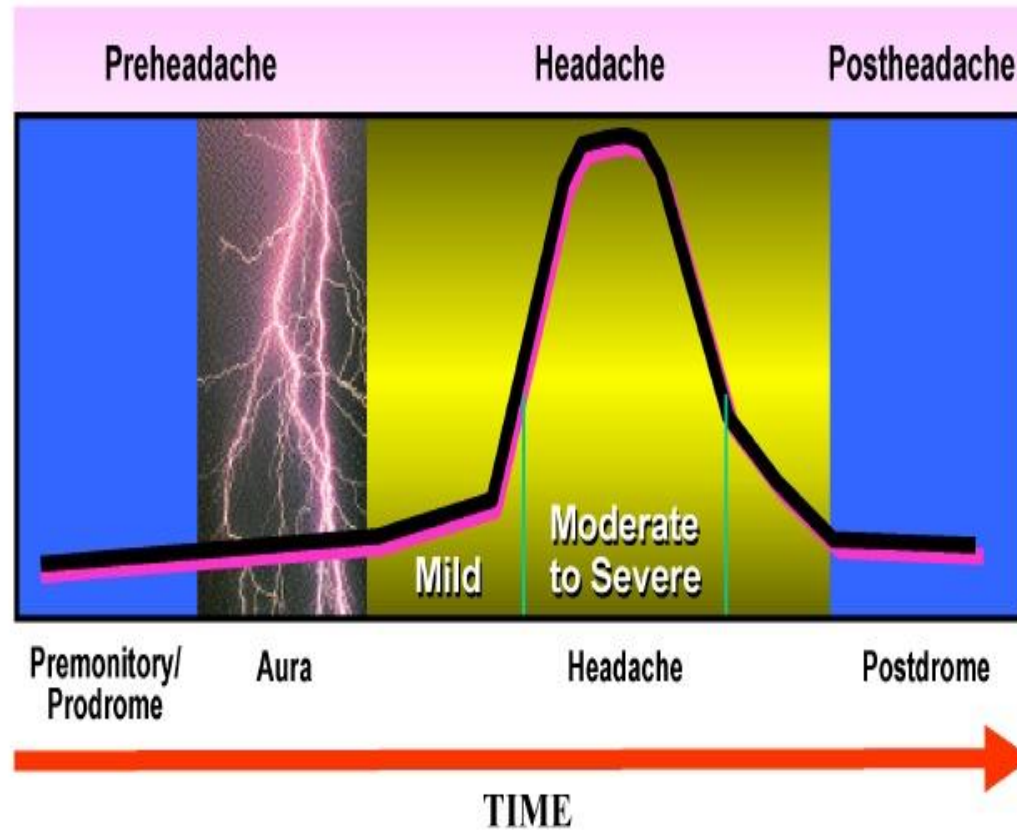
- Tension-type headaches
- Chronic daily headaches
- Secondary headaches
- Medication Overuse headaches
- Cluster headaches
- Sinus headaches
- Migraine headaches
- Masseter/Temporalis tightness & TMD symptoms* (off label)



Migraine Headaches

- Common Migraine
- Classic Migraine
- Chronic Migraine
- Basilar migraine
- Complicated migraine
- Ocular migraine
- Abdominal migraine

The Stages of a Migraine Attack



Adapted from Cady. *Headache Q.* 2001;12(suppl 1):3-8, with permission.

Genetics

- 8% of children, 6% of men and 18% of women
- Family history in 80% of migraine sufferers
- Chromosome 19 for Familial Hemiplegic Migraine

Migraine headaches

- Nausea and/or vomiting
- Photophobia and phonophobia
- Sensitivity to smell
- Allodynia
- Throbbing pain
- Unilateral pain

Triggers

- Cured, smoked or deli meat
- Aged cheeses
- Avocado, guacamole, bananas, dried fruit
- Chocolate
- MSG
- Aspartame
- Beer and wine
- Caffeine

RDCSO Guidelines

“On its own, the diagnosis and management of a tension-type and/or migraine headache is not considered within the scope of the practice of dentistry because other causes of headache must be considered and ruled out. When both a tension-type headache and myofascial pain appear simultaneously, it is certainly reasonable for a dentist to be involved in the patient's management.”

****Myofacial pain syndrome might involve either a single muscle or a muscle group.**

Diagnostic Criteria* for ***Migraine***** treatment with BOTOX injections

- history of migraine
- 18 years of age or older
- 15 days or more per month
- Lasting at least 4 hrs each time
- Preventive medications were tried and ineffective
- No contraindications

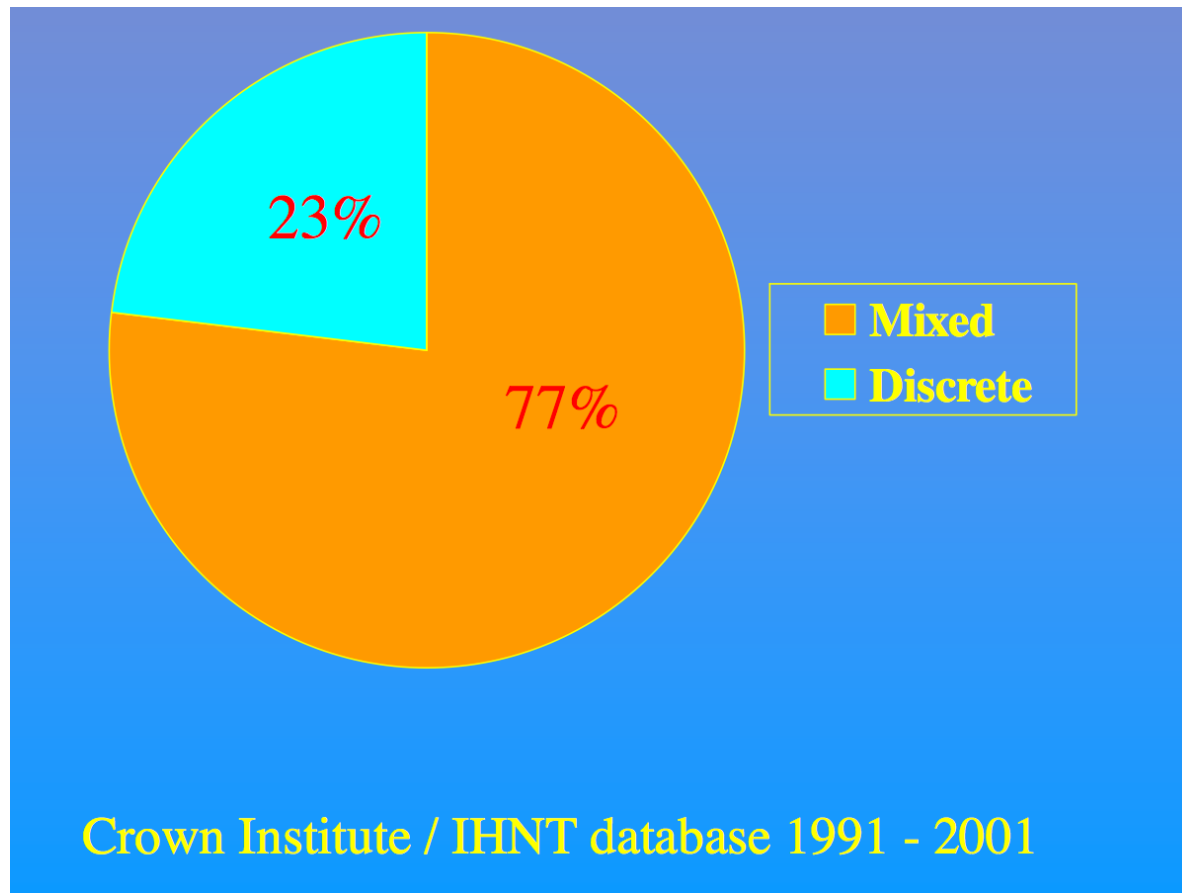
****requirements for Drug Plan approval for Botox administration***

*****true migraine should be diagnosed by an MD***

Overlap in Painful Conditions

J Orofac Pain. 2011 Summer; 25(3): 190–198.

Temporomandibular Joint and Muscle Disorder (TMJMD) - type pain and Co-morbid Pains in a National US Sample



Temporomandibular disorders and migraine chronification.

Bevilaqua Grossi D1, Lipton RB, Bigal ME. Curr Pain Headache Rep. 2009 Aug;13(4):314-8.

- TMD is a co-morbidity of migraine
- TMD may cause headaches per se, worsen existent primary headaches, and add to the burden of headache disorders
- TMD is a potential factor to induce chronic migraine

Muscle Tension, TMD, and Migraine inter - relationship

- Many times people under stress will clench or grind their teeth, which frequently (but not always) is the result of a misaligned bite or is exacerbated by occlusal interferences
- ***Chronic grinding and clenching exacerbates migraines***
- Tension headaches are almost always accompanied by spasms of the muscles which help to open and close the jaw = ***TMD***

Simplified Classification of TMJ Disorders

- Muscle Disorders
- Joint Sounds
- Joint Locking
- Arthritis

Muscle Disorders

- Myalgia ----->
- Myofascial Pain
- Spasm/Trismus
- Myositis

Localized muscle tenderness to palpation with no referral to remote sites.



Muscle Disorders

- Myalgia

- Myofascial Pain ----->

Muscle tenderness to palpation with referral to remote sites.

- Spasm/Trismus

- Myositis



Muscle Disorders

- Myalgia
- Myofascial Pain
- Spasm/Trismus -----> Painful inhibition of muscle activity
- Myositis



Muscle Disorders

- Myalgia
- Myofascial Pain
- Spasm/Trismus
- Myositis ----->

A sterile, systematic or bacterially induced inflammatory muscle disorder



Muscle Tension Headaches



- the most common of all headache types
- afflicts 75% of all headache sufferers
- 90% of all adults have had at least one tension headache per week

American Council for Headaches

Muscle Tension Headaches – Symptoms

- kind of steady ache (as opposed to a throb)
- forms a tight band around the forehead, affecting both sides of the head
- usually occur in the front of the head, radiating to the top of the skull, the back of the skull, neck and shoulders



Botulinum Toxin Type A in the Prophylactic Treatment of Chronic Tension-Type Headache: A Multicentre, Double-Blind, Randomized, Placebo-Controlled, Parallel-Group Study

[SD Silberstein¹](#), [H Göbel²](#), [R Jensen³](#), [AH Elkind⁴](#), [R DeGryse⁵](#), [JMCM Walcott⁵](#) and [C Turkel⁵](#)

Cephalalgia Volume 26, Issue 7, pp 790–800, July 2006

- N=300 (62.3% female; mean age 42.6 years)
- All patients had $\geq 50\%$ decrease in tension headache days vs. placebo ($P \leq 0.024$)
- Most treatment-related adverse events were mild or moderate, and transient

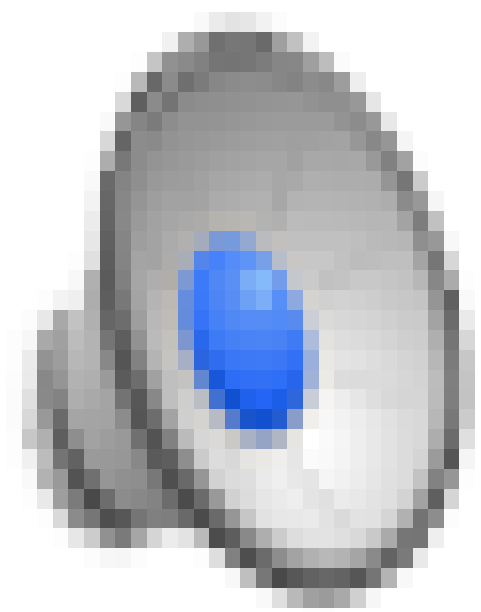
**Botox for Head Pain, Largest Study Yet. A report from the American
Headache Society Annual Scientific Meeting
Updated: July 9, 2006**

***80% (217) said their head pain episodes were less frequent,
less intense or both.***

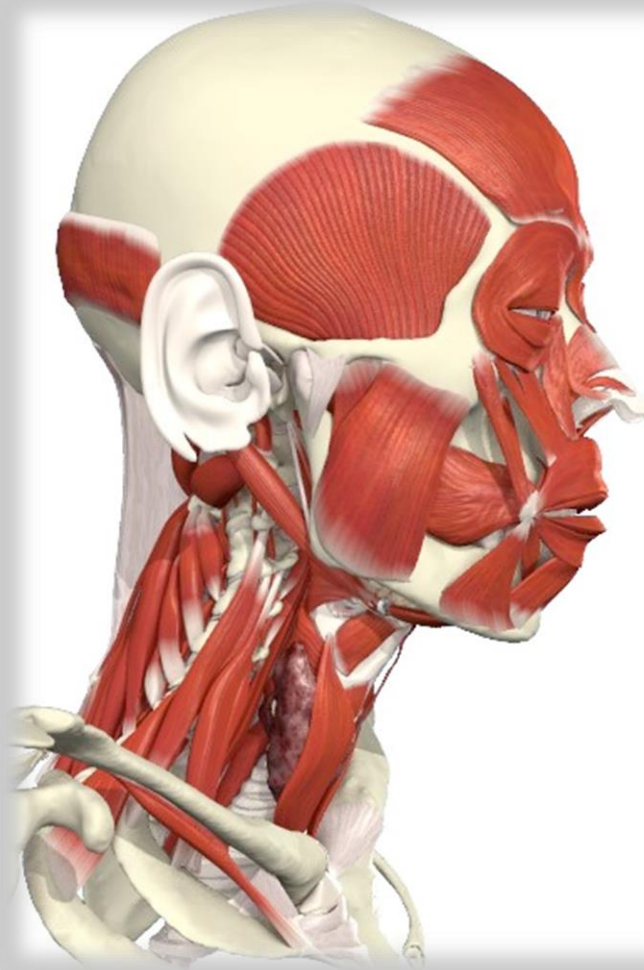
- 60.5% (164) reported good to excellent pain relief
- 19.5% (53) reported some pain relief.
- 20% (54) reported no relief

Testimonials

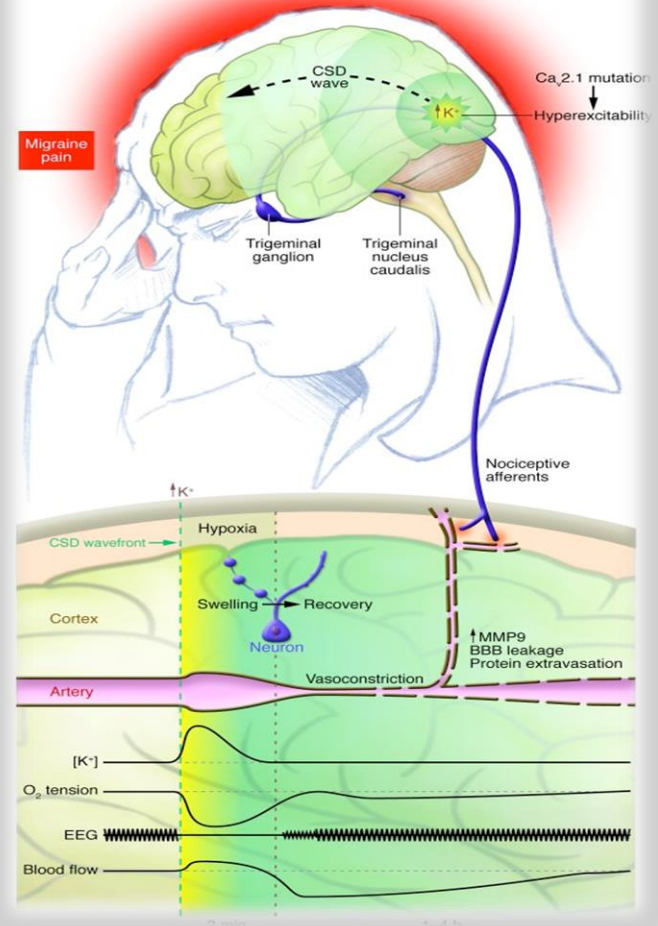
- *"It was a life-changing experience for me being able to wake up, go throughout my day and go to bed without headaches, which in return for me means enjoying being a wife and a mom ... without missing a beat. Best of all no more medicines," says Jade Battah.*
- *"It is an immediate relief from these agonizing headaches that systemic migraine medications wouldn't even touch at times," says Dr. Vi Maievschi.*
- *Daphne's video testimonial.*



Types of Headaches



Muscular pathway
(Tension Headaches)



Neurovascular/Neurogenic pathway
(Migraines)

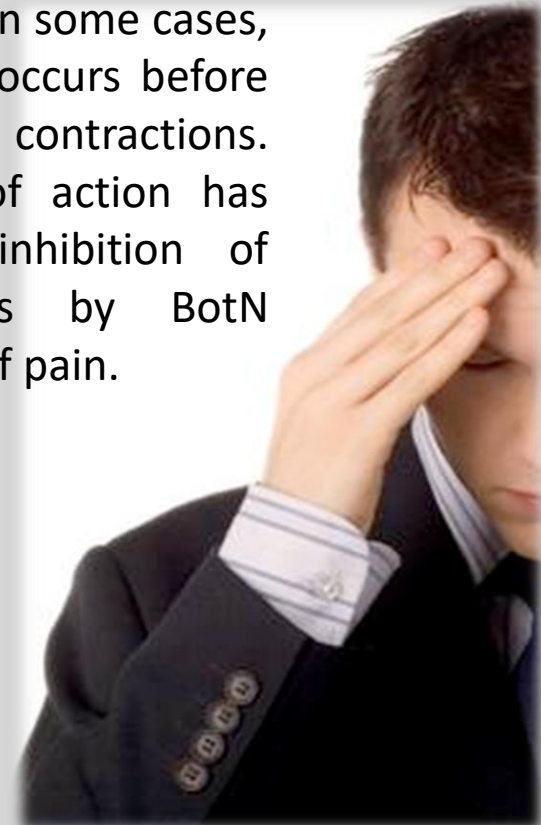
Types of Headaches

Muscular pathway (Tension Headaches)

BotN inhibits the release of the neurotransmitter, acetylcholine, at the neuromuscular junction thereby inhibiting striated muscle contractions.

Neurovascular/Neurogenic pathway (Migraines)

It has been noted that in some cases, the reduction of pain occurs before the decrease in muscle contractions. Another mechanism of action has been hypothesized: inhibition of nociceptive mediators by BotN blocks the perception of pain.



Botox Applications

- Botox is currently on OFF label indication for Tension Headache and TMJ symptom treatment
- Botox is and ON label indication for Chronic Migraine treatment

Treatment Alternatives

Botox NOT the first line of Treatment

Current Long-Term Management of Myogenic conditions

- Non – medical Intervention
- Holistic approach
- Medical Intervention
 - Preventive medication
 - Abortive medication
 - Non prescription medications

Non – medical Management

- Orthoses / Splints
- Orthognathic surgery
- Coronoplasty/Equilibration
- Removable Overlay Partial
- Reconstruction (Crowns/overlays over existing teeth regardless of condition)
- Orthodontics (Braces)

Over-estimated
Misinterpretation
Raphel K

treatment
of
Marbach

success
JJ:

of
clinical
JADA

splint
1997

therapy:
observations
128:73-80

- Spontaneous remission
- Placebo effect of treatment
- Failure to consider treatment dropout
- Poor treatment compliance



Holistic Treatments

- Accupuncture
- Yoga
- Diet modification
- Butterbur, Magnesium, Riboflavin, and Co-enzyme Q10
- Exercise
- Biofeedback
- Relaxation therapy

Preventive medication

- Calcium channel and Beta blockers
- Tricyclic Anti-depressants: Nortriptyline, Amitriptyline (10-25 mg per day)
 - Low Dose tricyclic antidepressant therapy
 - Effective at 20-30 % of regularly prescribed dosage
- Anti-epileptic medications: Topiramate, Valproic acid, gabapentin
 - ***Multiple Side- EFFECTS
- BOTOX injections

Abortive medications

- Triptans: Sumatriptan, rizatriptan, zolmitriptan, etc.
- Migranal nasal spray
- Midrin
- Fioricet
- OTC's: Ibuprofen, acetaminophen, Naproxyn, Aspirin

BoNT NOT the First Line of Treatment

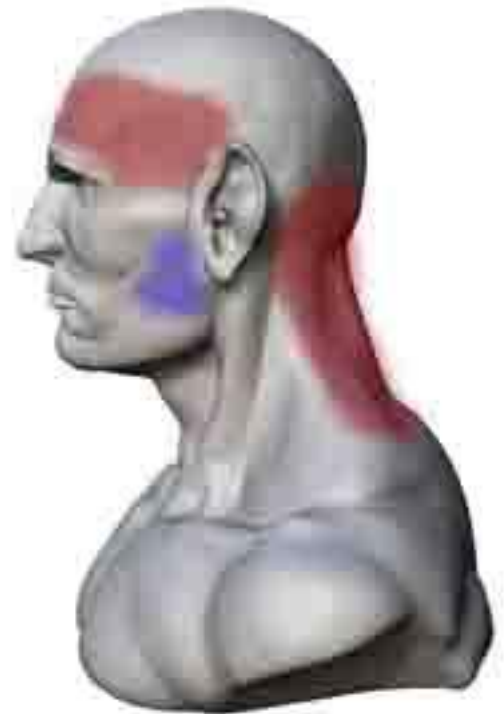
- ALL CONVENTIONAL REVERSIBLE THERAPEUTIC OPTIONS HAVE BEEN EXHAUSTED

OR

- PATIENT DOES NOT DESIRE CONVENTIONAL TREATMENT

Why Botox is Different

- Non-systemic – Botox®
- Administered directly into the desired site of action
- Focal therapy
- No unwanted side effects:
 - No GI upset
 - No fatigue
 - No confusion
 - No depression
 - No liver toxicity



Clinical Handling of Botox

Botox dilutions and various
applications

Types of Botox

Cosmetic Botox

- used to smooth away wrinkles
- ideal for individuals ages of 18 to 65



Therapeutic Botox

- used to treat excessive sweating, upper limb spasticity, muscular eye issues
- tension and migraine(?) headaches



AUTHENTIC BOTOX

- Look for the hologram “Allergan”
- Authentic BotN should effervesce upon dilution
- Pricing - too good to be true
- Excessive dilution of the product



BOTOX[®] Packaging and Storage

- Botox[®] is shipped by Allergan frozen, on dry ice. Unopened Botox[®] should be stored at a refrigeration level of 0-8°C or at $\leq -5^{\circ}\text{C}$.
- The Expiration date is typically 2 years from shipment date.
- Botulinum Toxin Type A (Botox[®]) is fragile and easily denatured toxin. Do not store in refrigerator door.
- Store reconstituted product at 0°C to 8°C in refrigerator.

BOTOX[®] Packaging and Storage

- BOTOX[®] Cosmetic should be clear, colorless and free of particulate matter.
- Botox[®] should be reconstituted just prior to use. Allergan continues to recommend non-preserved 0.9% Saline to dilute the toxin
- If non-preserved is used, Botox[®] should be used in 24 hours – the official Allergan position
- Most practitioners are using preserved bacteriostatic saline and with proper storage, it can be used up to 4 weeks

Preparation of Botox solution

Supplies needed:

- 1) 22 gauge 1.5" needle
 - 2) 5ml syringe or 1ml syringe
 - 3) 31 ½ gauge 5/16 needle on a 1ml tuberculin syringe
 - 4) 30 gauge ½" needle
 - 5) 1ml syringe
- Reconstitution
- Aesthetic/Tender Areas
- Large/deep Muscles



Preparation of Botox solution

- DRAW 4 ML OF PRESERVED SALINE INTO A 5CC SYRINGE WITH A 1.5 INCH 22 GAUGE NEEDLE FOR 100 UNIT VIAL
- DATE AND SAVE THE REST OF THE 10ML JAR FOR UP TO 10 DAYS

Preparation of Botox solution

- INJECT BOTOX VIAL DEAD CENTER OF DIAPHRAGM
- VACUUM PULLS SALINE INTO VIAL
- SOLUTION EFFERVESCES UNTIL VACUUM RELEASED

Preparation of Botox solution

- FRAGILE MOLECULES
- GENTLY ROTATE VIAL
- DO NOT SHAKE VIAL

Preparation of Botox solution

- USE SAME 1.5 INCH 22 G NEEDLE TO FILL the 1cc SYRINGES. These will be used for Injections of Large/Bulky Muscles
- FOR TUBERCULIN SYRINGES, REMOVE THE RUBBER CAP AND FILL DIRECTLY FROM THE VIAL. These will be used in cosmetically sensitive areas. (Optional)

Preparation of Botox solution

- ATTACH 30 GAUGE ½ INCH NEEDLES ONTO FILLED 1cc s SYRINGES
- FILL TUBERCULIN SYRINGES DIRECTLY FROM THE BOTOX VIAL – TAKE CARE NOT TO TOUCH THE INSIDE OF THE VIAL

Botox[®] Dilution Chart

Saline Volume to Dilute Botox[®]	Units Per ml (after reconstitution, total units / 1 ml syringe)	Units Per .1ml (each gradation on the 1mm syringe)	Units in the .3ml Tuberculin Syringe after reconstitution
1.0ml	100 units	10 units	30 units
2.0ml	50 units	5 units	15 units
3.0ml	33 units	3.3 units	10 units
4.0ml Allergan recommended	25 units	2.5 units	8 units

The greater the dilution the greater the perfusion



100 U in 1 cc: 1.0 cm
spread (dime)



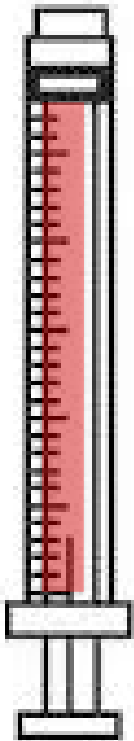
100 U in 2 cc: 1.2 cm
spread – about the
width of a nickel**



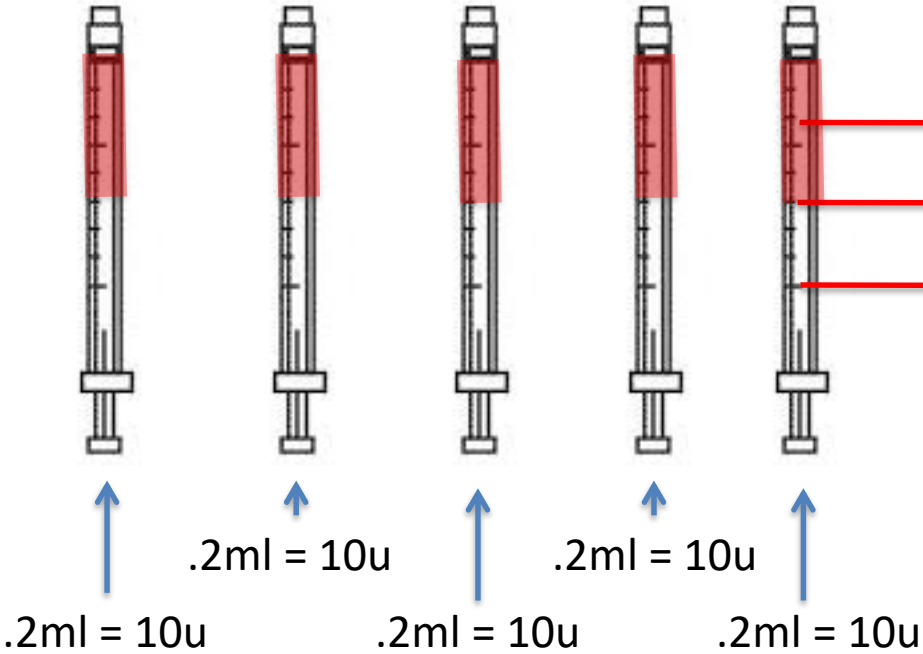
100 U in 4 cc: 1.5 cm
spread – about the
width of a quarter

Allergan recommends 2.5 mL dilution = 4u/0.1 mL

BOTOX DILUTIONS



1ml = 50 units
when
1 in 2 Dilution

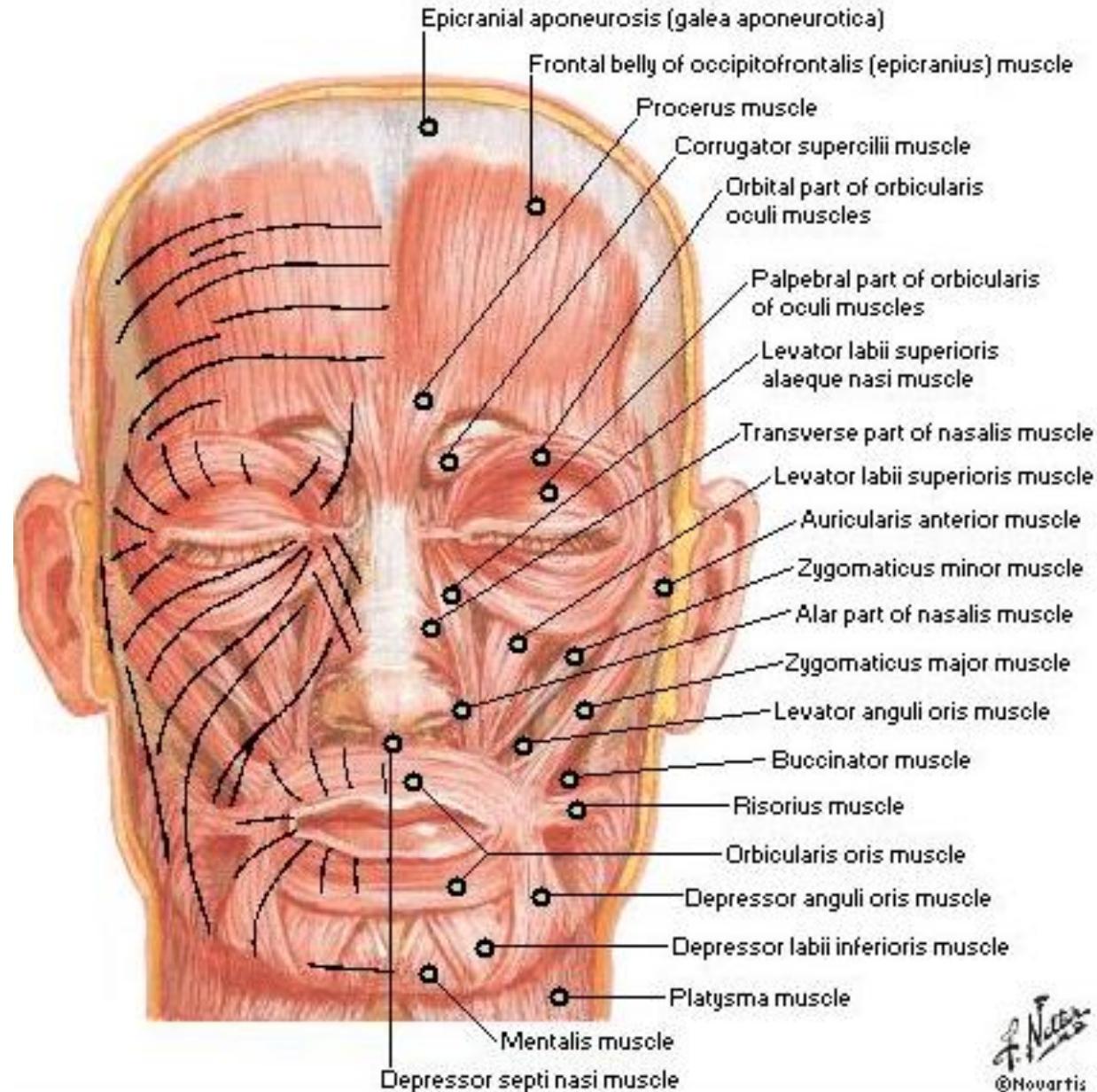


10 units
20 units
30 units

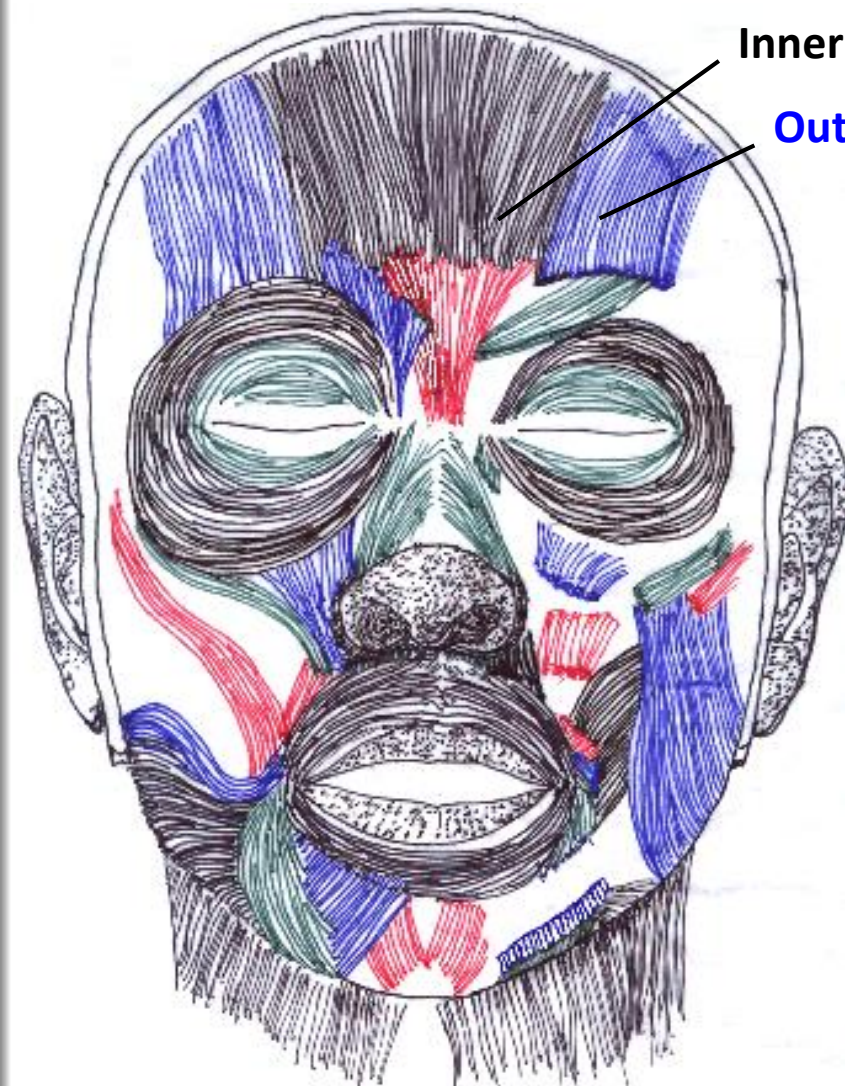
Insulin .3cc syringes filled to .2cc or 20 units

***Relevant* Head and Neck Anatomy**

Applied Anatomy Review - Facial muscles



Facial muscles - Frontalis



- Origin
 - Galea aponeurotica above the hairline
- Insertion
 - Skin near eyebrows
- Function
 - Draws forehead up
- Supply
 - CN VII (temporal)
 - Superficial temporal a.

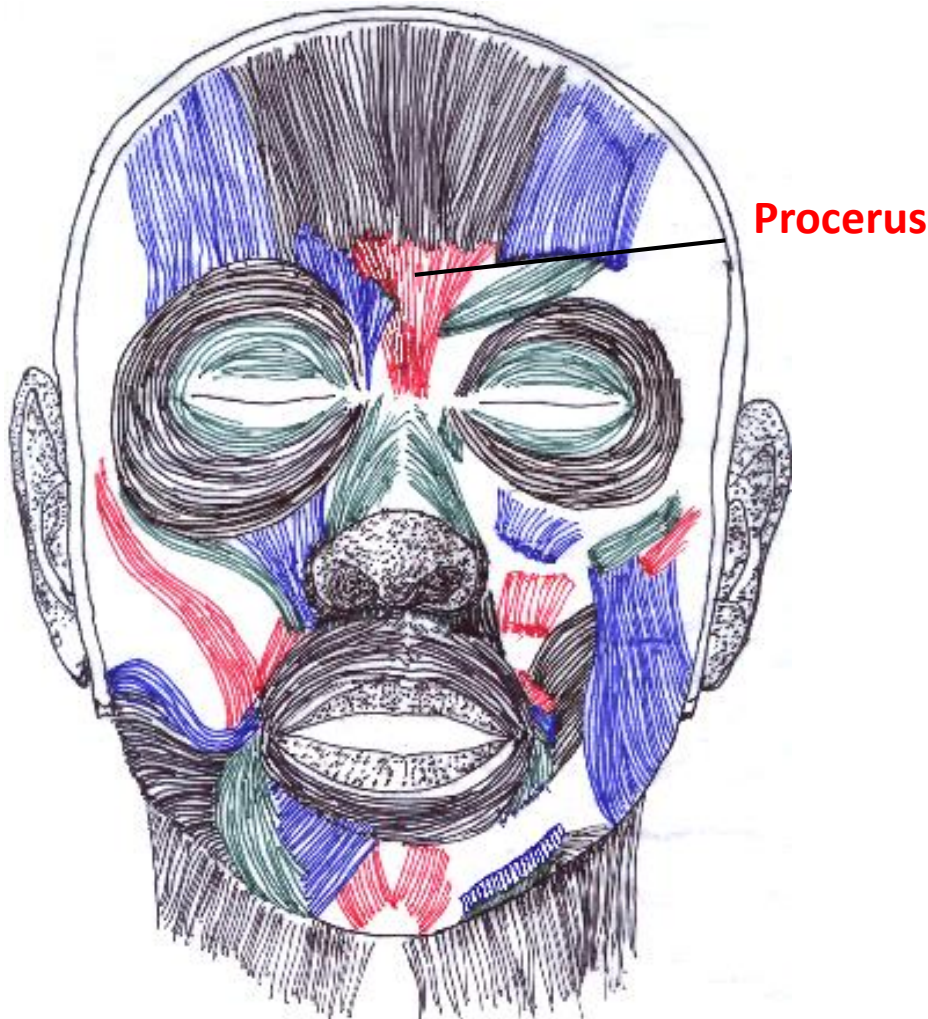
Facial muscles - Depressor supercilli



Depressor
supercilli

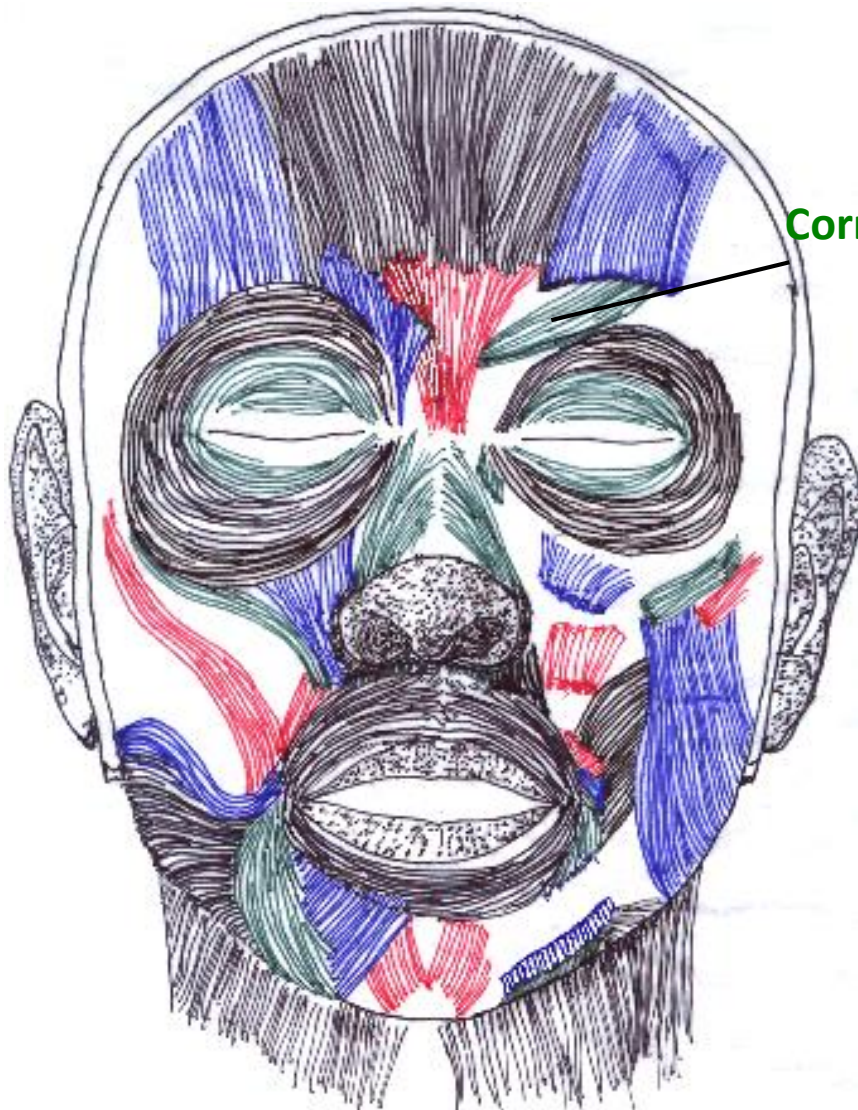
- Origin
 - Root of the nose
 - Insertion
 - Medial eyebrow
 - Function
 - Lowers inner eyebrow
 - Supply
 - CN VII
 - Facial a.
- **Watch out for the depth of your injections**

Facial muscles - Procerus



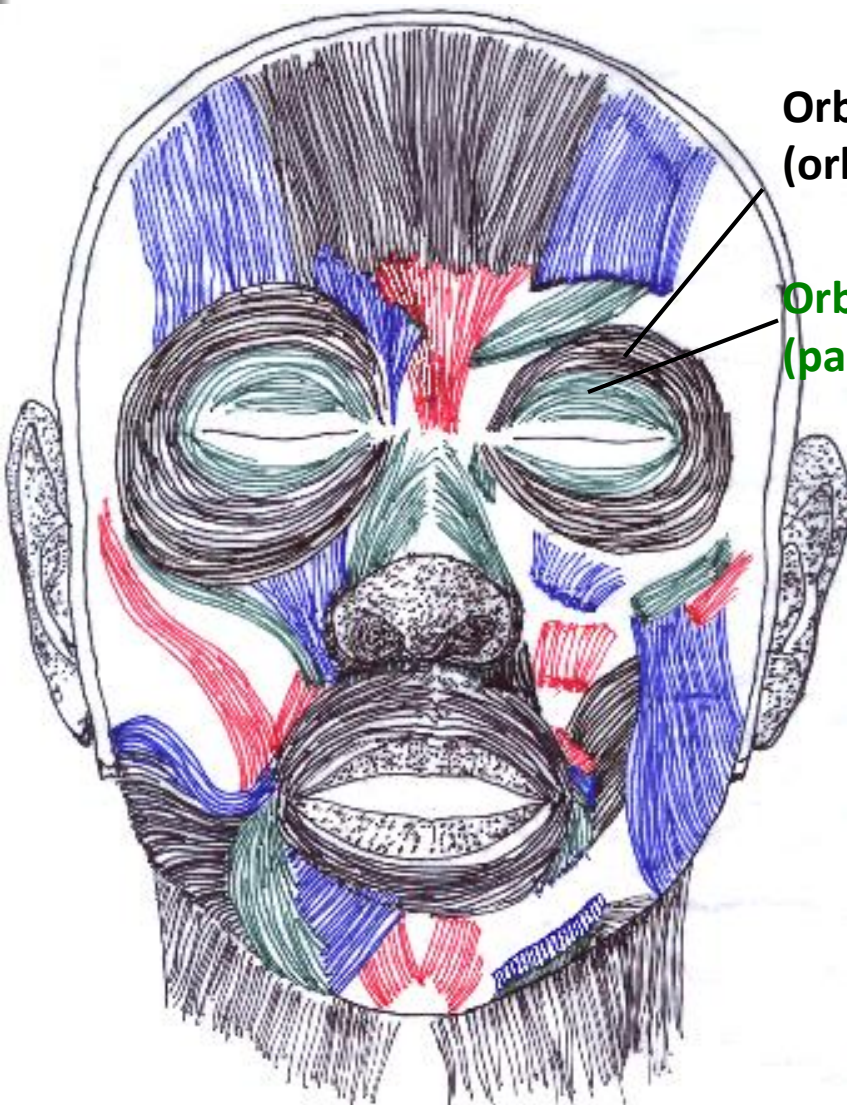
- Origin
 - Nasal bone / upper nasal cartilage
- Insertion
 - Forehead skin
- Function
 - Lowers central forehead
- Supply
 - CN VII (temporal, lower zygomatic, buccal)
 - Facial a.

Facial muscles - Corrugator



- Origin
 - Medial orbit near radix
- Insertion
 - Skin above eyebrow
- Function
 - Pulls eyebrows down/medially
- Supply
 - CN VII (temporal, zygomatic)
 - Superficial temporal a.

Facial muscles - Orbicularis oculi

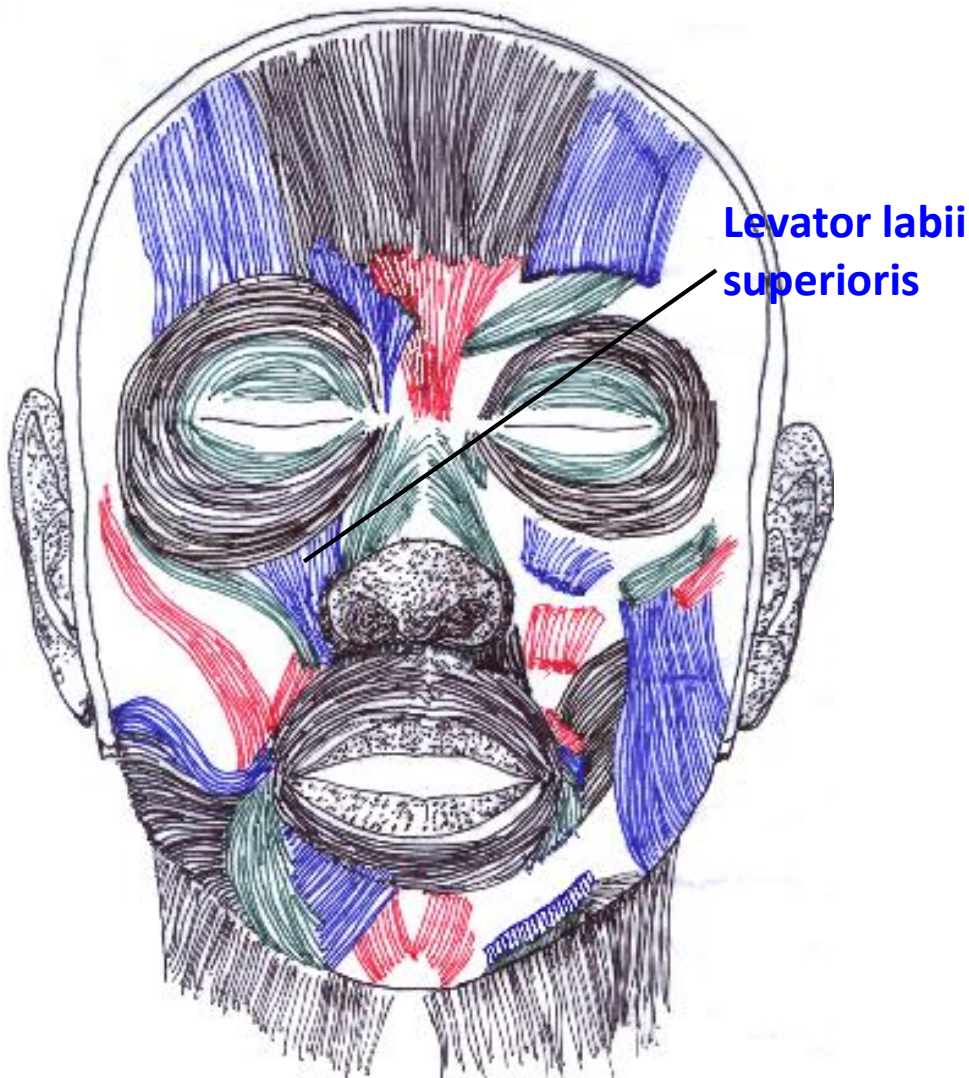


**Orbicularis oculi
(orbital)**

**Orbicularis oculi
(palpebral)**

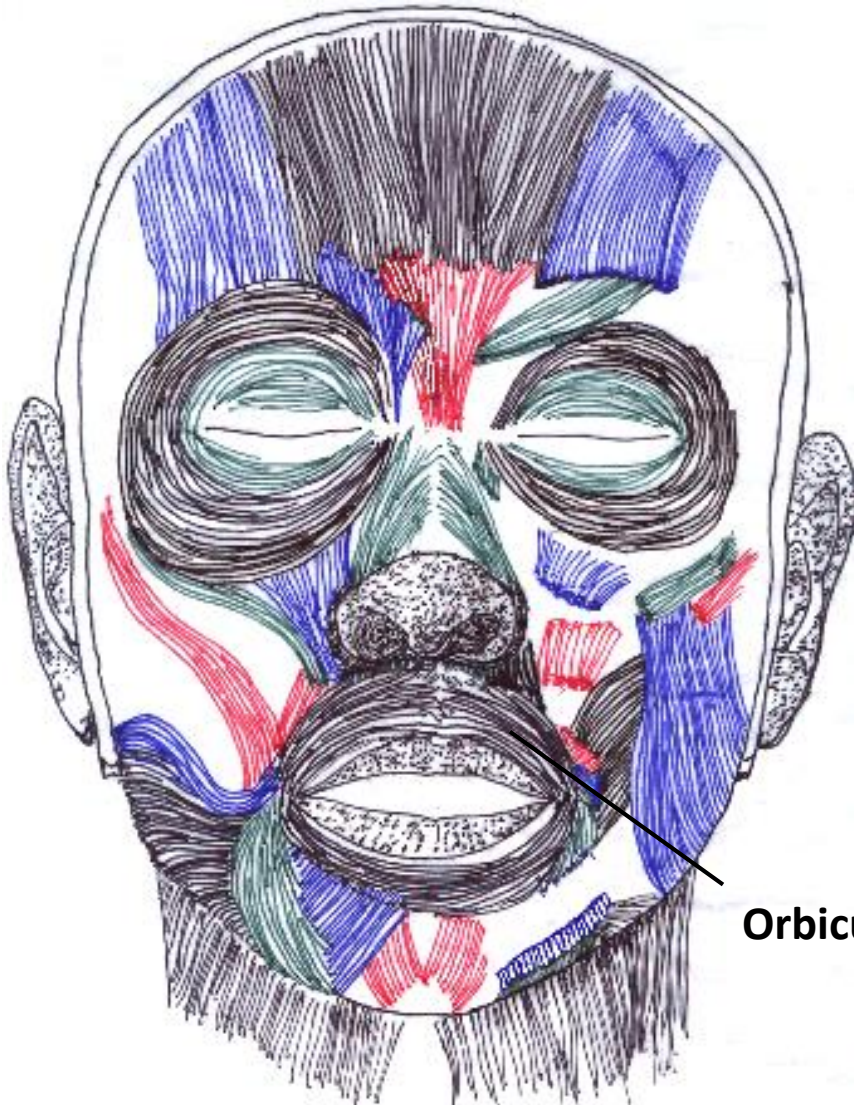
- Origin
 - Medial orbit
- Insertion
 - Palpebral ligament
- Function
 - Narrow eye opening, close the eye
 - Eye protection, moistening
- Supply
 - CN VII (temporal, zygomatic)
 - Superficial temporal a.

Facial muscles - Levator labii superioris



- Origin
 - zygoma
- Insertion
 - Skin of the nose and lip lateral to the nasal wing
- Function
 - Raises the upper lip, stretches nasal wing, wrinkles the nose
- Supply
 - Zygomatic, buccal CN VII
 - Facial artery

Facial muscles - Orbicularis oris



Orbicularis oris

- Origin
 - Corner of the mouth
- Insertion
 - Opposite corner, opposite philtrum
- Function
 - Lip positions for speech
- Supply
 - Zygomatic, buccal, mandibular
 - Facial artery

Applied Anatomy - Masseter



- Origin
 - Zygomatic arch
- Insertion
 - Angle of the mandible
- Function
 - Chew food
- Supply
 - Masseteric CN V
 - Superficial temporal, maxillary, facial arteries

Facial muscles - Mentalis



- Origin
 - Mandible just beneath the teeth
- Insertion
 - Skin of the chin
- Function
 - Pulls up the chin skin pushing up the lower lip
- Supply
 - Zygomatic branch
 - Facial artery

Facial muscles - Depressor anguli oris (Triangularis)



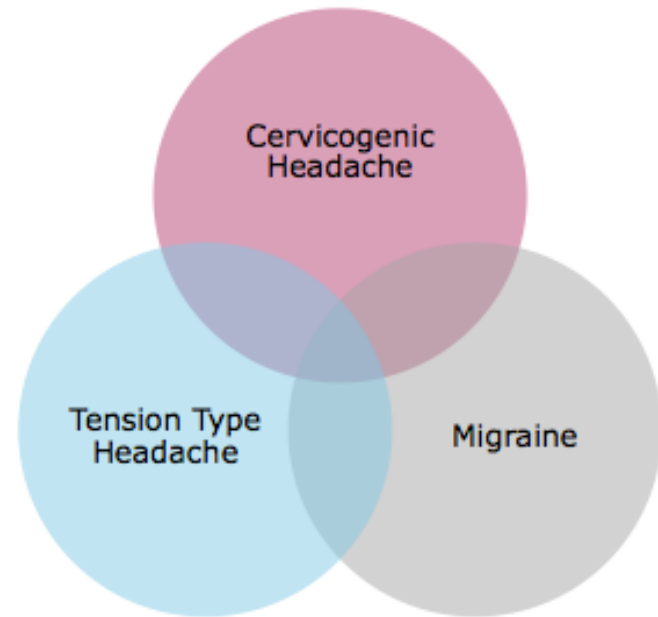
- Origin
 - Mandible and platysma
- Insertion
 - Corner of mouth, orbicularis oris
- Function
 - Pulls down the corners of the mouth
- Supply
 - Mandibular, buccal branch
 - Facial artery

Injection Techniques and Dosages

PAIN CONTROL PROTOCOL

Major Injection Sites

- Frontal
- Temporal
- Masseteric
- Occipital/Suboccipital/
Cervical



Injection Paradigms

Three General Paradigms

Fixed-Site

Predetermined
injection sites

Follow-the-Pain

Injections given in
regions where
patients report
pain

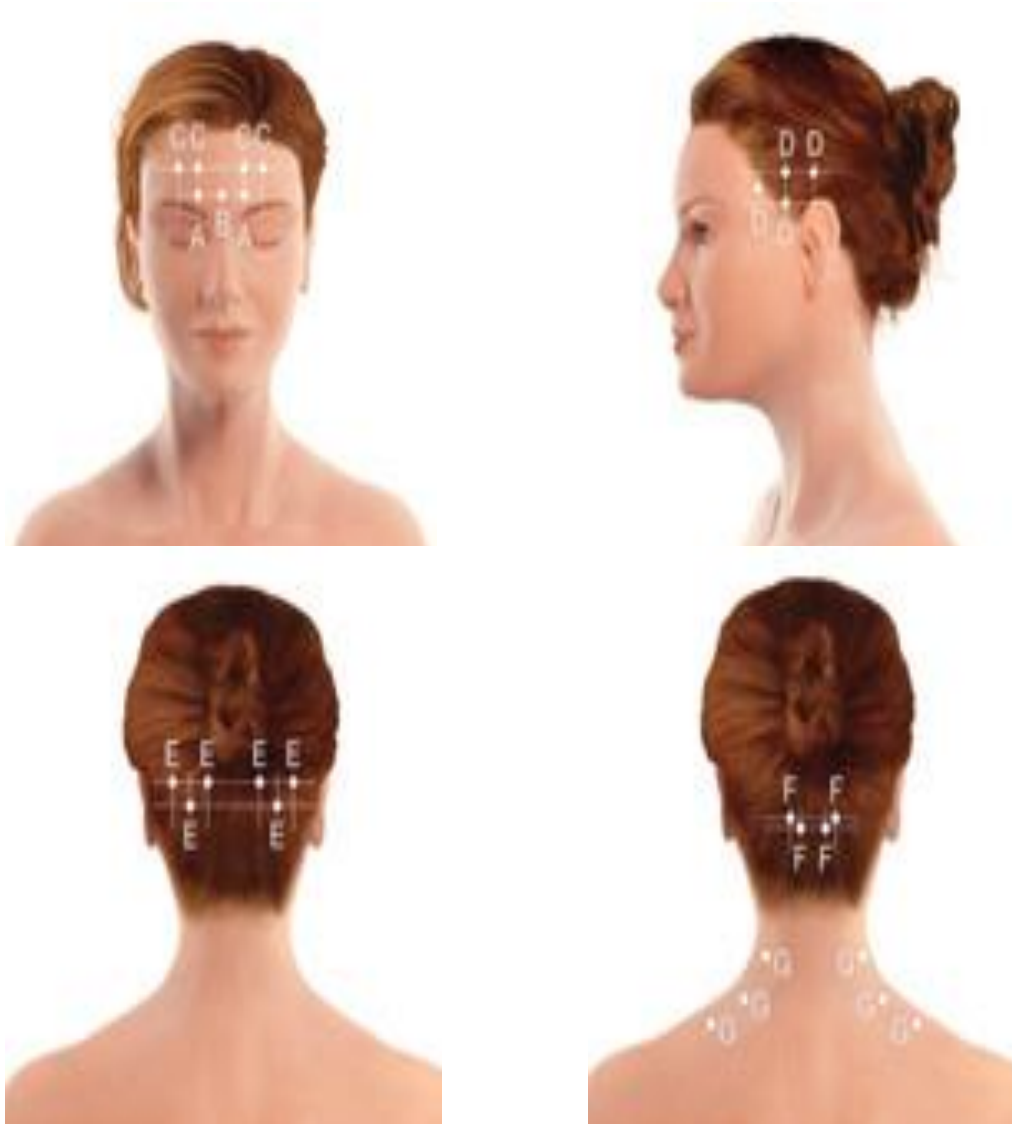
Combination

Fixed-Site and
Follow-the-Pain

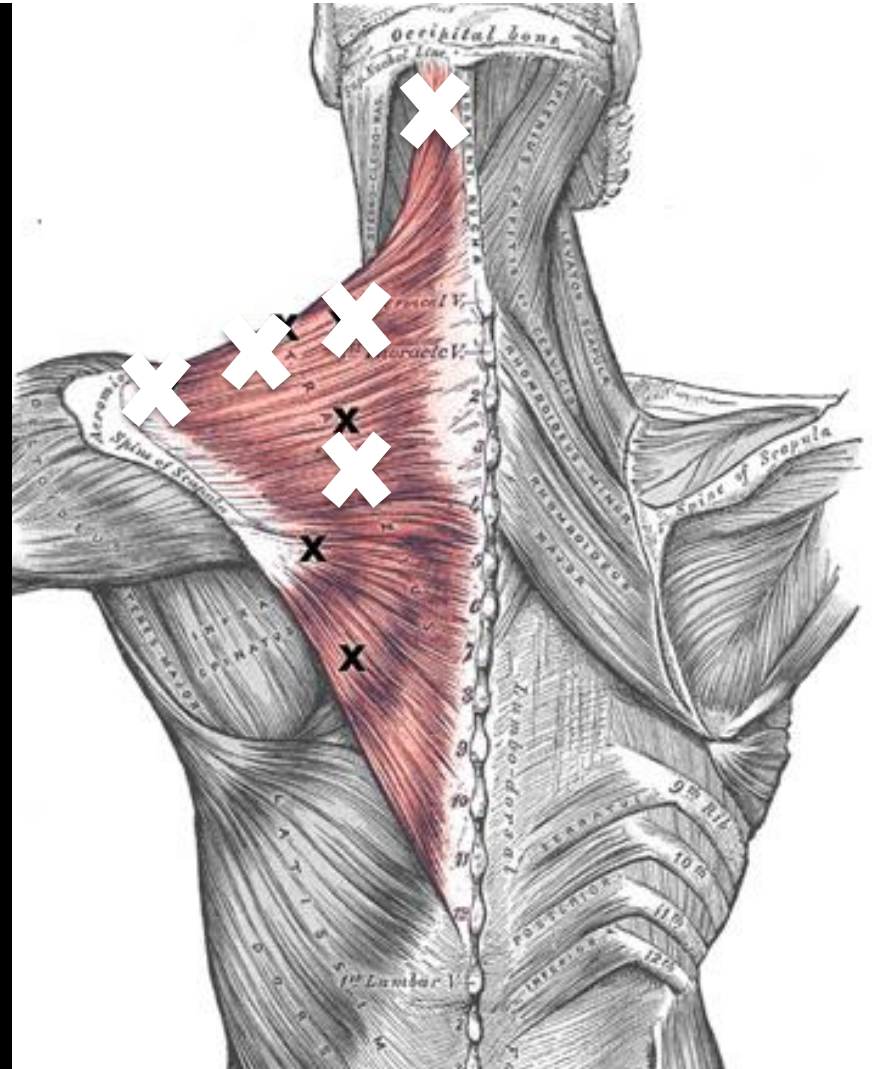
The injections (for chronic migraines)

- 31 small injections
- 155-195 Units of BOTOX
- Takes 5-10 minutes
- Performed in the office

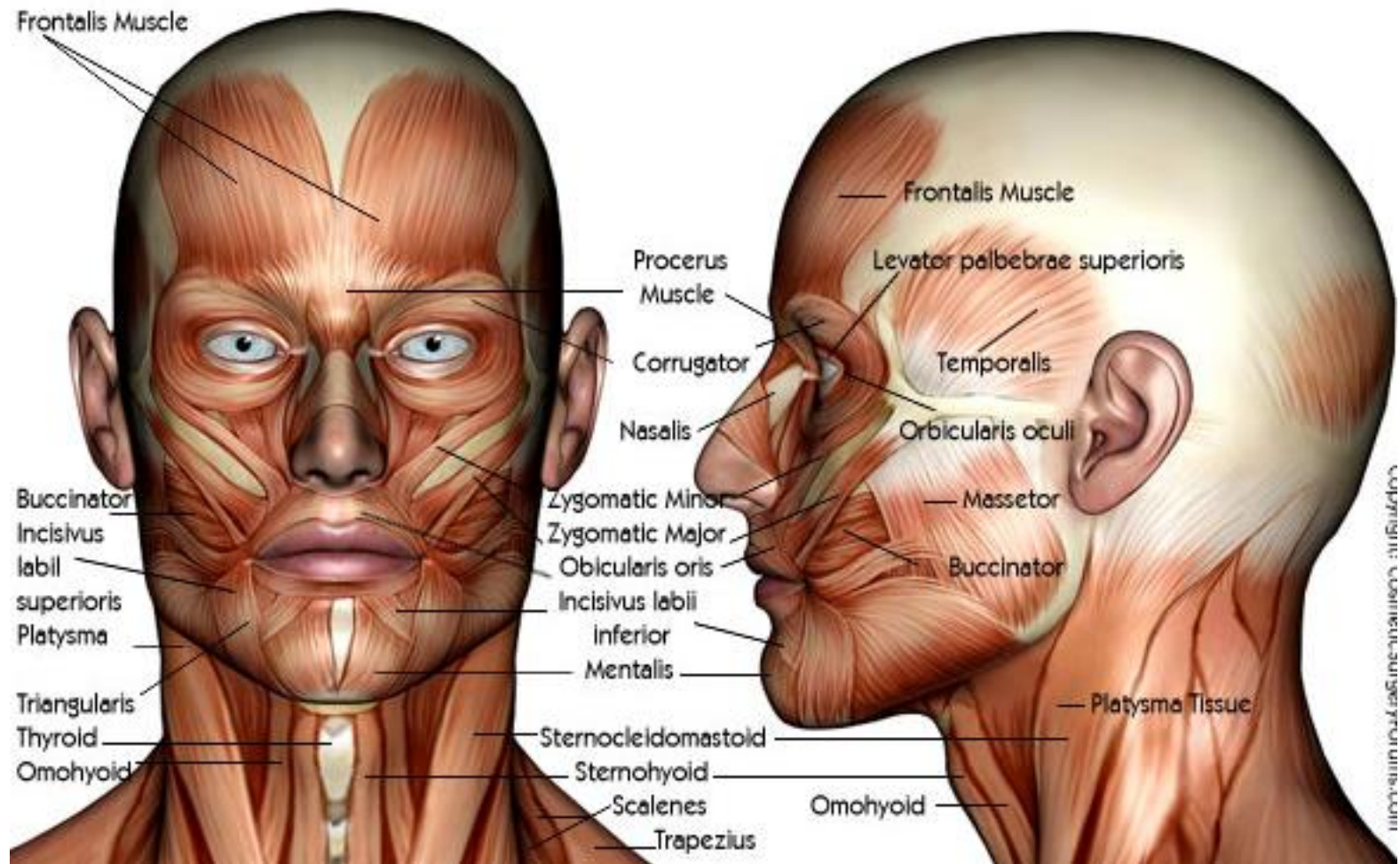
The injection site overview



Major Injection Sites



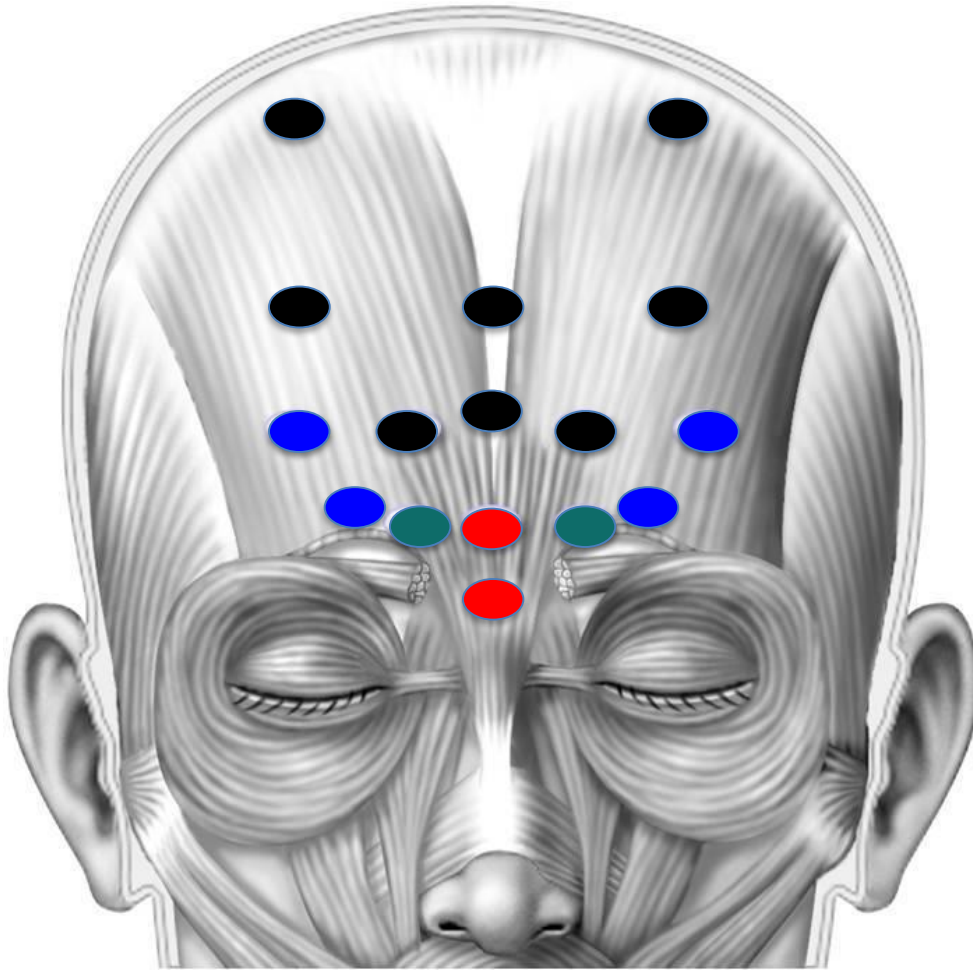
All Sites have therapeutic and cosmetic effects



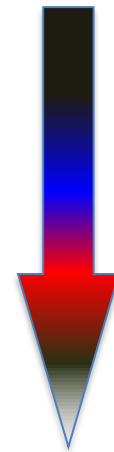
Injection Techniques and Dosages

FRONTAL REGION

Injection Sites: Frontal Region

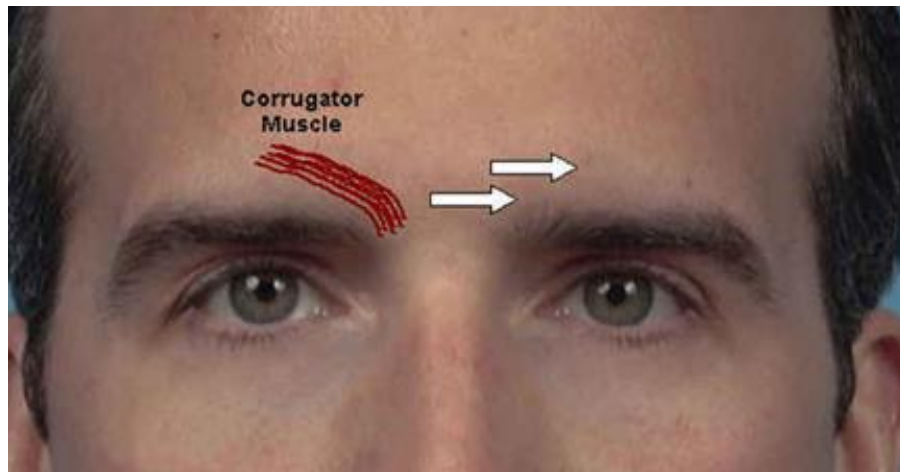
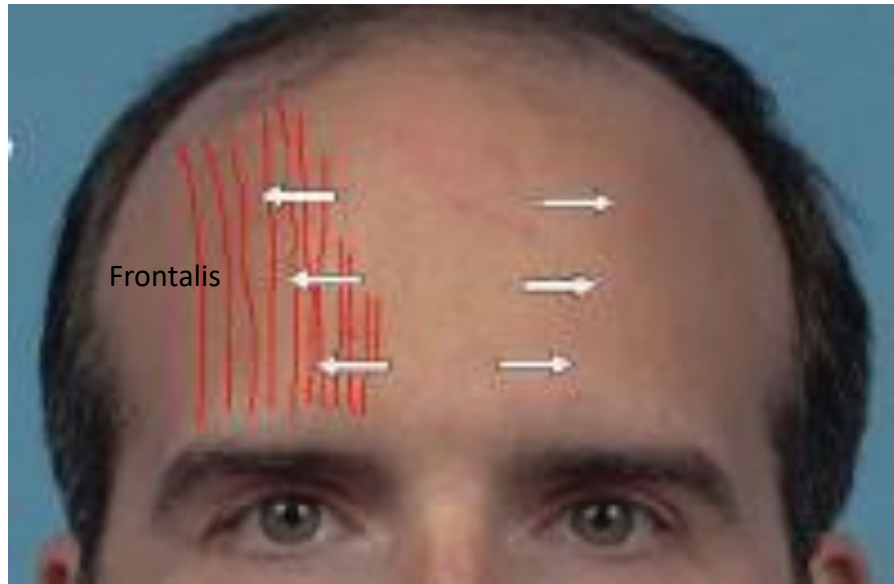


3 Major Muscles in the Complex:



- Frontalis
- Procerus
- Corrugators

Injection Sites: Frontal Region



Have patient move the forehead and knit the brows to assess muscle tension

- Frontalis 2.5 u x 6- 10 = 25 u
- Procerus 5 u x 1- 2each
- Corrugators 5 u x 2 each

Total units: 30-45u

The Forehead – Aesthetic implications



- Have patient move the forehead and knit the brows to assess muscle action


- Assess the muscle in its dynamic state

- Insert needle into contracted muscle and inject into relaxed muscle



The Forehead – Aesthetic implications

Reduction of forehead wrinkles may be achieved by weakening the frontalis muscle with Botox® injections while care must be taken to avoid brow ptosis.



SMALL Vs. LARGE

Normal Forehead (<12cm), 4 injection sites, 2-4 units per injection site.

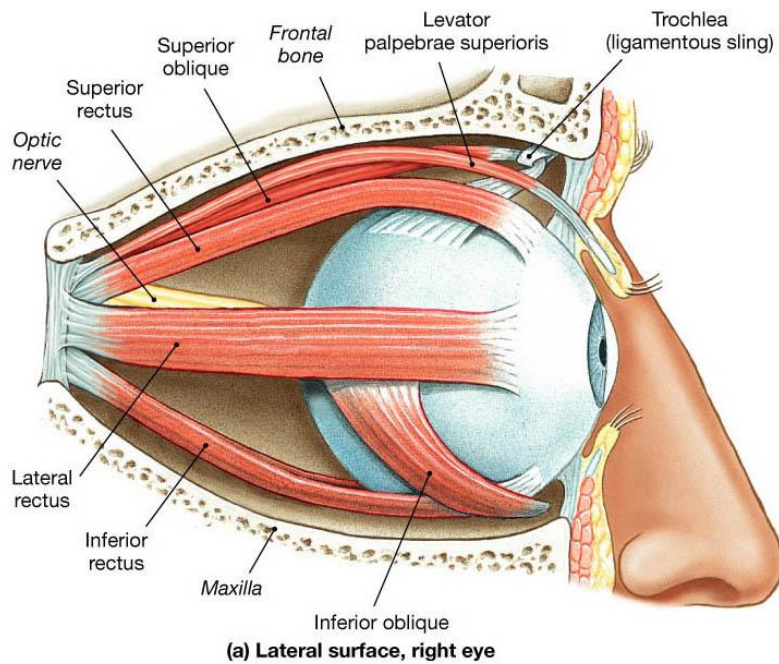
Broad Forehead (>12cm) 5 injection sites 2-4 units per injection.

MALE VS. FEMALE

Females tend to have more arched eyebrows – desirable to maintain

Assess arch shape by the orbital rim bony anatomy not the hair strands

The Forehead – Aesthetic implications



Inadvertant migration to levator palpebrae superioris will end up in a droopy eyelid

Adverse Effects – “Ptosis”



A



B

Forehead Injection Sites

- All Sites have therapeutic and cosmetic effects

- Avoid injection near *levator palpebrae superioris* - may reduce the complication of ptosis. The brow ptosis which will last 2-3 months and is not a desirable cosmetic result.
- Keep your injections 1cm above the supra orbital ridge to avoid droopy forehead and lowering of the eyebrows. The lower one third of the frontalis muscle is used to elevate the eyebrow and therefore injection into this area should be avoided
- Treatment of the medial frontalis leaving the lateral frontalis untreated in patients with wider foreheads, can cause the “spock brow”.

Adverse Effects – “Mr. Spock”

- (A) Patient was seen post-Botox with excessive lateral brow elevation and head of brow separation due to heavy glabellar and medial frontalis muscle treatment and omission of lateral frontalis treatment. Botox (7 U) was added to the lateral frontalis at this visit to drop the lateral brow.
- (B) Subsequently, the patient underwent upper eyelid blepharoplasty and was managed with 50 U of Botox to the brow depressors and lateral orbicularis without frontalis muscle treatment.

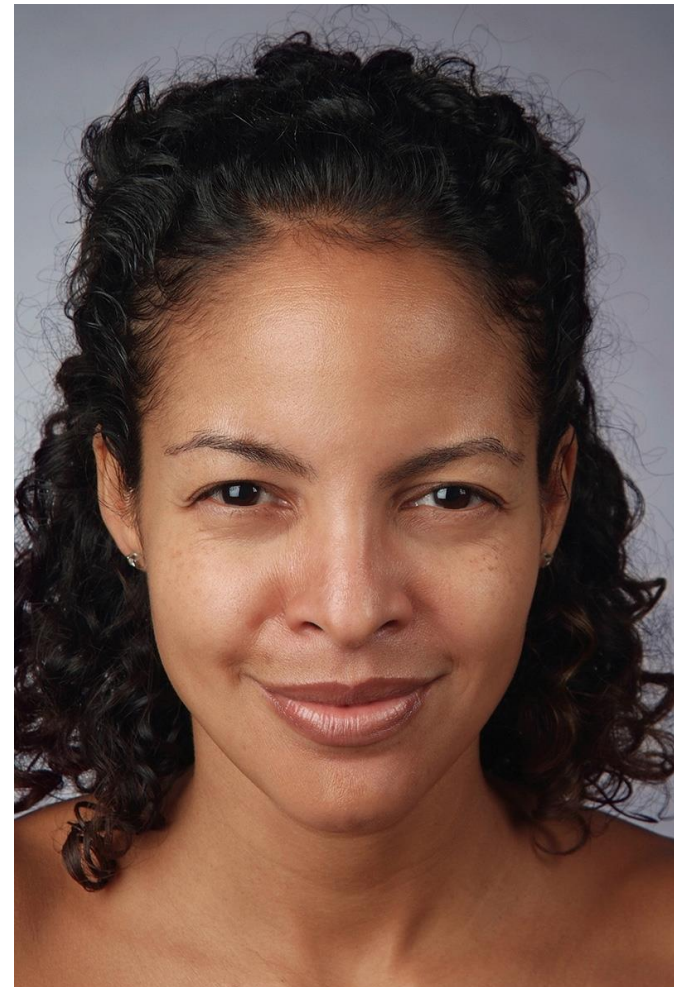
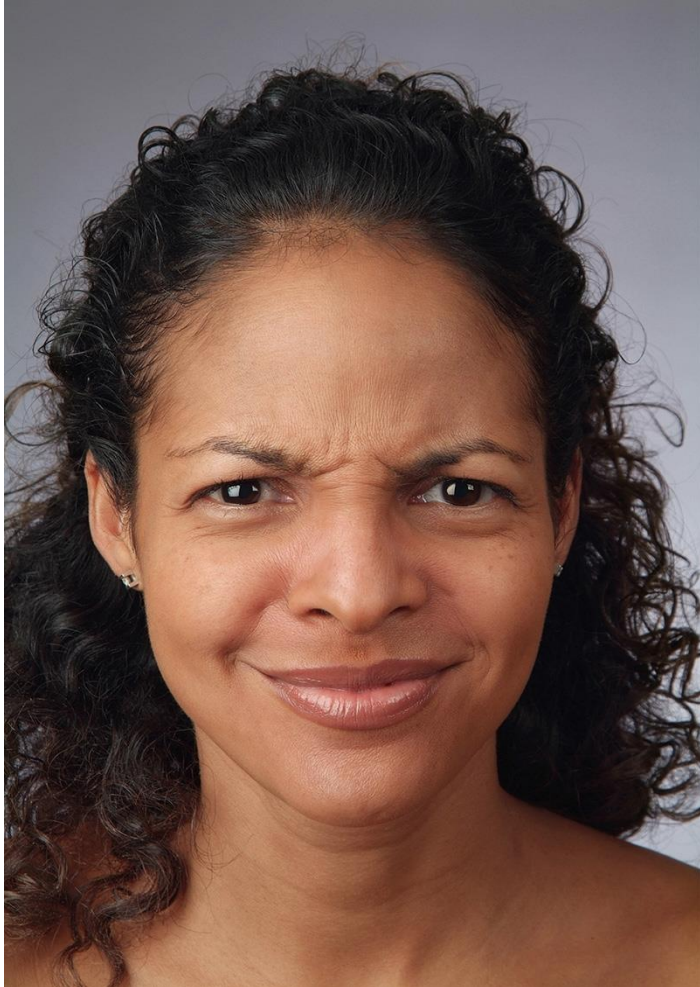


A

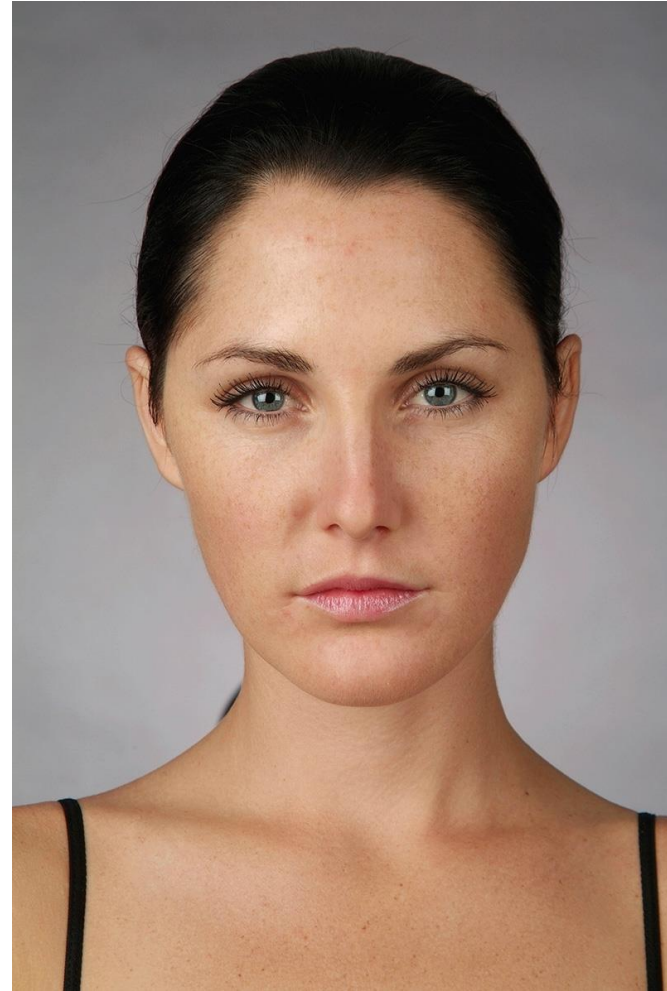
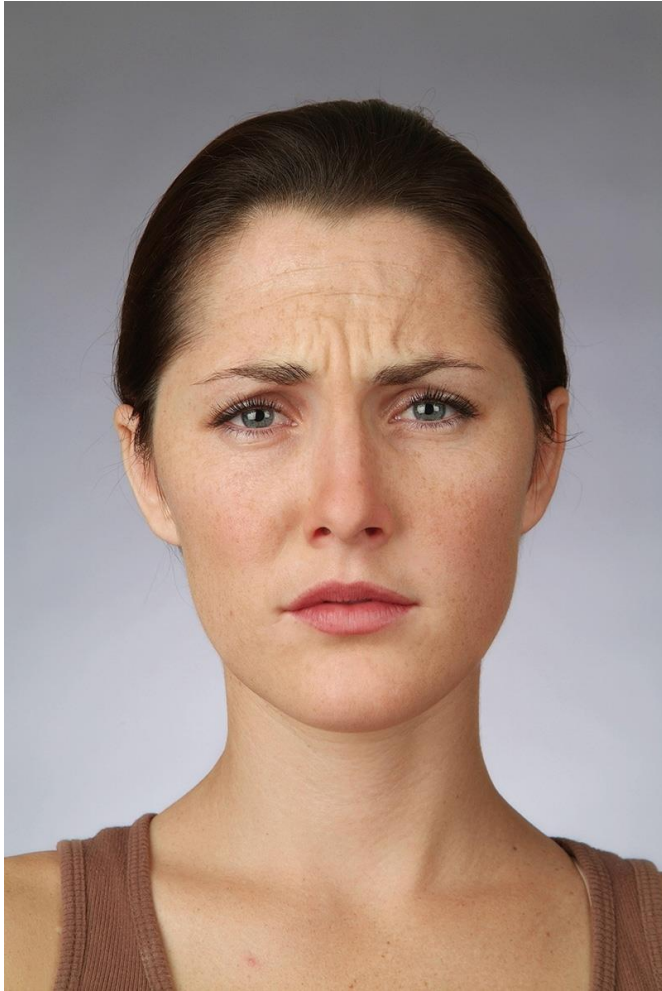


B

Desirable Reconciliation of Functional and Aesthetic results



Desirable Reconciliation of Functional and Aesthetic results



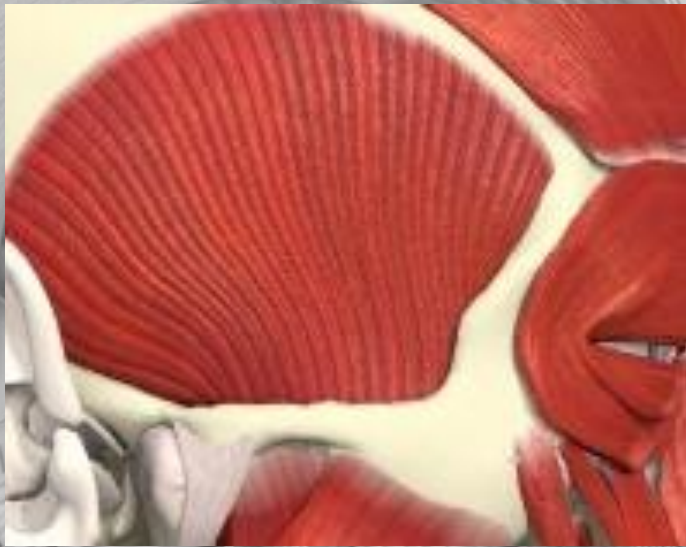
Injection Techniques and Dosages

TEMPORAL REGION

Injection Sites: Temporal Area

Muscles to Inject: Temporalis

- Having the patient clench his/her teeth will produce a palpable anterior bulge to the temporalis muscle, directing the anterior injection site

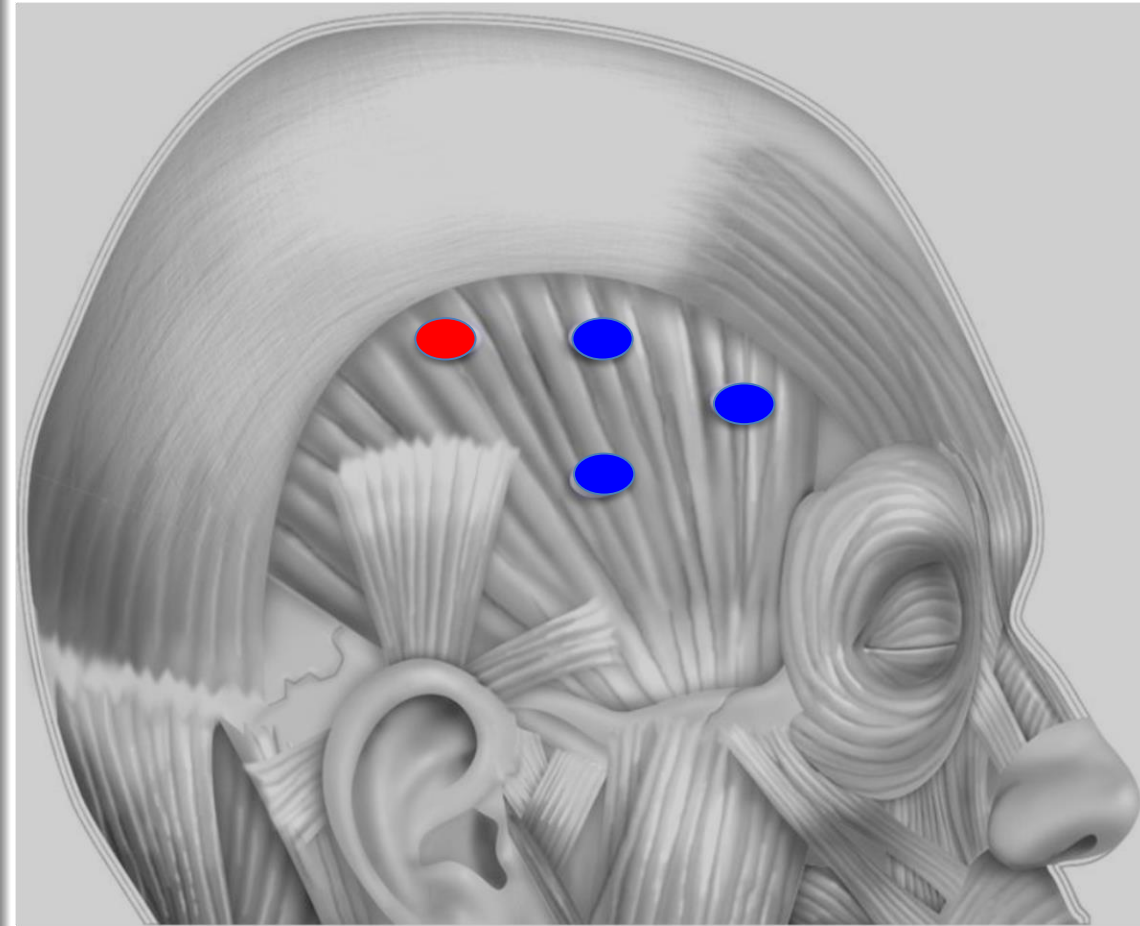


Injection Sites: Temporal Area

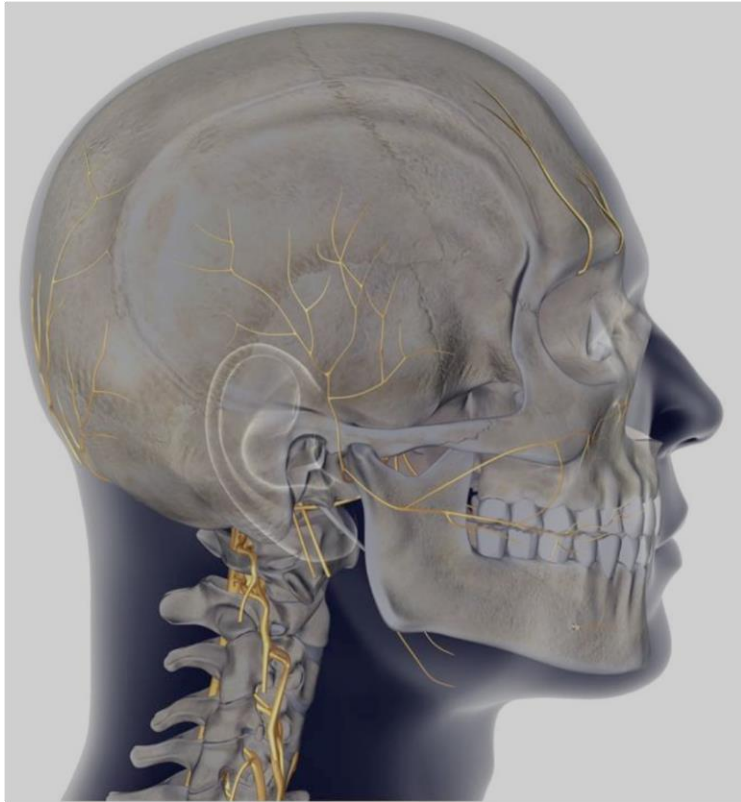
Muscles to Inject: Temporalis

- 4-5 U per site (20 units) with additional 2 optional sites on the symptomatic side depending on the patient's self report of pain or tenderness

Total units: 40 – 60u



Injection Sites: Temporal Area

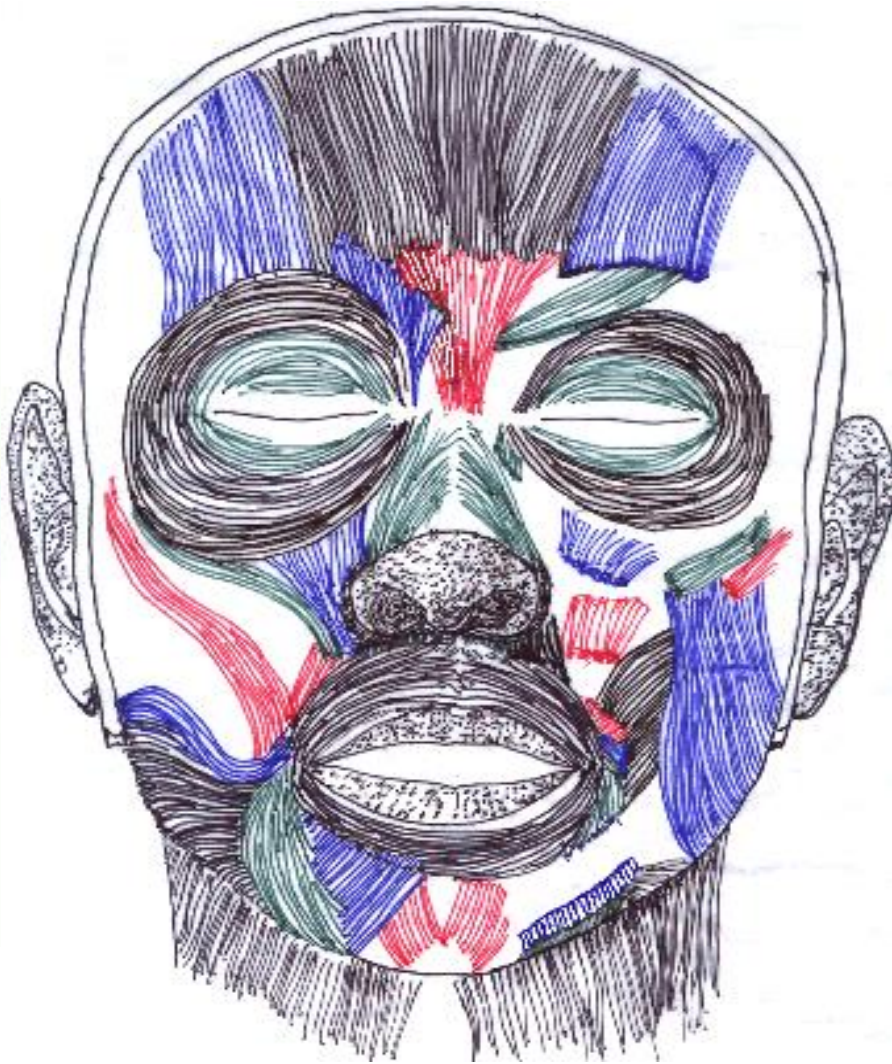


- Patients may specifically have pain around the temporal artery
- Relieve muscle compression with the injection
- Nerve decompression may alleviate migraine type pain
- Nerve decompression some surgery aims for an even higher rate of pain reduction by relieving pressure on nerves caused by surrounding tissue; first developed 12 years ago by Dr. Guyuronthis.

Injection Techniques and Dosages

MASSETER REGION

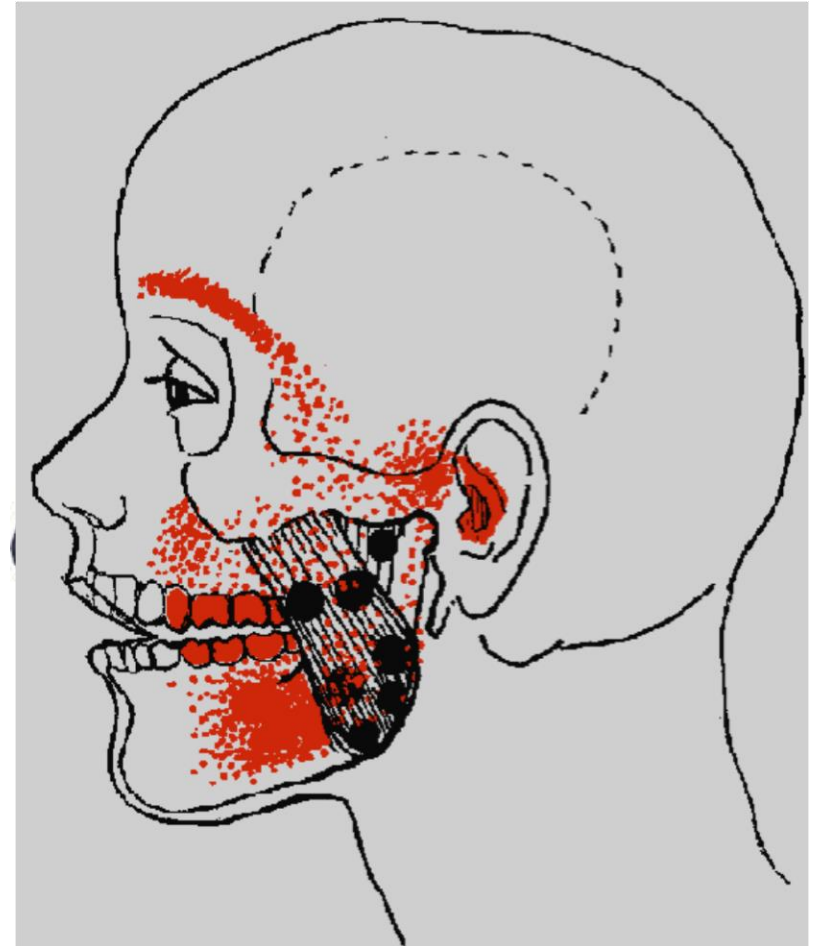
Injection Sites: Masseter Region



- Overdose - will paralyze the muscles of mastication, chewing and talking
- Underdose - will not have any effect at all
- Correct dose of BoNT-A - will reduce muscle contractions

Masseter - Referred pain

- Teeth- “Endo –type” pain
- Sinuses – thin sinus floor, the roots get sensitized from the pressure
- Earache
- Parotid and submandibular gland areas

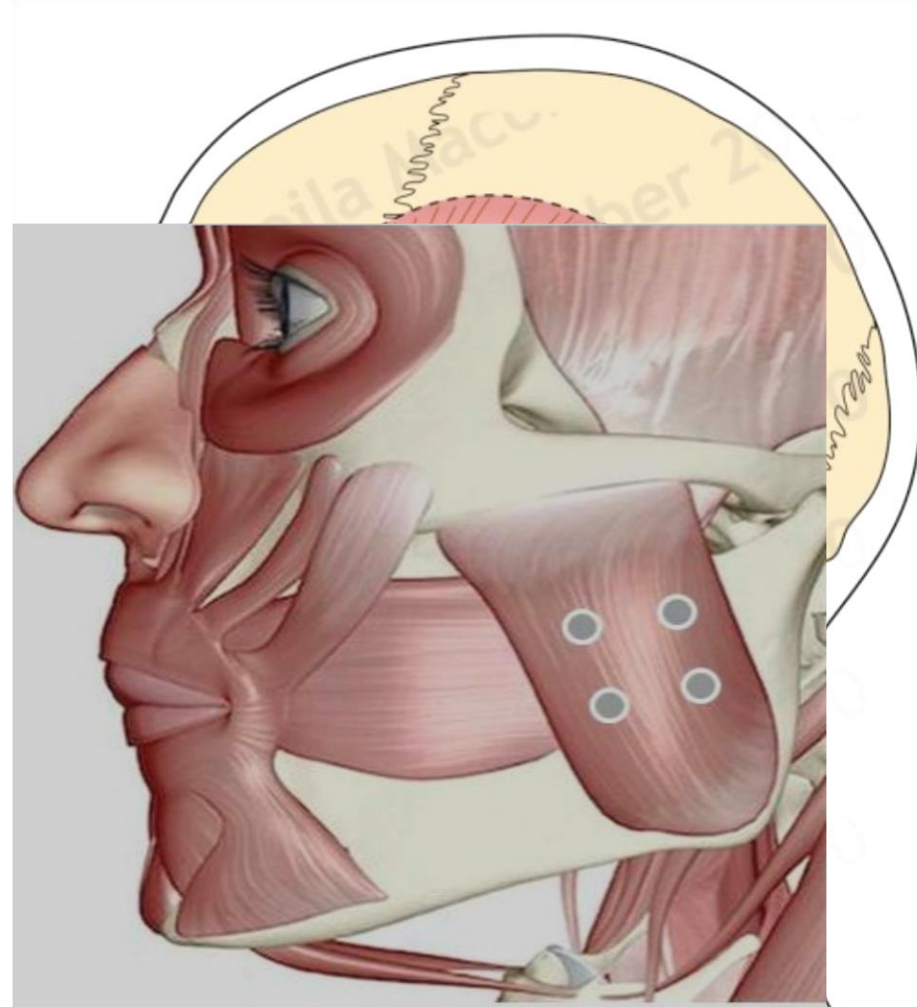


Masseter Pain Pattern

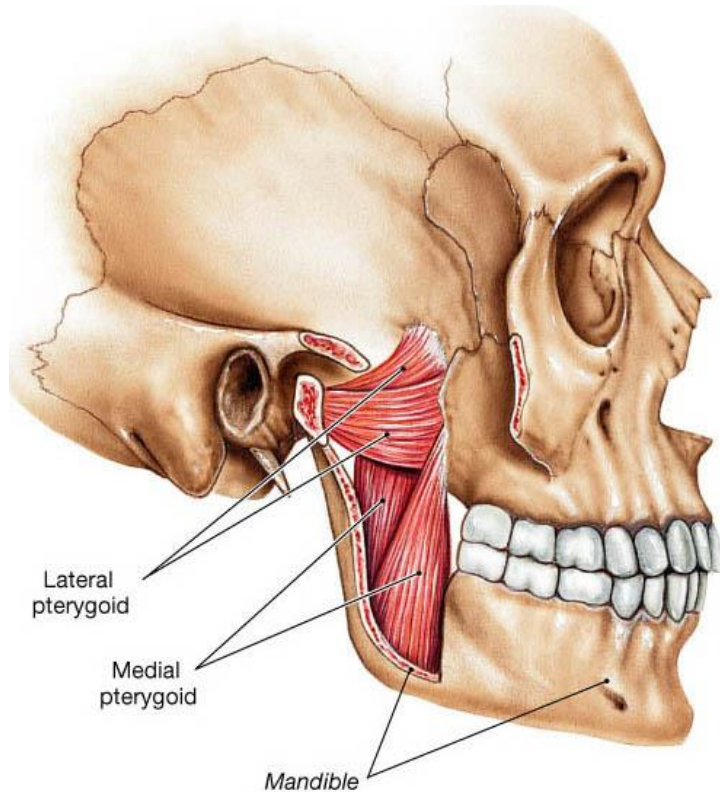
Injection Sites: Masseter Region

- Localize the muscle by asking the patient to clench
- Determine anterior and posterior borders of the masseter
- The number of injection sites will vary with size
- 15-25u per side

Total units: 30 -50u



Injection Sites: Masseter Region



(b) Lateral view, pterygoid muscles exposed

Protective Masticatory Function of lateral Pterygoid muscles

The instant teeth occlude:

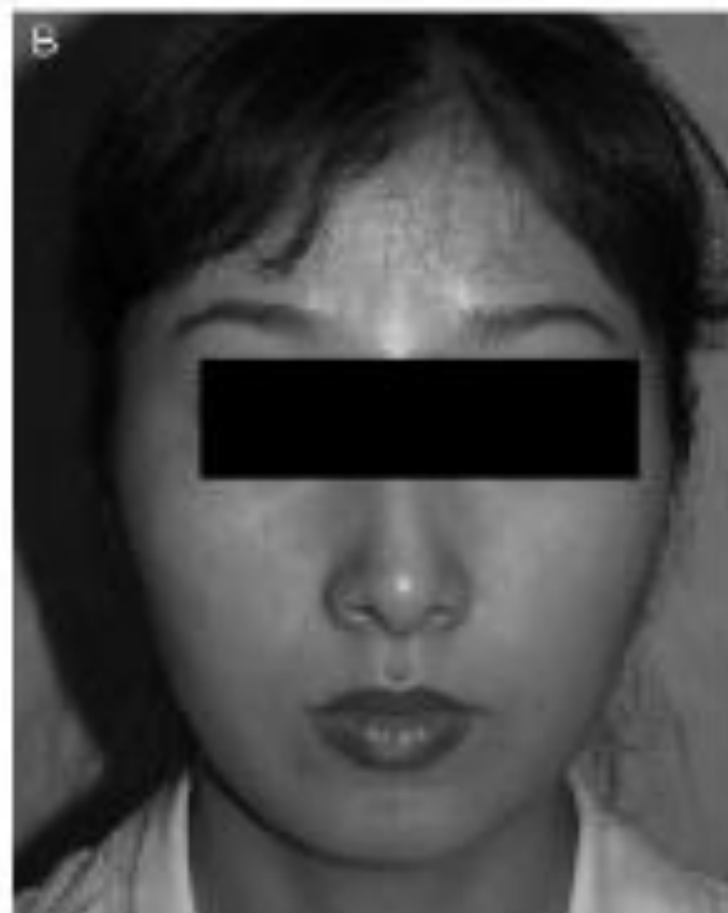
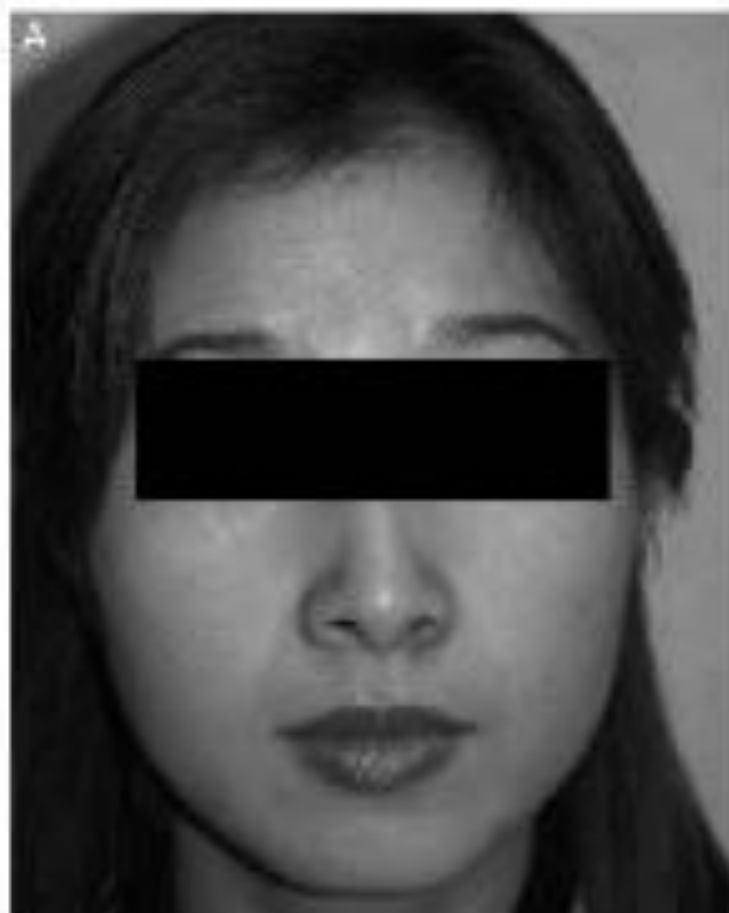
- Temporalis and masseter relax
- Swallowing initiated
- The LP attempts to disclude the teeth

LP acts as an air brake and rudder

LATERAL PTERYGOID NOT INJECTED

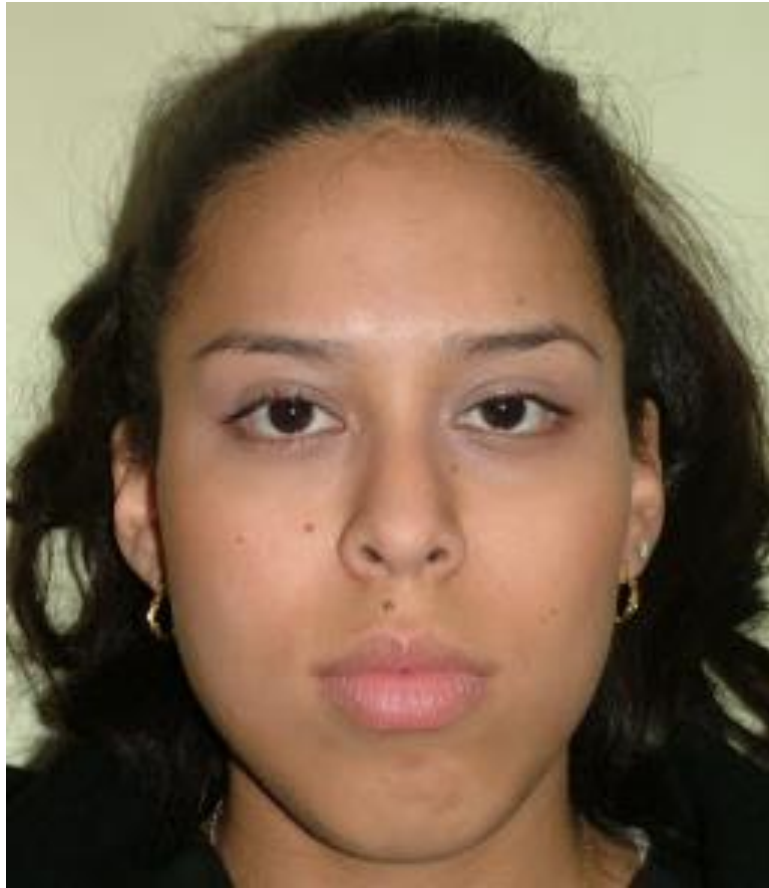
Botulinum Toxin Type A Treatment for Contouring of the Lower Face

MEE YOUNG PARK, MD,* KI YOUNG AHN, MD, PhD,[†] AND DUCK SOO JUNG, MD, PhD[‡]



The Masseters – Aesthetic implications

Daphne post Botox...



Before

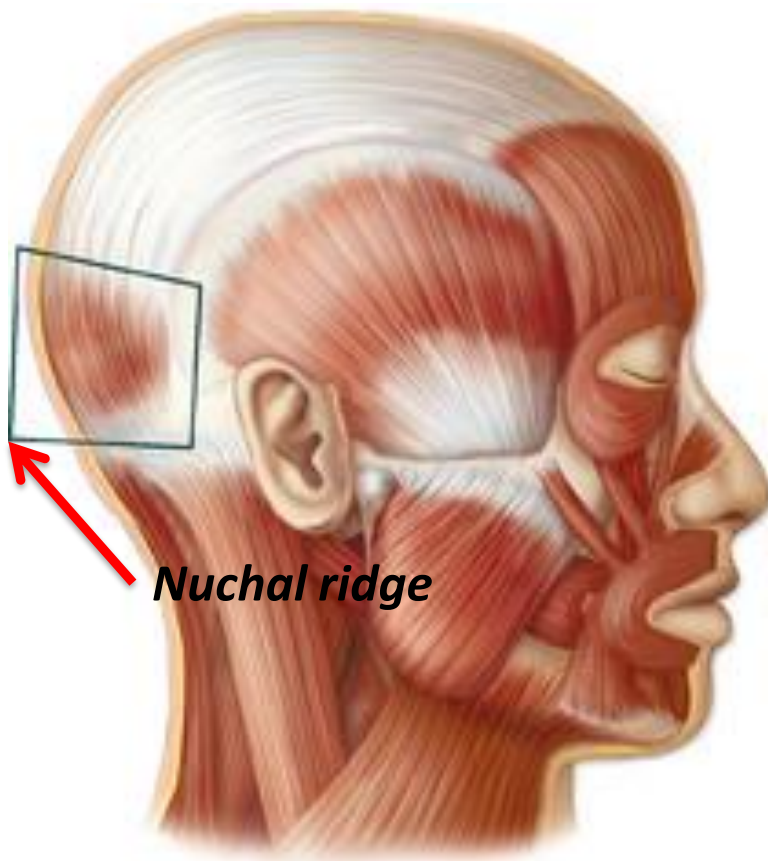


After

Injection Techniques and Dosages

OCCIPITAL/SUBOCCIPITAL REGION

Injection Sites: Occipital/Suboccipital and Cervical Regions

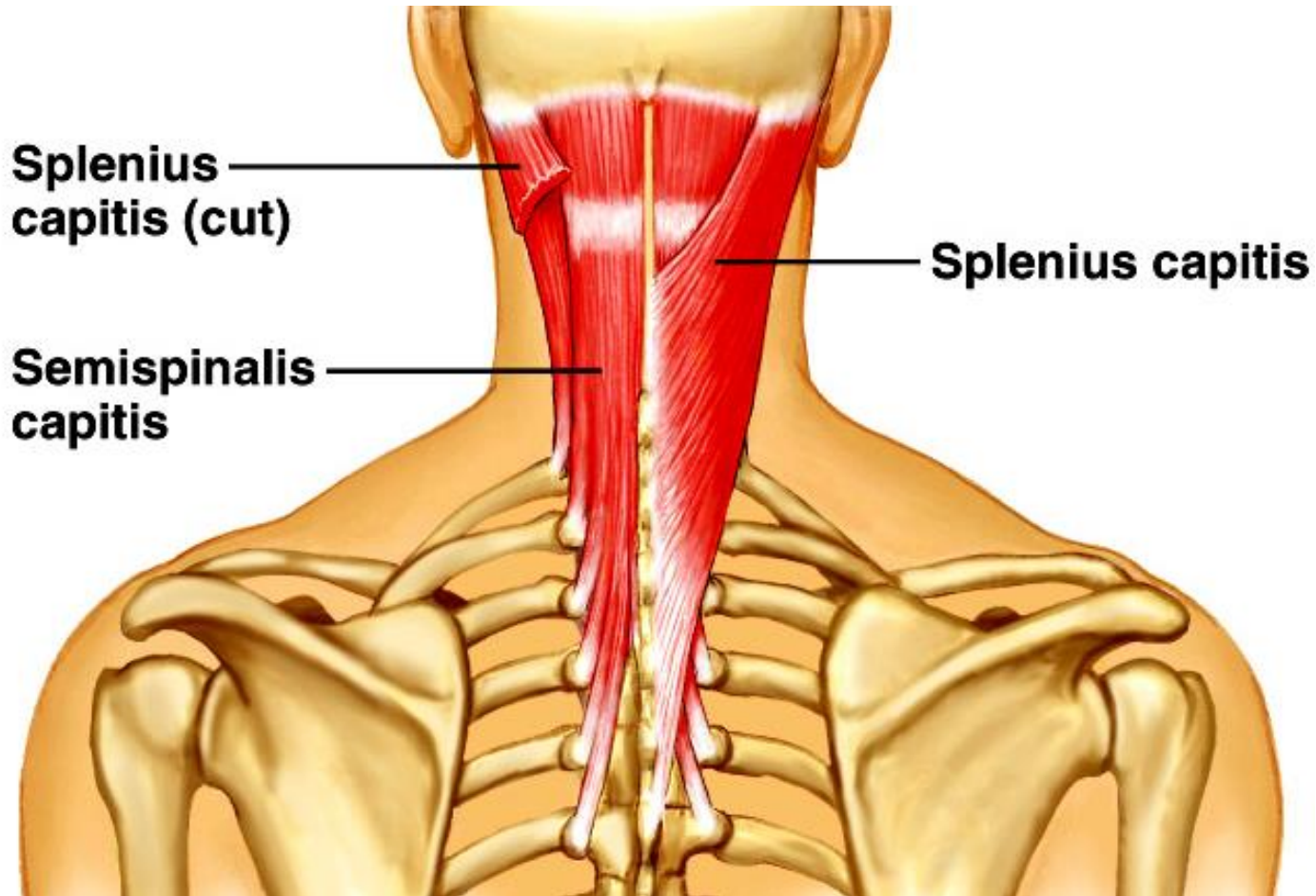


Nuchal ridge

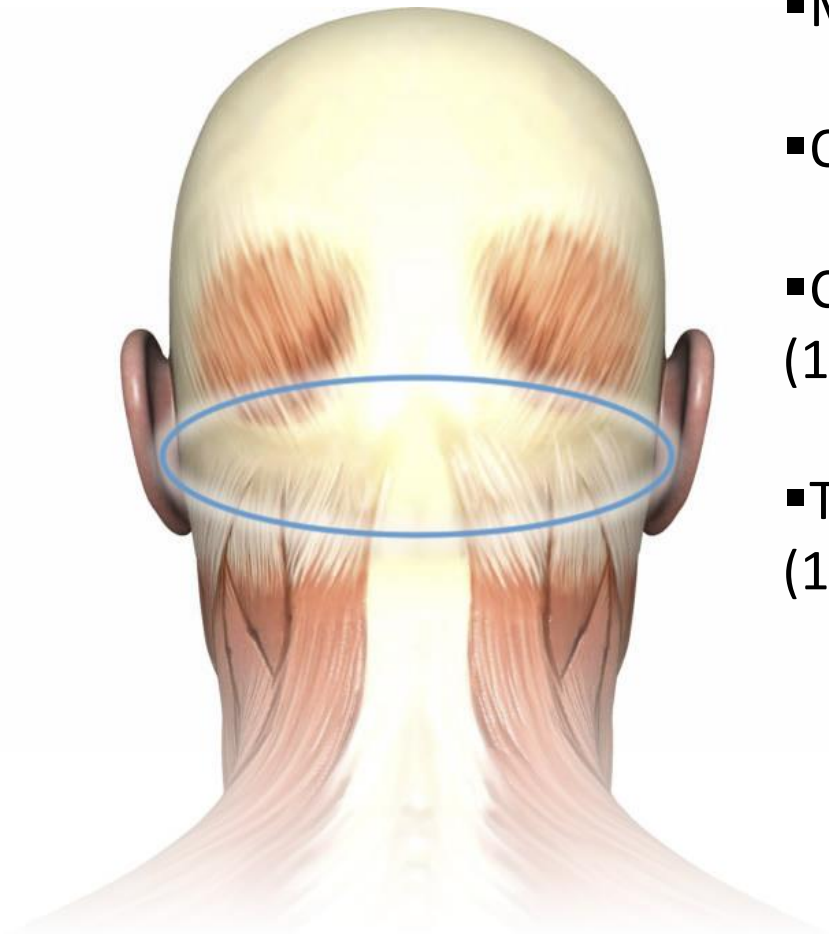
Occipitalis, suboccipital muscles, and trapezius

Injection Sites: Occipital/Suboccipital and Cervical Regions

Muscles of the Suboccipital Region



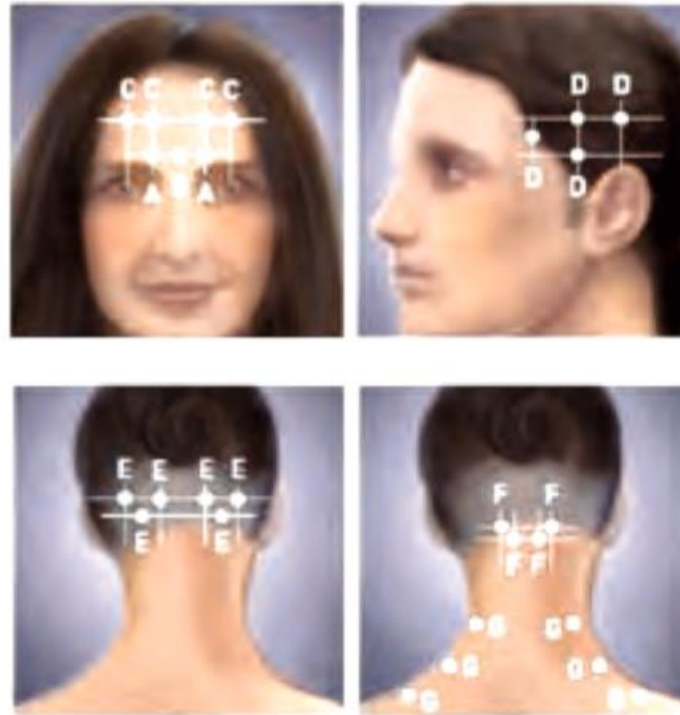
Injection Sites: Occipital/Suboccipital and Cervical Regions



- Muscles to inject (**patient guided**):
- Occipitalis 2.5-5u up to 30u (15/side)
- Cervical paraspinals 2.5 -5u up to 30u (15/side)
- Trapezius muscles 5 units up to 30u (15/side)

Total units: 40 – 60u

Pain Injection Summary – Allergan Protocol

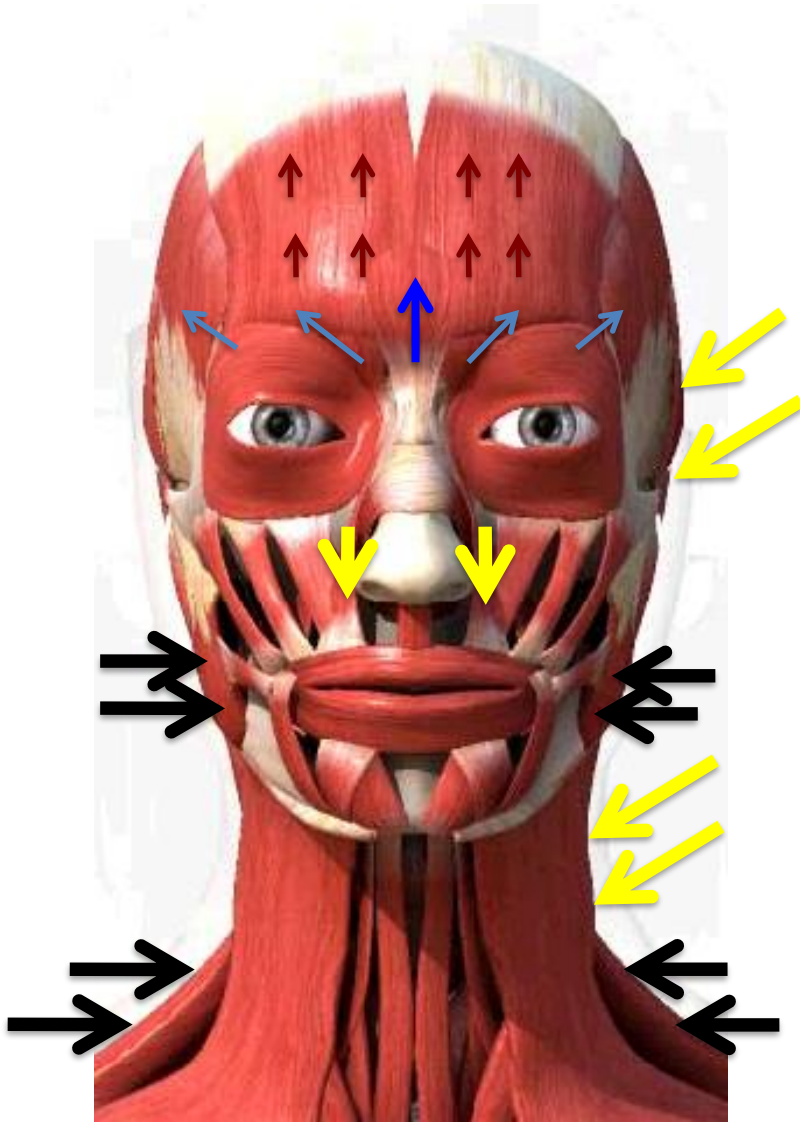


*NB: Masseters are not included

Site	Muscle	Number of units*	Additional units*, if necessary
A	Corrugator	10 (5 each side)	–
B	Procerus	5	–
C	Frontalis	20 (10 each side)	–
D	Temporalis	40 (20 each side)	10 (up to 2 sites)
E	Occipitalis	30 (15 each side)	10 (up to 2 sites)
F	Cervical paraspinal	20 (10 each side)	–
G	Trapezius	30 (15 each side)	20 (up to 4 sites)

*The 'unit' by which the potency of preparations of BOTOX® is measured should be used to calculate dosages of BOTOX® only and is not transferable to other preparations of botulinum toxin.¹³

Angles and Depth of Needle



↑ $\frac{1}{4}$ of the $\frac{1}{2}$ " needle superficial at 10° to skin surface a fingerbreadth away from the epicanthi. Watch bleb!

↑ Entire length of $\frac{1}{2}$ " needle at 30° to skin. Linear thread – Inject as you withdraw for Corrugators (parallel to eyebrows)

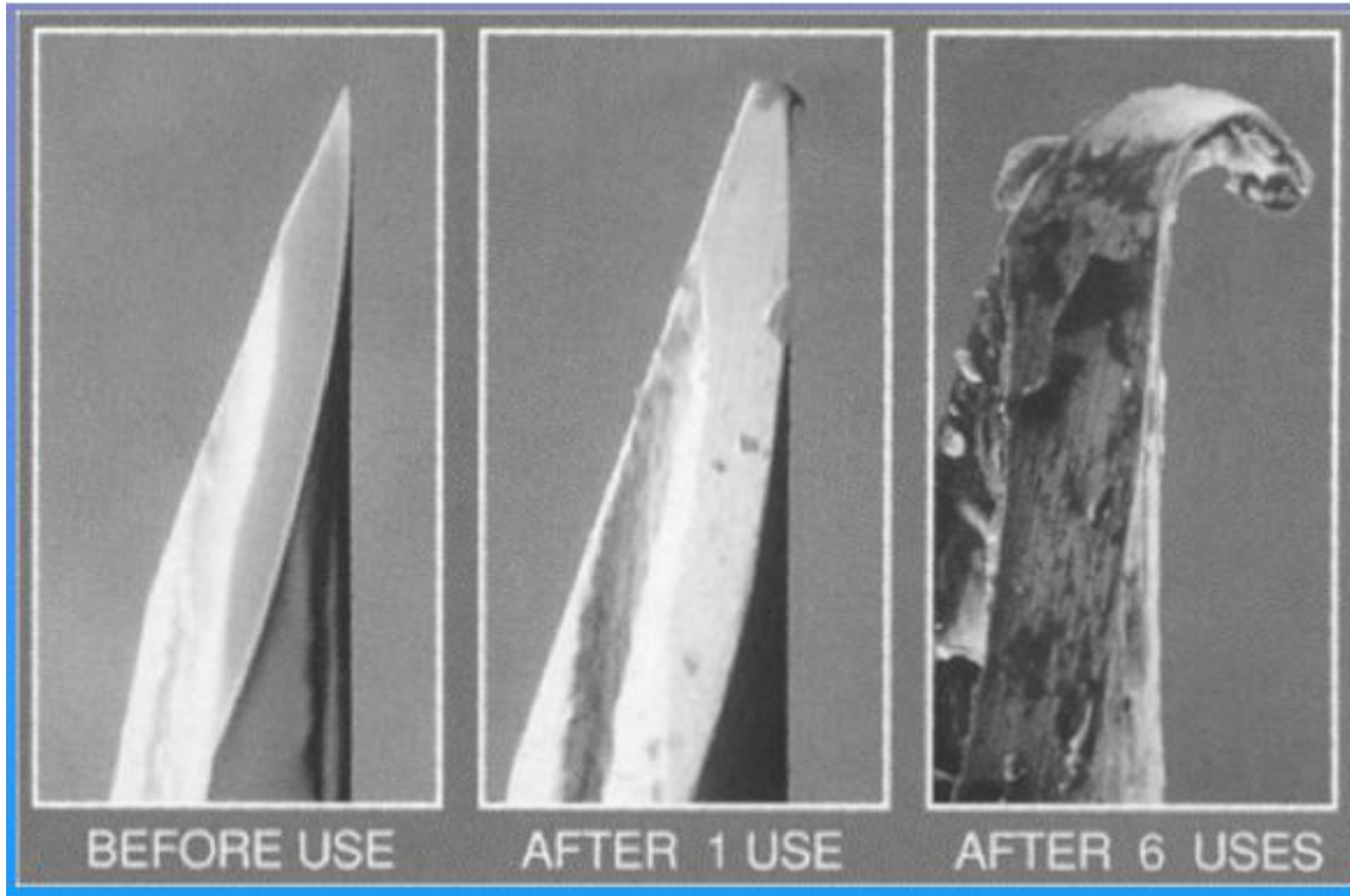
↑ Entire length of $\frac{1}{2}$ " needle at 45° to skin. Insert into clenched muscle; Inject a bolus into relaxed muscle belly

↑ Entire length of $\frac{1}{2}$ " needle at 90° to skin. Insert into clenched muscle; Inject a bolus into relaxed muscle belly

↑ Half the length of $\frac{1}{2}$ " needle at 30° to skin (bleb rises under the skin)

↑ Half length of $\frac{1}{2}$ " needle at 90° to skin

Change your needles frequently!



Additional Applications of Botox

PERIORAL BOTOX APPLICATIONS

Additional Clinical Applications of Botox

- Cosmetic dentistry
- Perio
- Ortho
- Oral Surgery

Less clenching (Masseter Injections) = Less load on implants = better osseointegration = improved prognosis



Implant sequence

With a dental implant, there is no need to grind down the healthy adjacent teeth. The implant provides support for the crown.

Multiple immediately loaded implants

Added benefit: Tolerance of rapid vertical change
with prosthesis

Reduced implant failure

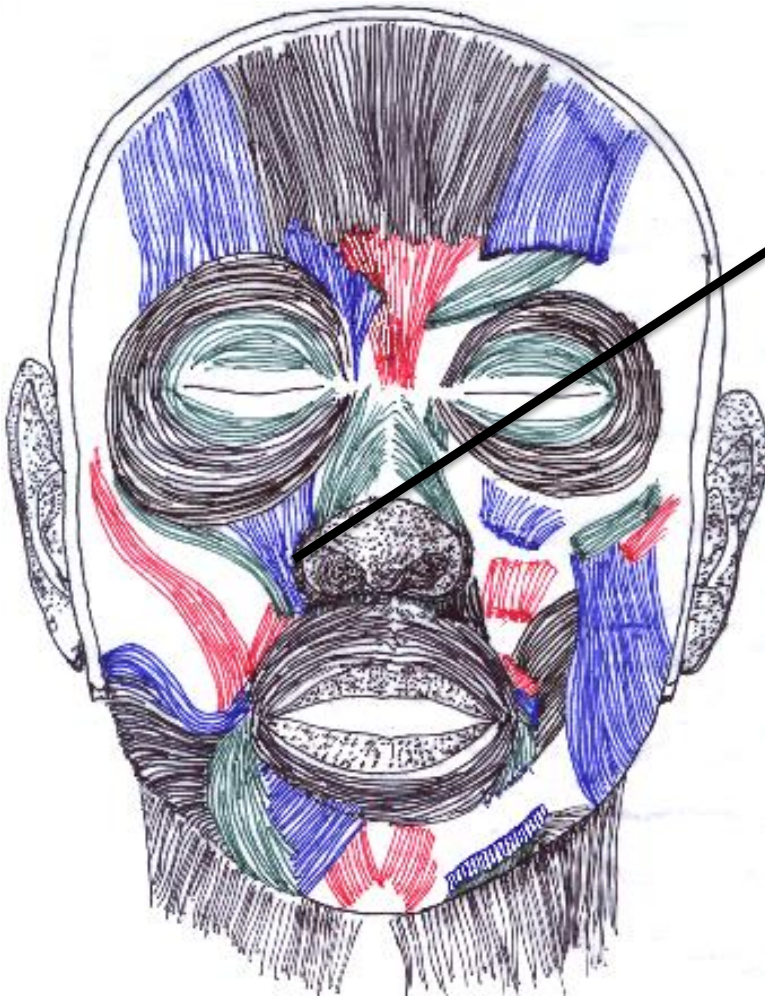
Maxillary Vertical Excess - Gummy Smile

Muscles to be injected:

Levator labii superioris (nasal)

INJECTING BETWEEN ZYGOMATIC ARCH AND LABIAL COMMISSURE CAUSES ORAL PTOSIS – desirable in gummy smile treatment

Injecting levator labii superioris alaqua nasii with 1.25u per visit, up to 2.5-3u per side.



Maxillary Vertical Excess - Gummy Smile



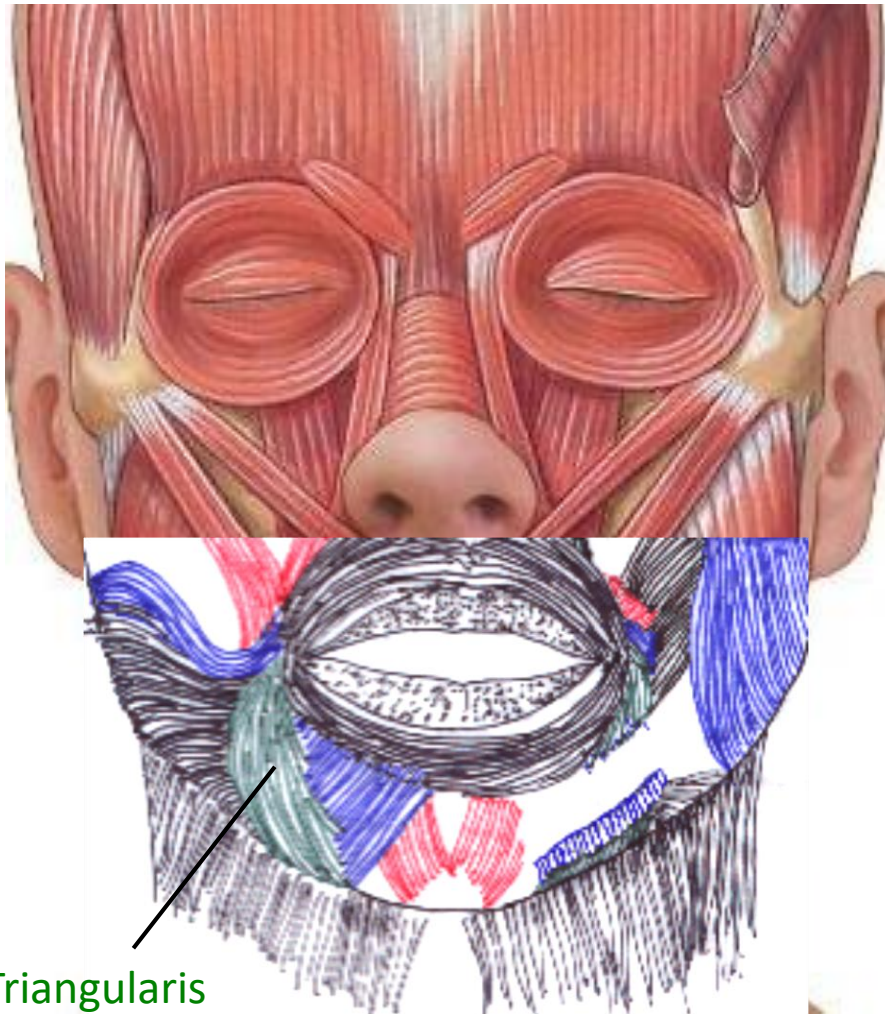
- Alternative to orthognathic surgery
- May alieviate dryness from lip incompetence

Maxillary Vertical Excess - Gummy Smile



(Scholtes et al, 2008, Franco, 2007, and Polo, 2008)

Depressor anguli oris (Triangularis) - INJECTIONS



- **DAO** produces a frown in the mouth.
- **Triangularis** is innervated by mandibular and buccal branches of the facial nerve (VII)
- Blood supply by the facial artery.
- **3.5 - 5u per side**

Triangularis

Depressor anguli oris (Triangularis)



Angular Cheilitis



Poor Aesthetics –
previous Facial
Nerve Paralysis

Increased tolerance of functional orthotics that cause instant postural change
Masseter and DAO injections



Post Periodontal Surgery – Limit pull of depressor anguli oris muscles

Ann Med Health Sci Res. 2013 Jan-Mar; 3(1): 131.

Role of Botox in Efficient Muscle Relaxation and Treatment Outcome: An Overview

P Kumar, A Khattar,¹ R Goel,² and A Kumar³

Author information ► Copyright and License information ►

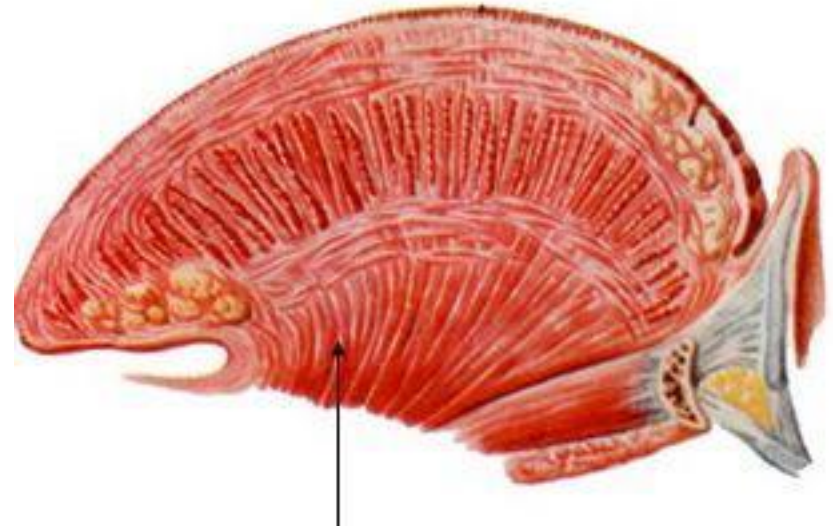


ORTHODONTIC IMPLICATIONS

Tongue Thrust



Tongue Thrust - Genioglossus



5units maximum dose
HIGHER DOSES MAY RESULT
IN DYSPHAGIA

ORTHODONTIC IMPLICATIONS

Deep Overbite, Stability over time?



Masseteric Hypertrophy: An Orthodontic Perspective

G Sreejith Kumar,

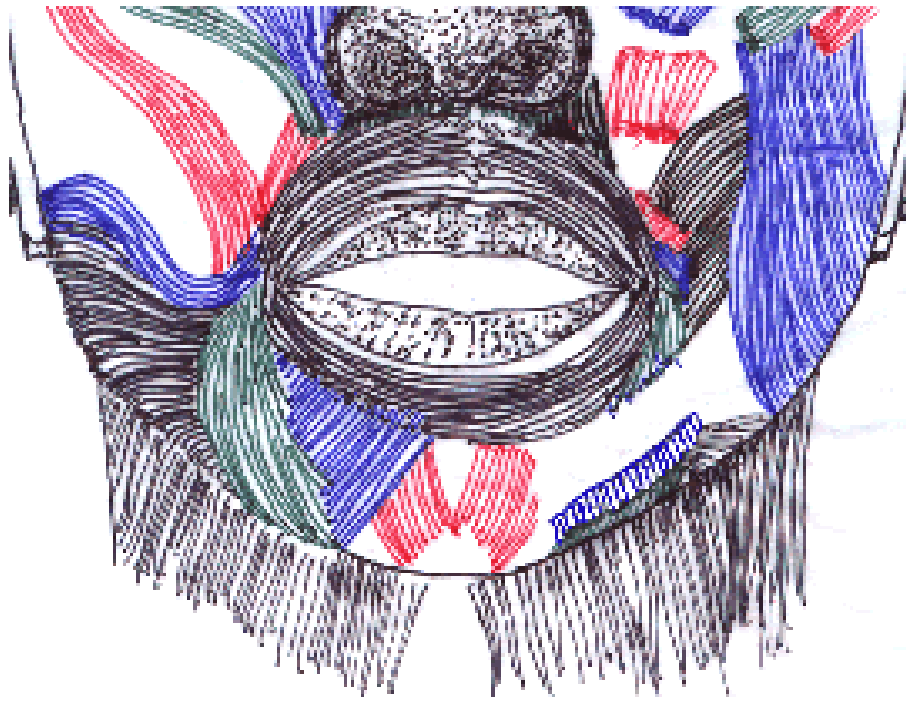
Babukkuttan Pilla

The Journal of Indian Orthodontic Society, October-December 2012;46(4):233-237



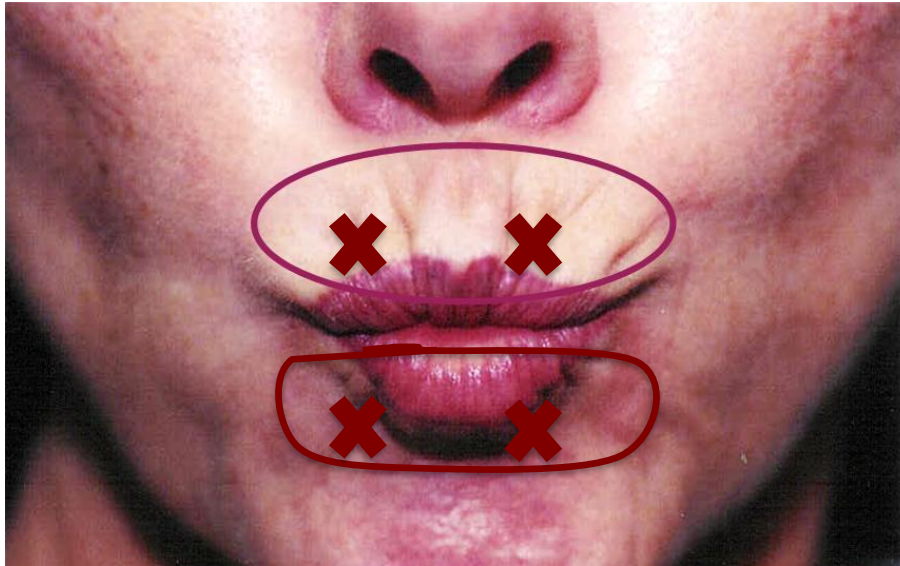
- Depression of the molars during chewing or swallowing.
- Decision for premolar extraction is influenced – potential for reduced face height and bite deepening when premolars are extracted.

Hypertonic Lips: Orbicularis Oris (Sphincter) Control



- Tardive dyskinesia - repetitive, involuntary, purposeless movements
- Tremors
- Hemifacial spasms
- Difficulty correcting and maintaining orthodontic alignment in Class II division II patients with Hypertonic lips

Hypertonic Lips: Orbicularis Oris (Sphincter) Control



Multiple Sites for injections

Doses = 4x 1.25U

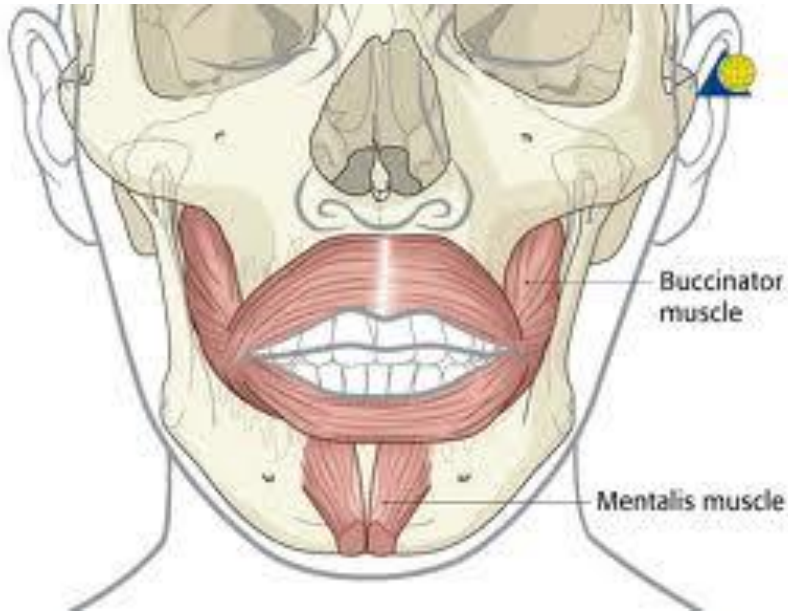
PRECAUTIONS for Orbicularis Oris

- UNPREDICTIBLE
- PUCKERING
- LIP BITING
- P AND V SOUNDS

Asymmetric lip line (pucker test for muscle function)

Weak side unable to pout as much as strong side

Mentalis



- Origin = The incisive fossa of the mandible
- Insertion = Skin of the chin
- Action = Raises and protrudes the lower lip
- Considerations: Injection site should be kept at the point of the chin to prevent compromise of the lip depressors

5-10 u per side

Mentalis

Tonic contraction of the mentalis can create a horizontal crease in the skin of the upper chin or an accentuation of the dermal attachments causing mentalis chin irregularity. Treatment with Botox® can correct both of these defects.

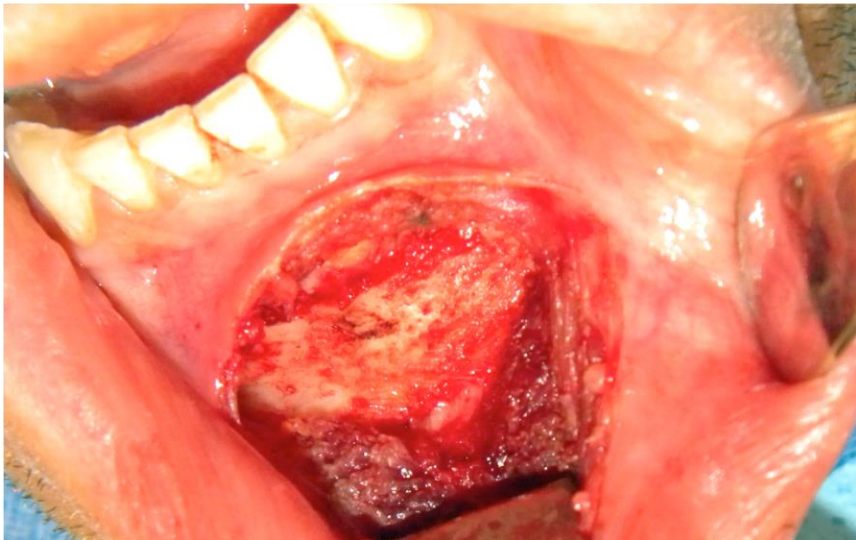


Mentalis



Among the Causes of Gingival Recession is:

Muscle Attachments (Frenum) pulling on the gum tissue. The case to the left shows a frenal pull with gum recession.



In place of mentalis repositioning surgery, temporary paralysis with Botox is less invasive.

Mentalis

Treatment of gingival recession in the anterior mandible using the tunnel technique and a combination epithelialized-subepithelial connective tissue graft-a case series.

Stimmelmayer M, Allen EP, Gernet W, Edelhoff D, Beuer F, Schlee M, Iglhaut G.

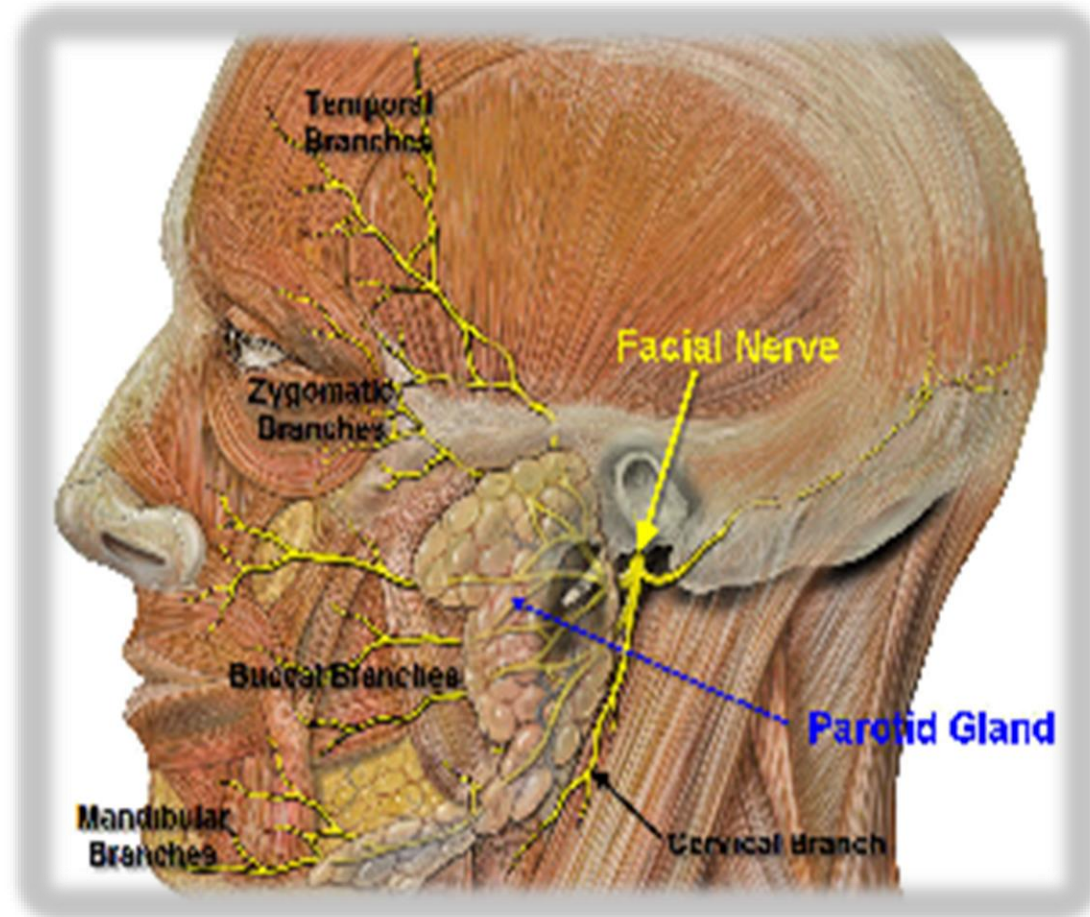
Source

“Covering exposed roots becomes more and more difficult as the gingiva becomes thinner and the vestibule becomes more shallow. Also, the outcome becomes less predictable. *In addition, where there is high frenal attachment or muscle pull, such as the mentalis muscle in the mandibular anterior region, secondary retraction of a coronally advanced flap will likely occur.*”

Int J Periodontics Restorative Dent. 2011
Apr;31(2):165-73.

Sialorrhea

- 21G 2" needle inserted at the mid-point between the tragus and the mandibular angle.
- Needle advanced until the anterior border of masseter muscle.
- 50 units per gland,
- 25u X 2 injection sites



Sialorrhea

Botulinum toxin A for treatment of sialorrhea in children: an effective, minimally invasive approach.

Khan WU, Campisi P, Nadarajah S, Shakur YA, Khan N, Semenuk D, McCann C, Roske L, McConney-Ellis S, Joseph M, Parra D, Amaral J, John P, Temple M, Connolly B.

Source

Faculty of Medicine, University of Toronto, Ontario, Canada.

Arch Otolaryngol Head Neck Surg. 2011
Apr;137(4):339-44. doi:
10.1001/archoto.2010.240. Epub 2011 Jan 17.

Frey's Syndrome

- Manifested clinically by hemifacial flushing and sweating after a gustatory stimulus.
- Frey's syndrome is usually secondary to traumatic injury in the parotid region and is thought to be the result of misdirected re-sprouting of damaged autonomic nerve fibres.



Treatment of Frey's syndrome with botulinum toxin type B

Giovanna Cantarella MD, Alessandra Berlusconi MD, Vincenzo Mele MD, Filippo Cogiamanian MD and Sergio Barbieri MD

Otolaryngology -- Head and Neck Surgery 2010 143: 214

DOI: 10.1016/j.otohns.2010.04.009

**Complications/Adverse
Reactions
and Their Management**

Recognizing Botulism

Classic triad:

- I. Acute, symmetric, descending flaccid paralysis
- II. No fever
- III. Small muscles then large muscles

Death- from airway obstruction and respiratory muscle paralysis

Or

Ventilator support (for 3 months)

CLINICAL MARGIN OF ERROR

30 VIALS (\$18000) = BOTULISM SYMPTOMS

Immunity/Resistance to protein in Botox® serum – Neutralizing Antibodies

Approximately 0.5-3% of patients

- After multiple injections
- Protein eliminated in 2002, reduced formation of AB
- Antibodies may resolve over time

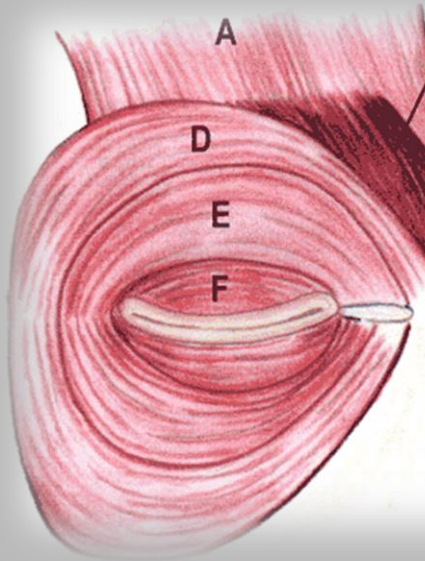
Risk Factors

- Injections > 200 units
- “Booster” injections within 1 month

Management

- Use the lowest possible effective dose
- Slightly alter the site of injections, if possible
- If resistance develops, Myoblock (BoNTb) may be used (not in Ontario)
- - attempt injections again after a period of time

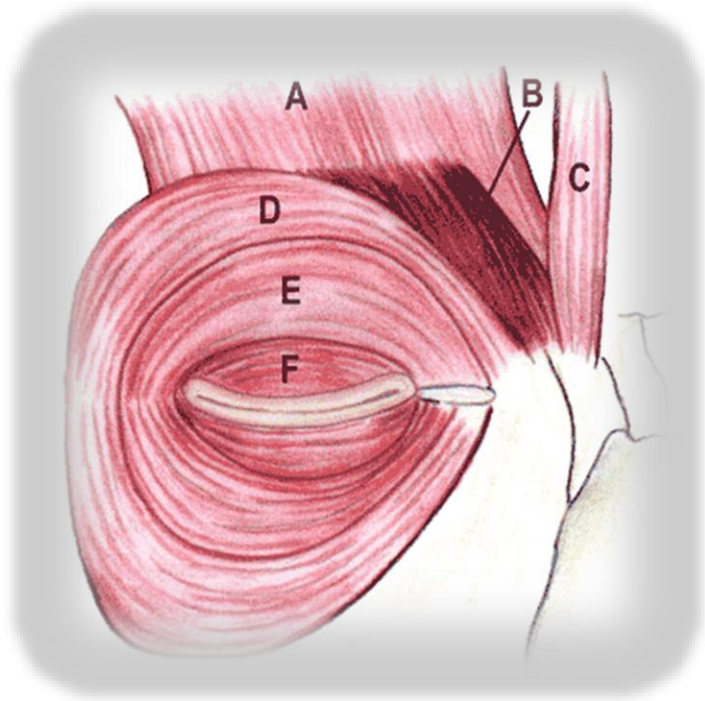
Complications: Eyebrow ptosis



Management: Have to wait it out...
Massaging the area may help Botox break
down
Or
Botox 1.25 units below eyebrow


Complications:

Treatment of Eyelid ptosis - Least desirable



 = UNSAFE ZONE



 = SAFE ZONE

Treatment may require Rx:

lopidine (eye-ope n-d-ing) eyedrops with epinephrine
1-2 drops 2-3 times per day (contracts Muller's muscle 2-3mm)

Complications: Bruising

Prevention of bruising:

- do NOT inject in recumbent position
- Superficial blood vessels – look for them!!!
- Avoid alcohol and aspirin for 24 hrs before and after
- Tx:
 - ice, Arnica, Traumeel gel
 - Masking of Bruises: Dermablend/Laura Mercier

Potential pitfalls: BoNTa complications

Complications	Prevention	Treatment
Brow ptosis	Avoid over-treating the frontalis (which elevates the brow) or injecting too low on the frontalis	Treat brow depressors; ptosis improves as BoNTa wears off and frontalis regains strength
Eyelid ptosis (migration of BoNTa to levator palpebri superioris)	Proper injection technique avoid deep placement; keep volume low; avoid manipulation of area after injection; tell patients not to touch their face	lopidine drops 0.5% or naphazoline such as Vasocon-A, maphcon-A, Opcon-A – 1 drop to affected eye Q4-6 hrs PRN. Resolves in 1-2 weeks
Headache	Avoid injection under periosteum	NSAIDs, ibuprofen

Contraindications

Pre-existing Neuromuscular Disorders

- Amyotrophic lateral sclerosis (ALS)
- Motor neuropathy
- Neuromuscular junctional disorders (e.g., myasthenia gravis or Lambert-Eaton syndrome)

Potential Drug Interactions

Ainterfering with neuromuscular transmission **potentiate**
effect aminoglycosides:

- Streptomycin
- Neomycin
- Gentamycin curare-like compounds

Other Contraindications

- Pregnant or lactating women
- Hypersensitivity to any ingredient including Albumin 9 Human Blood Product
- Flu or cold symptoms
- Infection or dermatitis in areas being treated
- Unrealistic patient expectations

***Botox Integration into
your Office***

BOTOX[®] Consumer Language

Purified Protein -----> Not a microorganism that causes Botulism

Muscle relaxant-----> Describes how Botox works

Local effect-----> Does not effect the rest of the body

For 3 months-----> Comforts patients, helping them realize that the treatment is reversible

BOTOX[®] Consumer Language

Minimal Discomfort-----> Eases concerns that
treatment may be too painful.
“Like plucking a hair”

Don't touch for 3 hours-----> Avoid side-effects caused
by moving material to
another location: shoes,
yoga, showering

Full effect in 2 weeks -----> Avoid concern that there is
no immediate effect

Remind patients of Botox action – clinical timeline

- It takes the toxin approximately 1 ½ - 2 hours to bind to the nerve
- Because of its intracellular site of action, BoNTa takes between 2-10 days from injection to exert its clinical effect
- Most commonly, re-treatment is between 3-6 months with a small percentage going considerably longer
- It is not recommended to retreat a patient before 3 months

Botox action – clinical timeline

Before



30 days



120 days



Patient Consultation Session

- Evaluation
- Pre-treatment Instructions (Downloadable PDF provided)
- Post-Treatment Instructions (Downloadable PDF provided)
- Consent (Downloadable PDF provided)

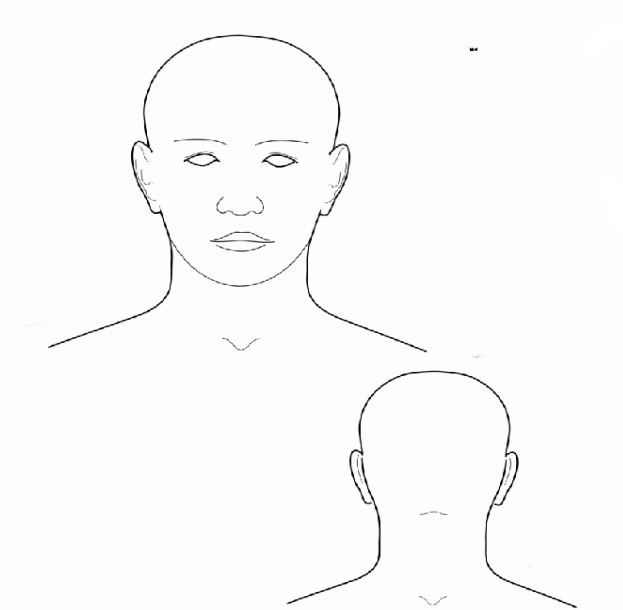
Evaluation

- Have patient remove all make up
- Seat patient in chair – do not lie down
- Cleanse the treatment area
- Aim light on patients face – blood vessels
- Stretch skin with fingers to see blood vessels
- Have patient assess face with hand mirror
- Demonstrate lesions and asymmetries
- Pre treatment photos – front and side
- Inject upright

Consent: Side Effects

- Ecchymosis – Bruising
- Occasional heaviness sensation of the forehead
- Transient headache, flu-like symptoms, dry mouth
- Discomfort, swelling, redness
- Weakness of the lacrimal pump or dry eye
- Possible bacterial or fungal skin infection
- Redness, swelling, mild pain, bruising, numbness, infection, flu-like syndrome, temporary muscle aching, as well as paralysis of a nearby muscle
- Seek immediate medical attention with breathing, swallowing, and speech problems

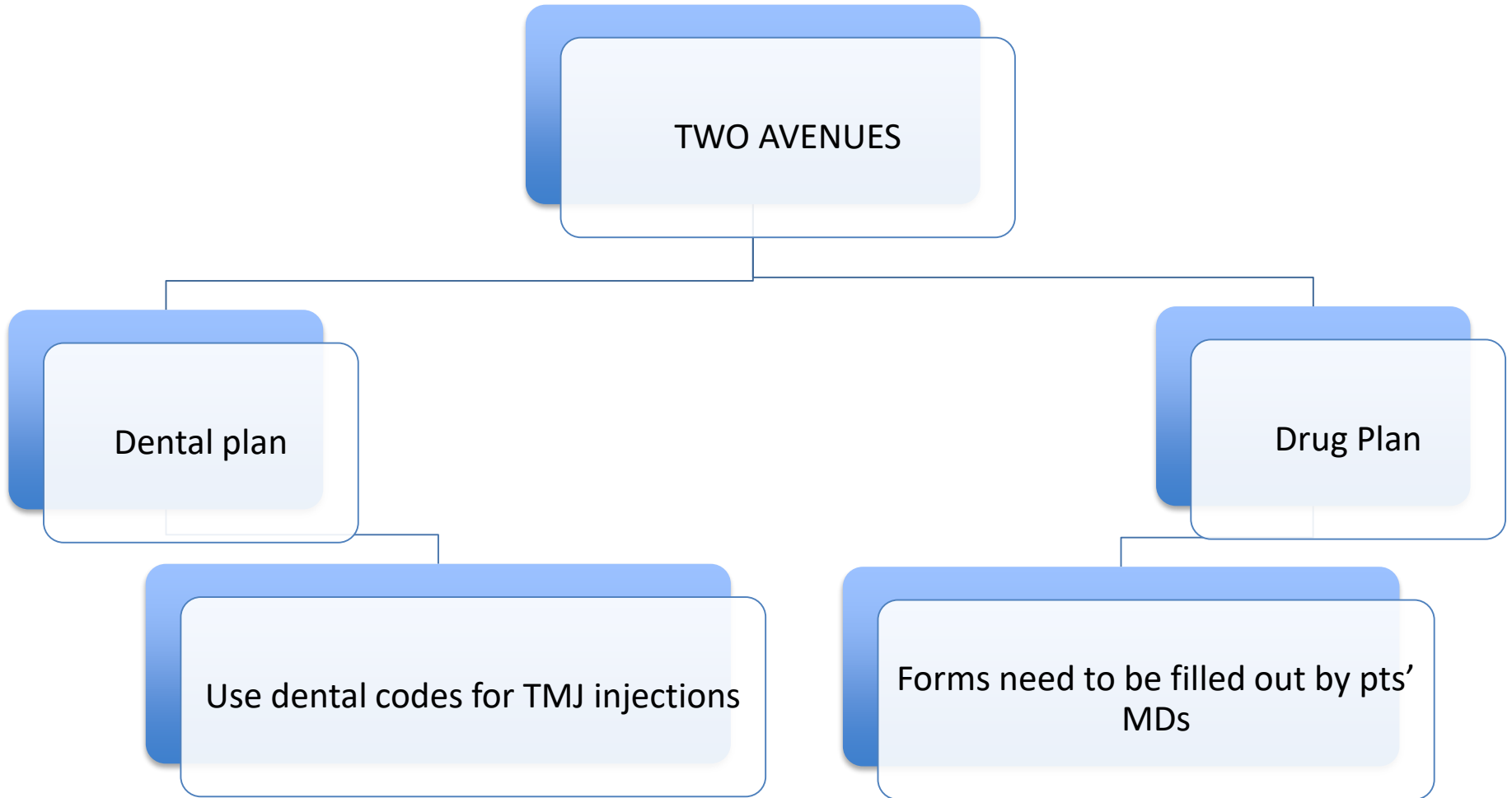
Chart Entry:



- Use a diagram or a table
- Therapeutic Botox for e.g. diagnosis, prevention & treatment of TMD
- Patient informed of the reason for injecting is to limit parafunctional activity, clenching, etc.

Muscle Area	Number of Units ^a	Bilateral Injection	Total Dose (U)
Frontal/Glabellar	25 - 40	No	25 - 40
Occipitalis	10	Yes	20
Temporalis	10 - 25	Yes	20 - 50
Masseter (optional)	0 - 25	Yes	0 - 50
Trapezius	10 - 30	Yes	20 - 60
Semispinalis	5 - 10	Yes	10 - 20
Splenius capitis	5 - 10	Yes	10 - 20
Total Dose Range			105 - 260

Billing for Botox treatment



Billing for Botox treatment

Dental codes

Some of the codes may be useful/applicable (NOT GUARANTEED TO BE COVERED/ACCEPTED BY INSURANCE PLANS):

- 96201 – Intramuscular Injection \$275
- 79801 – Muscular Dysfunction..... \$325
- 78601 – TMJ injection.....\$275

Billing for Botox treatment Drug Plan Forms

To whom it may concern,

Livia Stewart was recently in our office for an evaluation and treatment of her persistent headaches. Patient's migraine history was reviewed. Various treatment modalities, from naturopathic/eastern medicine to more conventional methods, were attempted in order to alleviate his/her on-going migraines. I have informed Livia of the mechanism of action of Botox and all the risks associated with Botox treatment. He/She consented to the injections. I distributed 120 units of Botox (DIN 01981501) at \$10.33 among the most tender muscles sites indicated by the patient: Temporalis (bilaterally), Frontalis, Masseters, Occipitalis, Trapezius (left) and Trapezius (Right). The patient was dismissed with Post Op instructions and was asked to follow up with us in 2 weeks via a phone call or an email.

Please see the Treatment Invoice attached.

The Injectors fee was \$200. The remainder of the amount reflects cost of the Drug, sundries, etc.

Please inform me if you need any additional information about Livia from our office.

The Cost of Botox Injections

Allergan pricing	Raw cost to DDS	Raw cost per unit of Botox	“Going rate” per unit of Botox
50 unit vial	\$ 175.00 + sundires	~ \$ 3.70/unit	~\$ 10-15/unit
100 unit vial	\$ 350.00 + sundires		

Let's help our patients!

Head

- headaches
- sinus/migraine
- forehead/temples
- pressure in sinuses
- face aches
- pain behind eyes
- facial muscle spasm

Neck

- neck pain/stiffness
- tired or sore muscles
- muscle spasms
- lack of mobility
- shoulder and backache



Teeth

- clenching or grinding teeth
- inconsistent tooth pain (relocates)
- pain when swallowing, speaking or chewing

Jaw

- popping, clicking and grating noises
- tenderness or pain in the jaw joint
- difficulty opening or closing mouth
- jaw "locks" or "sticks"
- difficulty yawning, chewing and opening wide

Final Steps to Advanced Certification

**Hands on Clinical
Component**

Complete Your Certification

- Find an appropriate patient
- Contact our office for a convenient time to come in with your patient
- Complete a 30 minute one-on-one hands on session (combined with lip filler administration if Filler module is being taken concurrently):
 - You will inject up to 50 units of Botox
 - Your theory questions from the on line material will be answered
 - A formal evaluation of your knowledge will be conducted in a form of a QUIZ
 - You will be awarded a certificate of completion qualifying you to administer Botox in your clinic

**Congratulations on acquiring a set of
new skills in Patient Care!**



Allergan (Ontario and Quebec) 1800 668 6427

THANK YOU!

BOTOX AND FILLER 
TRAINING FOR DENTISTS
DR. SKY NASLENAS

BotoxTrainingCentre.ca