

Aesthetic Medicine for the Millennial Patient: Practical Pearls for Patients
Across Generations

Aesthetic Facial Anatomy

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Disclosures

- US Patent 5/611,814
Resorbable surgical appliance for use in supporting soft tissue in a superior position
- US Patent 60/950,423
Composition and Method of Use for Soft Tissue Augmentation, Drug Delivery
- US Patent 12/797,710
Method for Measuring Change in Lip Size
After Augmentation
- US Patent 13/604,012 Light Therapy Platform System
- US Patent Taurolidine Antimicrobial Wound Closure Materials
- Consultant to Johnson & Johnson
- Consultant to Allergan
- Consultant to Galderma
- Consultant to Sinclair Pharma
- Consultant to Merz
- Consultant to ThermiAesthetics
- Consultant to Almirall Pharma



Anatomic Considerations

Who is a Millennial?

- Anyone born between 1981 and 1996 (ages 26 to 41 in 2022)¹
- Largest generation – 75 million people²

Considerations for the Millennial patient

- Age-related anatomical changes

And....

- Generational attitudes surrounding beauty and aging
- Attitudes differ surrounding aesthetic care



1. Pew Research Center. *Millennials*

2. Brookings Institute. <https://www.brookings.edu/research/millennials/>

Changing Perspectives: Patients

Communication

- Social media and popular media are generation-shaping
- Comfortable with the idea of ongoing “maintenance”

Ethnicity

- More patients are multiethnic than in previous generations¹
- Fewer are Caucasian (55% of millennials are “white”)²
- Exposure to different cultures and their beauty ideals

Gender

- Fluidity and individual identity are important to consider (>12% identify as transgender or gender non-conforming)³
- Rules and ideals are based on averages and often on qualitative data that is 20+ years old

1. Pew Research Center. <https://www.pewresearch.org/social-trends/2015/06/11/multiracial-in-america/>

2. The Brookings Institute: <https://www.brookings.edu/blog/the-avenue/2016/06/28/diversity-defines-the-millennial-generation/>

3. Harvard Business Review: <https://hbr.org/2020/04/companies-cant-ignore-shifting-gender-norms>



Learn. Then Break the Rules

- Rules of proportion
- Question definitions of “Masculine” and “Feminine” and disrupt the gender structure with your patients
- Treatment should be individualized and deliberate

“Learn the rules so you can break them like an artist”

- Pablo Picasso



Changing Perspectives: Physicians

When I was your age, we had to walk uphill, both ways, for ten miles, to get collagen injected

Anatomy

- Anatomical studies have improved our understanding of indirect effects (e.g., composite lifting, injecting laterally first^{1,2})
- Individual variations in anatomy^{3,4}

Tools at Hand

- We're better at using the tools we have (e.g., toxin to "freeze the face" evolved into neuromodulation and adjusting brow position and facial shape)
- Innovation has been explosive

Natural Outcomes

- Treatment is multimodal/multilayer
- Focus on natural-looking and balanced outcomes

1. Lorenc ZP, Lee JC. *J Drugs Dermatol.* 2016;15(9):1136-1141.
2. Casabona G, Bernardini FP, Skippen B, et al. *J Cosmet Dermatol.* 2020;19(2):303-311.
3. Abramo, A.C., Do Amaral, T.P.A., Lessio, B.P. et al. *Reviewing Concepts Aesth Plast Surg.* 2016;40:962.



Key Ideas

- Treatment must be individualized
 - Aesthetic “rules” are often ethnocentric and cannot be applied to all people
 - Studies on perceptions of ideal male and female features report means and proportions
 - Identity is fluid. Male/female assumptions are counterproductive
 - Communication is KEY
 - Help patients understand that consistent treatment over time is most successful
 - Keep. Up. (don’t stop learning)





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ANATOMY

Variations and Aging

Why Study Anatomy?

1

SAFETY!

2

Understand the basis for product placement and observed treatment effect

3

Understand how aging events in different tissue layers interact to give rise to complaints like “looking tired” or “looking older”

4

Achieve natural-looking outcomes appropriate for the individual patient

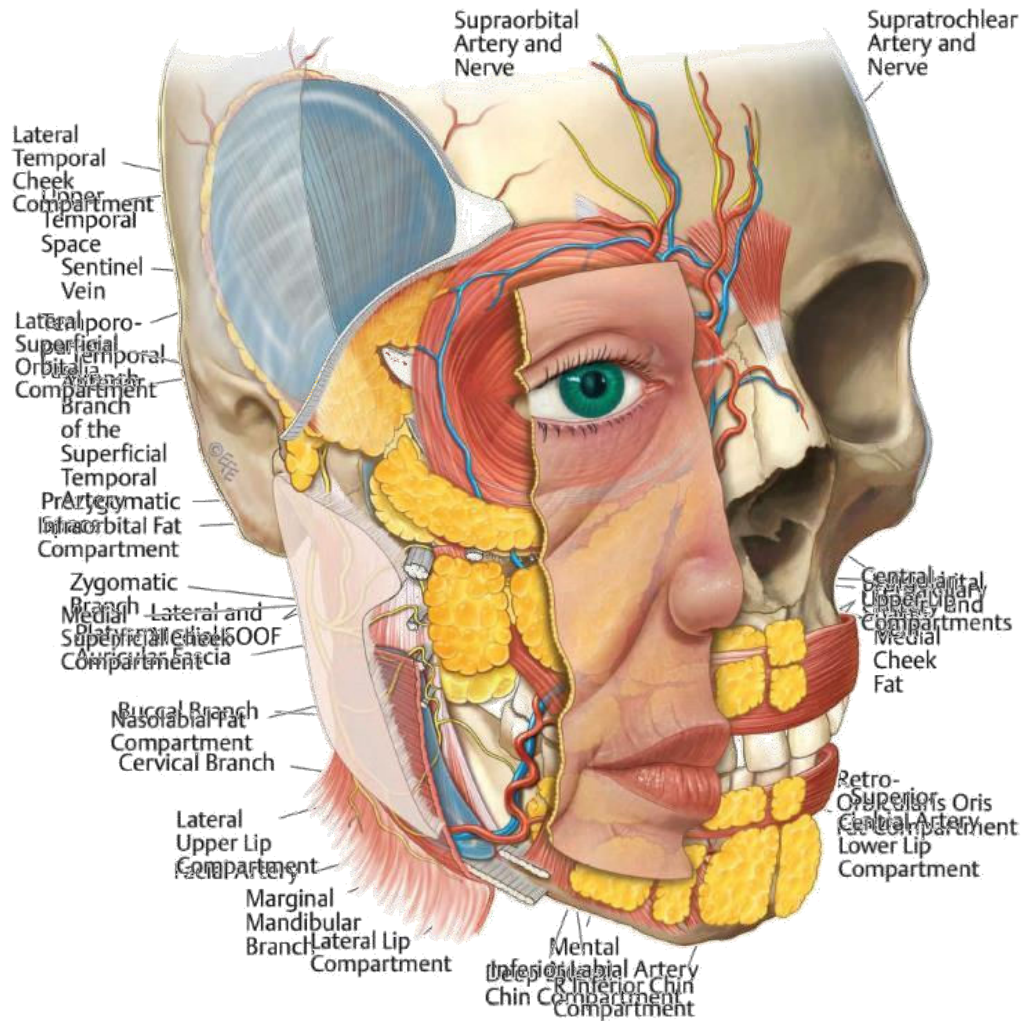
5

Understand ethnic variability

6

Understand how to build a treatment plan. Treatment order + product selection





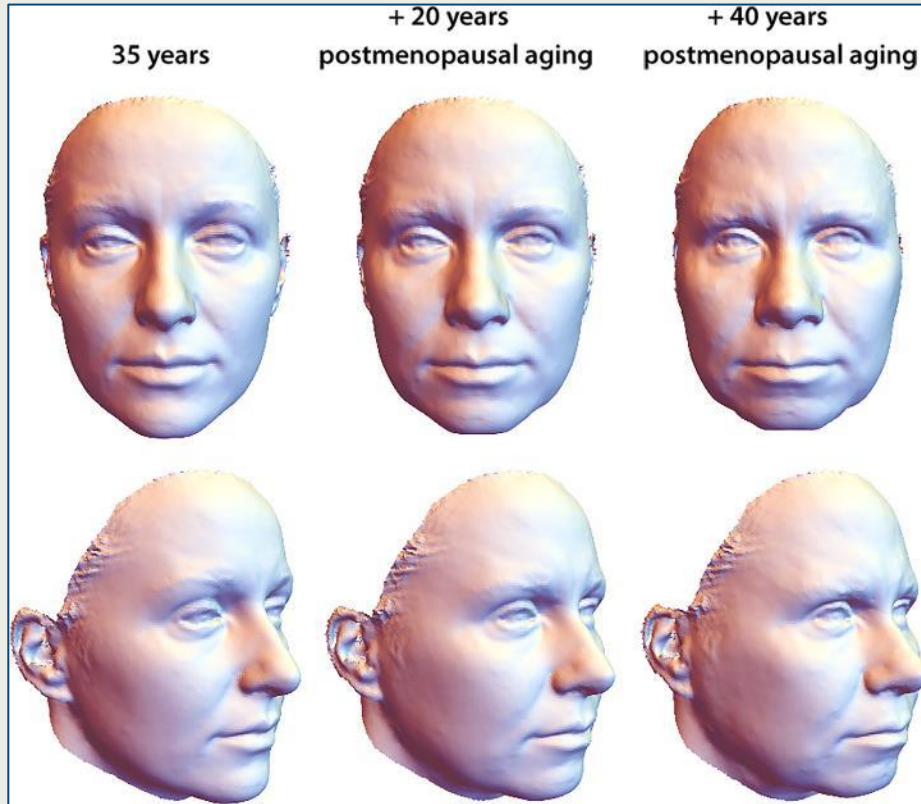
The Effect of Age



The outward signs of aging are a result of predictable, progressive changes in skin, ligaments, fat, and bone



The Impact of Age: Facial Shape



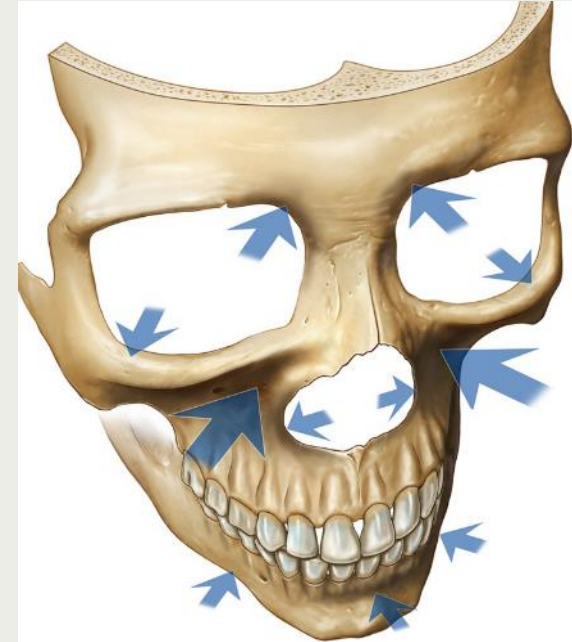
Trajectory

Age-related facial shape change is similar in both sexes until around age 50, at which time the female aging trajectory turns sharply¹



Bone

- Bones support overlying tissues and can be thought of as structural scaffolding
- Bony resorption (right) leads to loss of structural support and descent of facial features
- Resorption is not uniform, and significantly affected areas, especially in younger patients include¹
 - Inferolateral orbital rim
 - The maxilla - including the pyriform area of the nose
 - Pre-jowl area of the mandible²



Arrows are areas of the facial skeleton susceptible to resorption with aging. The *size of the arrow* correlates with the amount of resorption²

1. Mendelson B, Wong CH. *Aesthetic Plast Surg.* 2020;44(4):1151-1158.
2. Mendelson B, Wong CH. *Aesthetic Plast Surg.* 2012;36:753-760.

Differences in Bone Structure

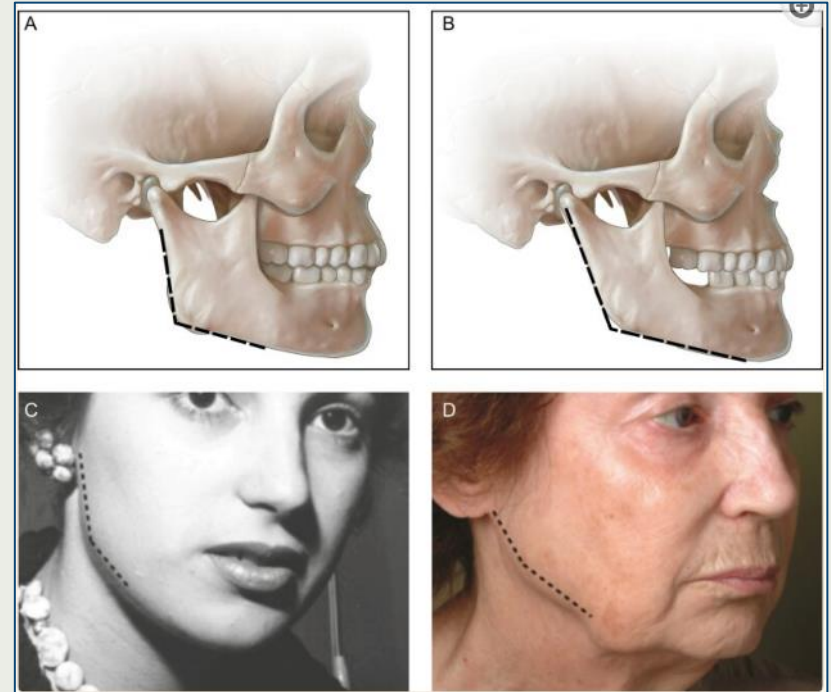
Females	Males
Rounded forehead	Sloping, less rounded forehead
Smooth supraorbital ridge	Prominent supraorbital ridge
Round orbits	Squarer orbits
Sharp upper eye margins	Blunt upper eye margins
Pointed chin	Square chin
Sloping (obtuse) angle of the jaw	Vertical (acute) angle of the jaw

1. Mendelson B, Wong CH. *Aesthetic Plast Surg.* 2012;36:753–760.



Bone: Mandible

- **Length of the mandible increases with age for both sexes¹**
- The chin also shortens and changes in projection occur, which affect the apparent length of the mandible²
- Loss of maxillary support can compound these changes and lead to further elongation of the mandible²
- Volume loss in fat pads of the lower face contributes to loss of definition²



Female patient at 22 years of age
and at 70 years of age

1. Shaw RB Jr, Katzel EB, Koltz PF, Kahn DM, Giroto JA, Langstein HN.. *Plast Reconstr Surg.* 2010;125(1):332-342.
2. Mendelson B, Wong CH. *Aesthetic Plast Surg.* 2012;36:753-760.

Male and Female Mandible

Gonial Angle



- Female angle is just anterior to where the axis of the ear intersects with the line of the mandibular body the masculine angle is at this intersection²
- Extending the injection beyond this line results in masculinization of the jaw
- Feminine AOM is a more superior and medial (less projected) than the masculine
- For masculinization of the jawline, the clinician may need to extend the angle of the mandible to the axis of the ear and place the injections slightly posterior

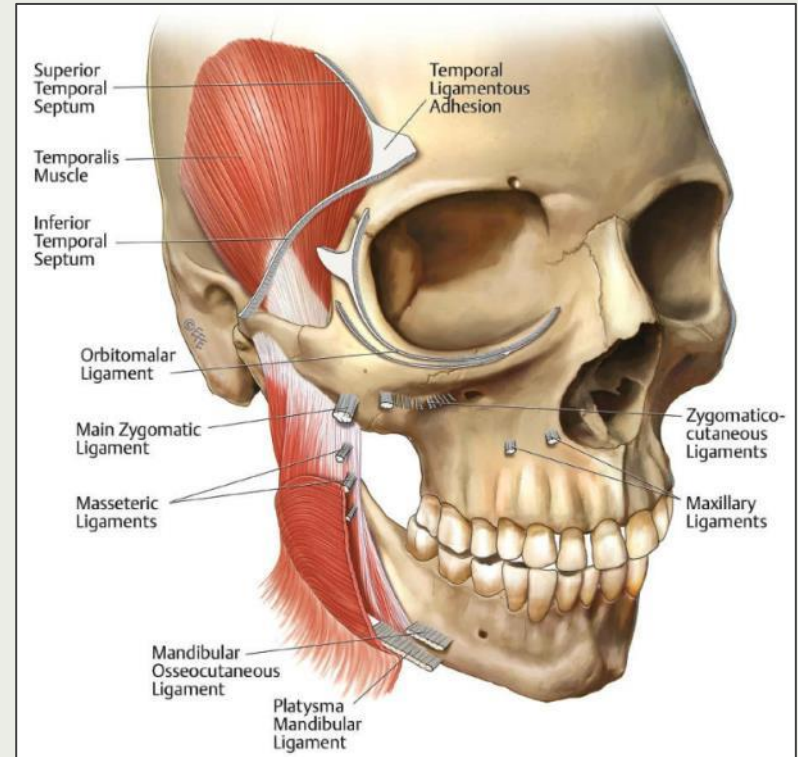
1. Morrison SD, Vyas KS, Motakef S, et al. *Plast Reconstr Surg.* 2016;137(6):1759-1770.

2. Moradi A, Shirazi A, David R. *Facial Plast Surg.* 2019;35(2):140-148.



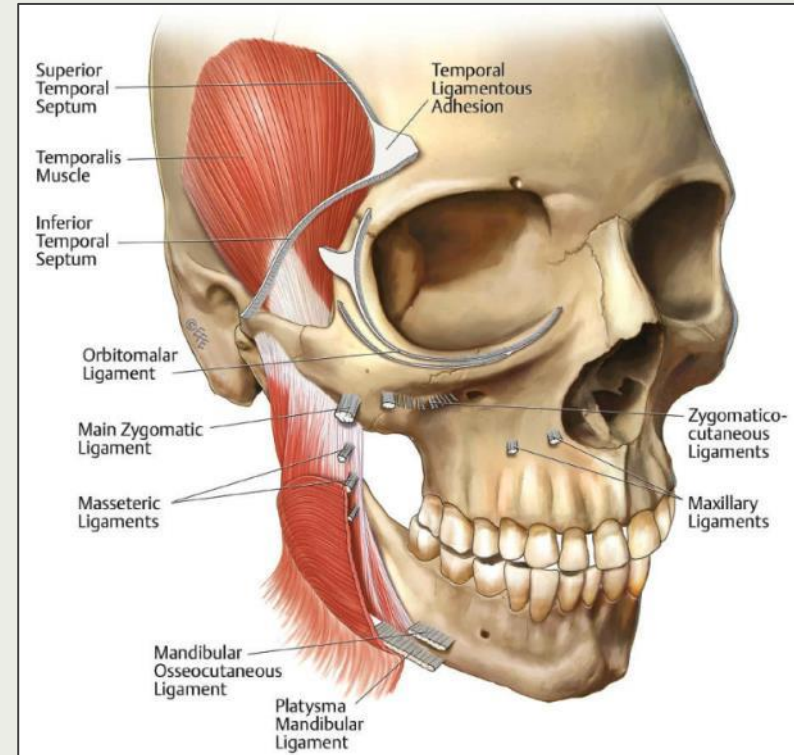
Retaining Ligaments

- Bind the soft tissue layers of the face together
- Define the shadows and creases of facial aging



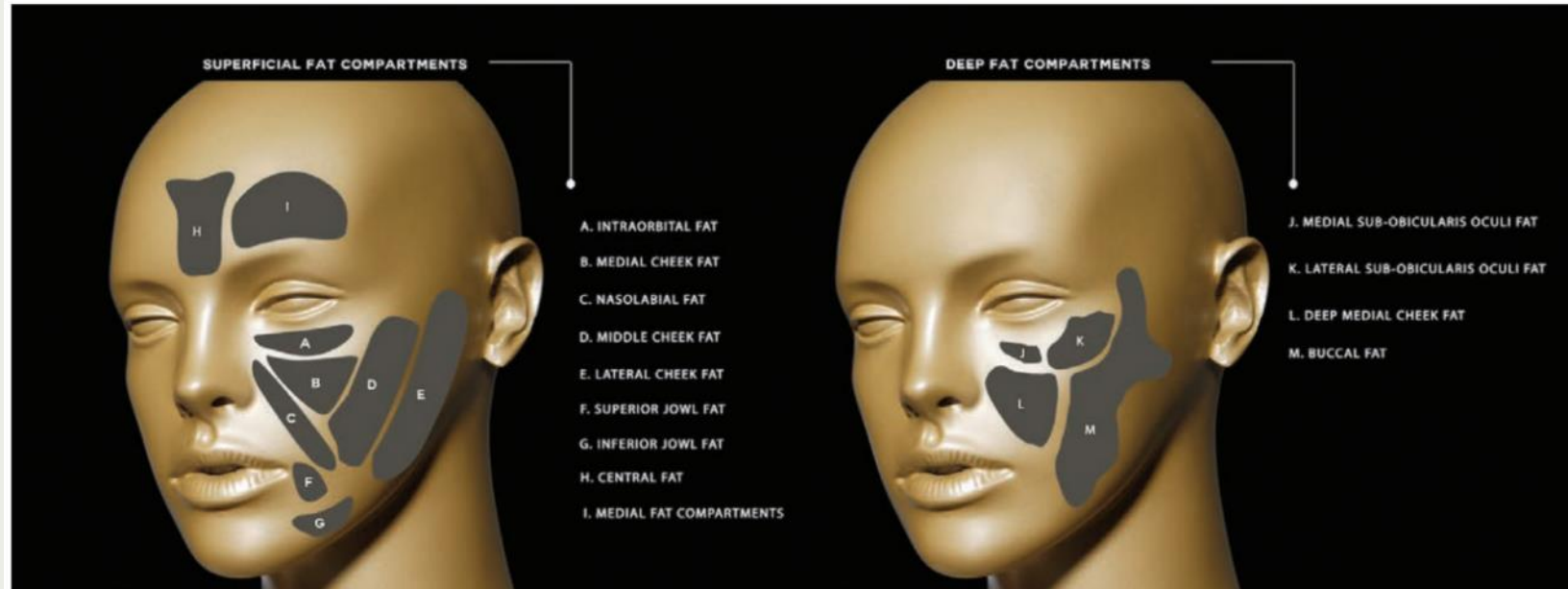
Retaining Ligaments

- Treatment can be targeted to address retaining ligaments and create a lifting effect¹
 - Injection under the orbicularis retaining ligament to improve the lid-cheek junction²
- Awareness of location supports optimal outcomes³
 - Transverse facial septum
 - Mandibular ligament⁴



1. Cong LY, Duan J, Luo CE, Luo SK. Injectable Filler. *Aesthet Surg J*. 2021;41(11):NP1571-NP1583. doi:10.1093/asj/sjaa348
2. Bernardini FP, Casabona G, Alfertshofer MG, et al. *J Cosmet Dermatol*. 2021;20(11):3446-3453. doi:10.1111/jocd.14495
3. Cotofana S, Gotkin RH, Frank K, Lachman N, Schenck TL. *Dermatol Surg*. 2020;46(8):e16-e22. doi:10.1097/DSS.0000000000002236
4. Lamb J, Surek C. *Facial Volumization: An Anatomic Approach*. New York: Thieme, 2018

Fat



With age, deep fat tends to atrophy and superficial fat tends to reposition or hypertrophy

1. Cohen SR, Womack H.. *Plast Reconstr Surg Glob Open*. 2019;7(8):e2293.

Fat

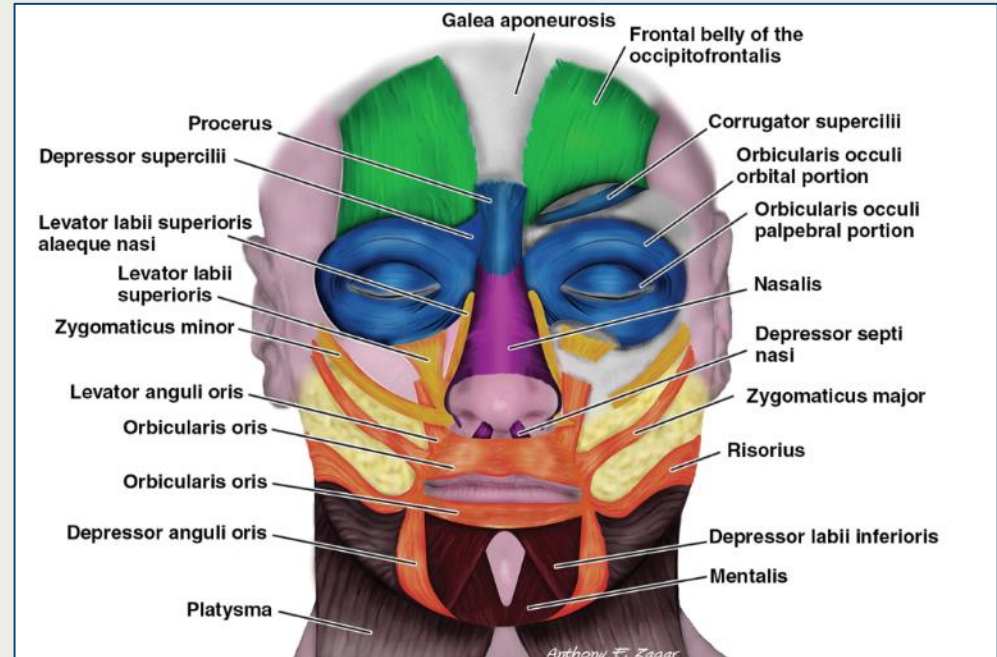
- Common impacts of fat loss for Millennial patients include
 - IOH
 - NLF
 - Jawline



Rohrich, R. *Plastic Surgery—The Meeting* at San Diego on October 12, 2013

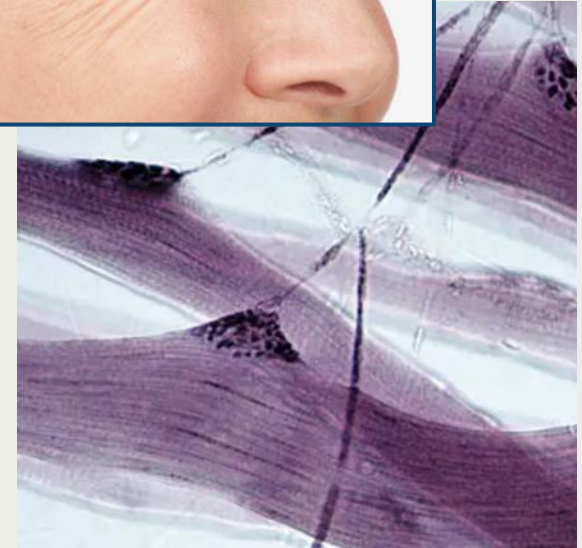
Muscle

- Includes the platysma muscle, parotid fascia, and fibromuscular layer covering the cheek¹
- Also includes smaller and more intricate muscles
 - Orbicularis oculi, orbicularis oris, the occipitofrontalis, and the levator labii superioris muscle



Muscle

- Though muscle atrophies with age, its effect is increased due to aging changes in the skin¹
- A hallmark of age is dynamic discord, which relates to the interplay between mimetic facial muscles and the overlying deteriorating skin envelope²
- Patterns of dynamic lines are predictive of lines at rest 10 years later³



1. Mendelson B, Wong CH. *Aesthetic Plast Surg.* 2012;36:753–760.
2. Jones DH, Swift A, eds. *Injectable Fillers: Facial Shaping and Contouring.* 2nd ed. Hoboken, NJ: Wiley Blackwell; 2019:29-62.
3. HillebrandGG,LiangZ,YanX,YoshiiT.. *Br J Dermatol.* 2010;162:1233–41.



Common Uses for Botulinum Toxin

- Glabellar frown lines¹
- Horizontal forehead lines²
- Crow's feet²
- Bunny lines
- Brow lift
- Mouth frown
- Masseter
- Lower eyelid
- Lip lines
- Nasal tip droop
- Transverse neck lines
- Platysmal bands
- Pebbly Chin

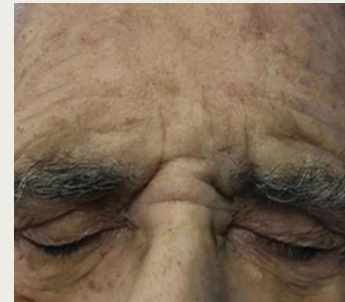
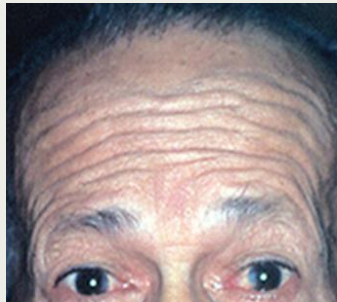


Expression lines	Muscle	Action
Frown lines	Corrugator supercilii Procerus and depressor supercilii	Eyebrows drawn medially Eyebrow depressors
Horizontal forehead lines	Frontalis	Eyebrow levator
Crow's feet	Lateral orbicularis oculi	Lateral eyebrow depressor
Eyebrow lift	Superior lateral orbicularis oculi	Superior lateral eyebrow depressor
Bunny lines	Nasalis	Nose drawn up and medially
Radial lip lines	Orbicularis oris	Lip puckering
Marionette lines and downturned smile	Depressor anguli oris	Corner of mouth depressor
Gummy smile and nasolabial fold	Levator labii superioris alaeque nasi	Central lip levator
Chin line and pebbly chin	Mentalis	Chin texture and lower lip levator

Key: orange = depressor muscles; purple = levator muscles; gray = sphincteric muscles.

1. Approved indication for BOTOX Cosmetic, Dysport and Xeomin (as per package insert) 2. Approved indication for BOTOX Cosmetic (as per package insert). 3. Small R. *Am Fam Physician*. 2014 Aug 1;90(3):168-75. (Figure)

Individual Variations are Substantial!

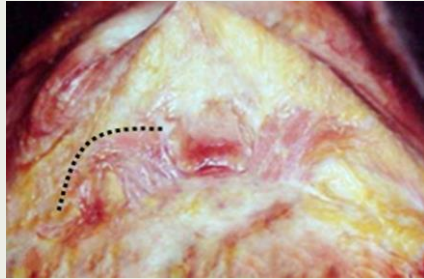


Abramo, A.C., Do Amaral, T.P.A., Lessio, B.P. et al. : Reviewing Concepts Aesth Plast Surg (2016) 40: 962.



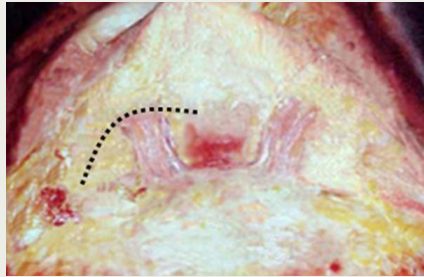
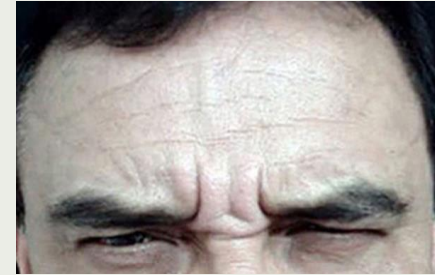
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Individual Variations are Substantial!



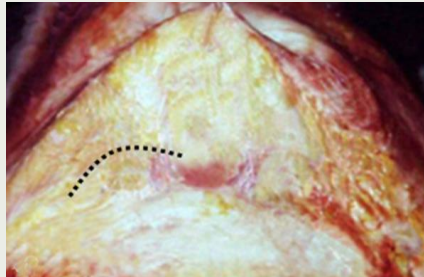
Type 1¹

Medial half of brow
Hockey stick



Type 2

Intermediate part of
medial half of brow
Parallel straight lines



Type 3

Narrow insertion into
medial end of brow
Single straight line



Muscle

- Male patients often require higher doses of neuromodulators
- Sex-based differences in the size of mimic musculature:
 - The mentalis, depressor anguli oris, and depressor labii inferioris are significantly smaller in women
 - Zygomaticus and frontalis muscles are significantly larger in women.
- Body weight is associated with facial muscle size (more so in men than in women)
- Muscle size is not significantly affected by age and body height

Though muscle size may not significantly change with age, the *pattern* of activity can. Thus, dosing and injection strategy, even for an individual patient, can change over time.



Skin Changes

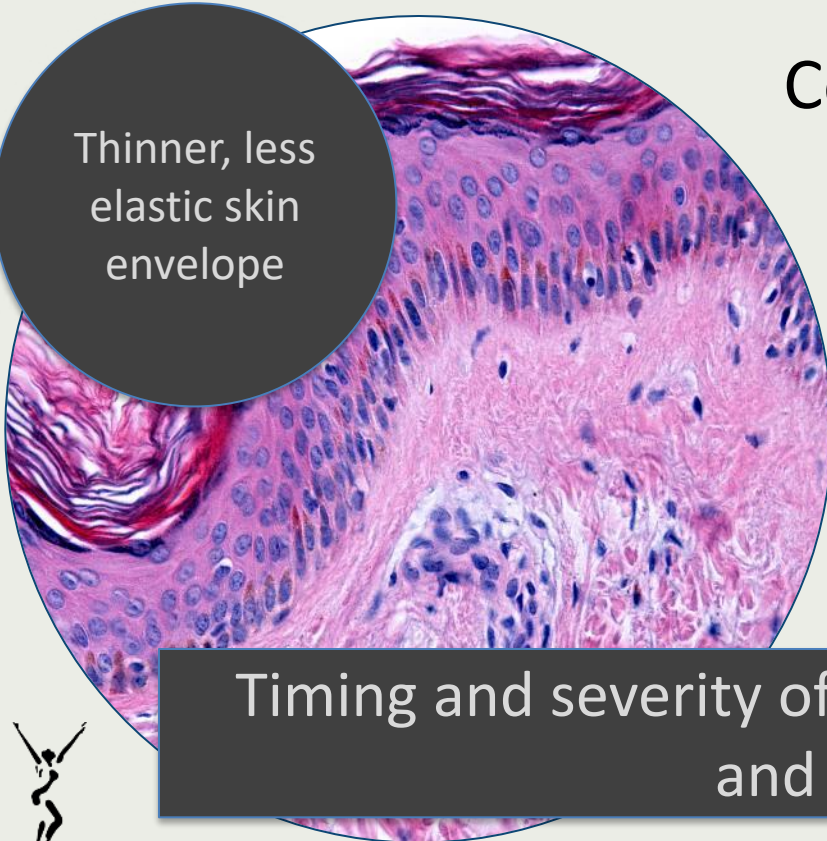
Collagen production is decreased

Skin cell turnover is decreased

Moisture and skin barrier function is reduced

Elastin production decreases

Timing and severity of aging is affected by skin thickness and melanin content



Thinner, less elastic skin envelope

Timeline of Aging Events

20s

- Beautification
- Asymmetry
- Dynamic lines (late 20s for subset of patients)

40s

- Dynamic lines deepen
- Eyebrows continue to descend
- Upper eyelid skin increases in laxity and descends
- Tear trough elongates/ inferior orbital rim becomes visible
- Midface loses projection, hollows, and appears to descend
- NLF deepens
- Lips thin/perioral lines develop
- Chin begins to rotate/elongate
- Jawline loses definition

60s

- Eyes appear small and round
- Nose elongates
- Jowls are increasingly prominent
- Skin thins, loses elasticity, and sags significantly
- All previously noted changes are exaggerated

30s

- Forehead/glabellar/canthal lines emerge
- Eyebrows begin to descend
- Upper eyelid skin increases/ eyes appear smaller
- Fine lines around lower eyelids
- Tear trough more prominent
- Midface aging begins
- NLF forms
- Lip thinning begins
- Alteration in skin texture and color

50s

- Dynamic lines deepen and remain noticeable in repose
- Upper eyelid drooping increases
- Tear trough and lower eyelid scleral show worsens
- Nose begins to droop
- Midface structures noticeably descend
- If tooth loss occurs, the cheeks may appear hollow
- NLFs increasingly prominent
- Lips thin and perioral lines are more visible
- Jawline has diminished firmness and jowls may develop



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Common Procedures for Millennial Patients

- Qualitative complains like “looking tired” or “looking older”
- Botulinum toxin for dynamic lines and brow position
- Improvement of nasolabial fold
- Jawline definition
- Lip augmentation
- Non-surgical rhinoplasty
- Skin quality issues





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CASES

Surgical interventions with filler



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Conclusions

1

Treatment should be individualized based on patient needs/desires

2

Take the time to understand anatomy and its impact on ageing

3

Be adaptable and willing to take into account individual identity

4

Keep learning about new developments and approaches, stay current!





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THANK YOU