

The Oculoplastic OD

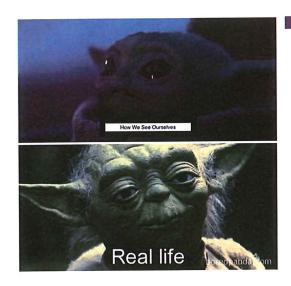
Selina McGee, OD, FAAO

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# <sup>+</sup>Financial Disclosures

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- = 110 varia
- Eyevance
- Versant
   Sun
- Horizon
- Tarsus
- Optovue





# <sup>+</sup>Did you know?

 Only 11% of patients have a conversation with their eye care provider about makeup and products



#### +

# My philosophy: Learn something nev

### Learn something new everyday

I believe we as optometrists have an incredible opportunity to talk with our patients

- Cosmetic offenders
- Habits can be harmful
- Injections
- Non-surgical
- Surgical procedures.



We absolutely have the skill set to not only be a part of these conversations but to lead them!

### + BeSpoke Vision





# Does this make sense for optometry? Why wouldn't it?©

- Frames
- Contact Lenses
- Slit lamp biomicroscopy
- Eye lash enhancement
- Dry Eye Disease
- Cosmetics
- Non-invasive procedures
- Injections
- Surgical co-management

You know more than you think!!!





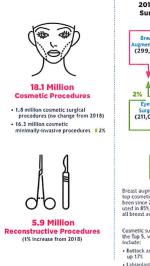
- The global cosmetics industry will be worth ~\$440 Billion by 2026
- Women in the US spend ~\$3800 on cosmetics annually
- \$15 Billion will be spent on the global influencer marketing by 2022
- 82% of women believe that social media drives trends

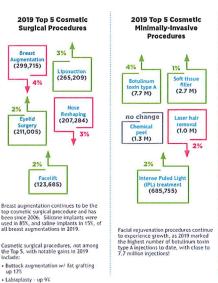


- The sales of skin care products with blue light protection went up by 170%.
- (WebMD) (WWD)
- Blue light is the light that comes out of your screen and other electronic devices that is often associated with eye problems like blurry vision, eye dryness, and cataracts. Long exposure to blue light can also lead to pigmentation, swelling, redness, and other skin problems.
- Although cosmetics with the blue light protection was already a trend in 2019, cosmetic industry statistics from 2020 imply that its sales went up due to the lockdown and the switch to remote work.



- Beauty industry statistics from 2020 show us that lipstick sales were down by 15%, compared to eye makeup sales that went up by 204%.
- (Business Insider)
- There was a drop in Amazon sales of lipsticks, while eye makeup sales grew by an astonishing 204%. This comes as no surprise, given that the wearing of masks became mandatory in all the countries in the world. Lipstick prices even dropped by 28%.





#### + Headlines



# Don't Forget Sunnies

- Sunglasses=no squinting=fewer wrinkles
- Skin cancer prevention
- Slows progression of cataracts
- Helps prevent macular degeneration
- Hides a multitude of sins



### +Beauty and the Beasts...



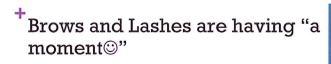
Cosmetic Offenders, Hygiene, Blink Ergonomics Demodex, MGD, Neurotoxins

### +Eye Make Up

- Do your patients ask you what eye make-up to use?
- Do you discuss how to remove eye make-up?
- What kind of mascara is best?
- Do you talk about their extensions?
- Where to apply, what to avoid?

44% of women reported negative feelings when They can't wear make-up

Bottom Line: They will wear make-up even knowing That it could be harmful- we have to help them through this



■ Have you ever studied a Disney princess?



### False Lashes

- Glue On
- Outside and inside water line
- Formaldehyde and Latex are common ingredients

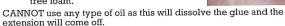


- Magnetic
- Eyeliner contains iron oxides and can remove skin
- Two magnets on either side of the natural lashes

\*Look at the glue ingredients (do a patch test), individual lashes vs strips, take breaks, and keep lashes 1/3 the eye

### **Eyelash Extensions**

- 1-3 hour process of gluing single lashes to anatomic lashes
- "Filling" or re-doing extensions every 2-4 weeks (average life cycle of a lash is 4-11 months)-this process removes the old and replacing with new. Glue solvents and fragrances are very likely to end up on the ocular surface.
- \*Good practices
  - Look at glue ingredients
- Take breaks from extensions
- Clean with hypochlorous acid and tea



# <sup>+</sup>Eyelash Perm, Lash-Lift, Tint...

- "Perm" chemicals to create curl
- Permanent dye to darken the eyelashes



### **Eyelash Serums**

- Latisse-only FDA approved lash serum
- Active ingredient
- Synthetic prostaglandins Isopropyl cloprostenate
- Relative Enophthalmos
- Inferior Scleral Show
- Periorbital Fat Atrophy
- Involution of dermatochalasis
- Meibomian Gland Dysfunction
- Hyperpigmentation
- Redness
- Purititis



# "Permanent" Eyeliner

■ Tattooed eyeliner







- In the US 1 Billion Dollar Product
- An Optocosmetic line available





### THE VISION MATRIX A full collection of ESSIRI first generation products:

Eye Proof Facial Cleanser Eye Proof Facial Serum Eye Proof Liquid Liner Eye Proof Mascara Eye Proof Refreshing Towelettes x 10

### \*Top 10 Ocular Surface Beauty Blunders

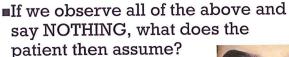
- 1. Waterproof Eye Make-up
- 2. Eyelid Tattooing
- 3. Eyelash Extensions
- 4. Eyelash Tinting
- 5. OTC Eyelash Growth Serums
- 6. Botox in a Jar
- 7. Botox for Crow's Feet
- Loose Eyeshadow or Glitter
- 9. Retin-A
- 10. Sharing Make-up

Dry Eye Diva

### \_What are the right questions?

- Wow, you lashes are really long, is that natural? (Lucky them<sup>©</sup>) or are they using a serum? ie. Isopropyl cloprostenate
- How do you clean your extensions?
- Do you wear eye make-up?
- How do you remove your make-up?
- Do you ever sleep in your eye-make-up?
- Did you know many of the products we use around our eyes could cause eye health issues today or in the future?
- Do your eyelids bother you?
- Do you want your eyes to be more open?
- Did you know the delicate eye area is a very common place for skin cancer to show up?
- Observe where they place their eyeliner.

# The Question we should ask ourselves



- ■Break the Silence
- ■Don't be Intimidated



# <sup>†</sup>What we know...

- Allergic Contact Dermatitis
- ■Blepharitis
- ■Conjunctival Injection
- ■Contact Lens Intolerance
- ■Dry Eye Disease
- ■MGD



# Bathroom Vanity

Self Described Product Junkie!!

Guess what? So are our patients

Do they have any idea what they are actually purchasing?
There are no specific cosmetic safety tests that are required by the Federal Food, Drug, and Cosmetic Act of 1938

US Bans 11 chemicals EU Bans 1328 chemicals



### \*Removing Eye Make Up (Stating the Obvious-REMOVE Eye Make-up



















BASIC INVESTIGATION: PDF ONLY

#### Effects of Terpinen-4-ol on Meibomian Gland **Epithelial Cells In Vitro**

Chen, Di MD<sup>\*\*+</sup>; Wang, Jingyi MD<sup>\*\*+</sup>; Sullivan, Devid A. MS, PhD, FARVO<sup>\*+</sup>; Kam, Wendy R. MS<sup>\*+</sup>; Liu, Yang MD<sup>\*\*</sup> Author Information ⊙

Cornea: September 16, 2020 - Volume Publish Ahead of Print - Issue -doi: 10.1097/ICO.0000000000002506





#### Abstract

#### Purnoses

Infestation with demodex mites has been linked to the development of chalazion, meibomian gland dysfunction, and blepharitis. An effective treatment is the eyelid application of terpinen-4-ol (T4O), a tea tree oil

### Clean Make Up Brushes Weekly



### +Look Past the Marketing Hype-Carcinogenic and Show up in the blood stream

- - Found in Shampoo, body wash, face wash, mouthwash, and tooth
  - Cancer, canker sores, eye irritant, cystic acne
- Found in exfoliants and perfume-carcinogenic
- Triclosan and triclocarbon
  - Found in toothpaste, deodorant, and antibacterial soap-hormonal disruption, bacterial resistance
- Aminophenol, Diaminobenzene, Phenylenediamine-Coal Tar
  - Hair Dye and shampoo-carninogenic
- - Preservative-mimic estrogen, linked to breast cancer, skin cancer, decreased sperm count
- Polyethylene Glycol/PEG's-
- Found in scrubs-carcinogenic

#### Retinal palmitate, retinyl acetate, retinoic acid, and retinol

- Moisturizer, lip products, anti-aging-carcinogenic in sunlight, can decimate MG's
- Petroleum Distillers
- Mascara-contact dermatitis, cancer causing impurities
- Isopropyl cloprostenate
- Synthetic prostaglandin
- Oxybenzone
  - Sunscreen-mimics estrogen
- Dibutyl phthalate, toluene, and formaldehyde "Toxic Trio"
  - Nail polish and other nail products-birth defects, endocrine disruption, headaches, respiratory problems
- Hydroquinone
  - Skin lighteners-ochronosis
- Propylene Glycol
- Skin conditioning agent-contact dermatitis, hives
- Fragrance
- Top 5 allergens in the world



### Ocular Surface Offending Agents

- Alcohol
- Argireline
- Benalkonium chloride (BAK)
- Ethylenediaminetetraaceitic Acid(EDTA)
- Formaldehyde
- Isopropyl Cloprostenate
- Parabens
- Phenoxyethanol
- Retinol







### \*Teach Patients What to Avoid



### What Should We Recommend?





- Hydration, hydration, hydration!!
- Salicylic Acid
- Hyaluronic Acid
- Oils-Coconut, Tea Tree, Niacinamide (B3)
- Caffeine
- Zinc Oxide, Titanium

- Alpha Lipoic Acid
- UV Protection
- Sleep







Can utilize App's like these





# +Sunscreen

Completeness of Facial Self-application of Sunscreen in Cosmetic Surgery Patients

Nicole A. Langelier, MD, MBE; Jason Liss, MD; Sandra Stinnett, DrPH; Julie A. Woodward, MD



### <sup>+</sup>Cosmetics

- Patients ask us these questions
- Rack card about cosmetics
- How to use cosmetics
- How to remove cosmetics
- Sunscreen
- What to avoid



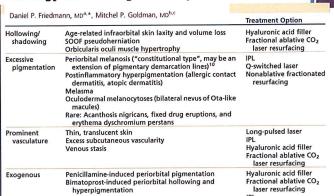
### + Medical Grade Skin Products

- ColoreScience
- Neocutis
- SkinMedica
- Skinceuticals
- PCA
- Obagi
- Epionce
- Osmosis
- Zoria
- Teoxane



### +What About These Circles?

# Dark Circles Etiology and Management Options



+ Infraorbital Dark Circles: A Review of the Pathogenesis, Evaluation and Treatment

Ivan Vrcek, Omar Ozgur, 1 and Tanuj Nakra



Before and after examples of private with infractival dark circles who underwest treatment with Volume enhancement with hydromic get experience (s). Where enhancement with

### +Get the red out

- "Magic" drops-Utilized before Lumify
- Lumify-Caveat is BAK is the preservative
- <u>Determine why the eyes are red</u> and treat any underlying issues
  - Treat underlying issues like DED, MGD, Demodex infestation other inflammatory conditions.
  - Patients will use Visine and other agents that have rebound effects.









# How many of you Co-Manage Cataract Surgery?



#### +

### Ptosis

■ Office Evaluation





# <sup>+</sup>Ptosis

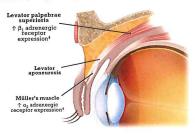
- Unilateral Ptosis
- New Onset? Check Pupil.
- Frontalis Recruitment



### <sup>†</sup>Drop now available



Upneeq (oxymetazoline hydrochloride <u>ophthalmic</u> solution) is an alphaadrenergic <u>agonist</u> used to treat <u>acquired</u> drooping upper <u>eyelid</u> (<u>blepharoptosis</u>) in adults.





#### Patient Case 1





Individual Results May Vary

44-year old female with ptosis in both eyes, as shown in the image taken at baseline ("Before RVL-1201 dose")

- The second image, taken 2 hours after instillation of a drop of RVL-1201 on treatment day 1, shows elevation of both upper eyelids
  Consistent with the images, evaluation of MRD-1 at this time point revealed an increase on this measure for both eyes [performance on LPFT not measured at 2-hour time point on treatment day 1]

### Patient Case 2





38-year old female with moderate blepharoptosis in, as shown in the predose image

- This subject also had marked elevation of the upper eyelids after receiving RVI-1201, as shown in the image at right, which was taken 16 minutes after RVI-1201 instillation
- Consistent with the images, evaluation of MRD-1 at this time point revealed an increase on this measure, and this was also accompanied by improvement on the LPFT

#### Patient Case 3



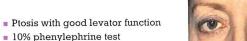


Individual Results May Vary

- 78-year old female with ptosis in one eye, as shown in the pre-dose image

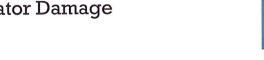
   This subject also had marked elevation of the upper eyelids after receiving RVL-1201, as shown in the image at right, which was taken 6 hours after RVL-1201 instillation
  - Consistent with the images, evaluation of MRD-1 at this time point revealed an increase on this measure, and this was also accompanied by improvement on the LPFT

# <sup>+</sup>Mueller's Muscle Repair

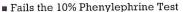


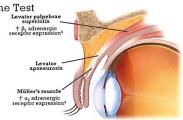
- Activates muellers muscle under upper lid
- Place 2-3 drops and repeat 3 times over a minute to recheck MRD or palpebral fissure
- Photo with flash good to show before and after response to medication and measure light reflex to lid
- Mueller's is sympathetically innervated and lifts the lid with stimulation 2-3 mm
- If positive indicates surgery repair by shortening the Mueller's muscle

# <sup>†</sup>Levator Damage



- Can occur when a lid speculum is used
- If patient needs cataract surgery and blepharoplasty, ALWAYS do cataract surgery first!





### Dermatochalasis-Upper Lid **Evaluation**

- Look for frontalis recruitment
- Check Eyebrow Position
- Look for Herniated Fat Pads





# <sup>+</sup>Dermatochalasis



### Dermatochalasis





### Dermatochalasis



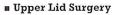


#### +Frontalis Recruitment





# +Surgical Option



- ■Blepharoplasty (cosmetic)
- ■Removal of excess skin with excision or repositioning of orbital fat
- ■Typically not covered by insurance
- ■Blepharoptosis (functional)
- ■Restores vision blocked by droopy lids
- ■Almost always covered by insurance

### +Blepharoplasty

- When is surgical correction considered functional (covered by insurance)?
  - If upper lid rests at 2.5mm or less from the pupillary light reflex (MRD-margin reflex distance) AND
  - If visual field is affected (reduction of >=12.5 degrees of
  - Skin touches lashes, MRD-1 1 mm OU, symptoms, taped & untaped photos front and sides





### \*Marginal Reflex Distance MRD-1mm



# \*Work-Up

- Symptomatic
- Taped and Untaped VF Testing
- Photo:
- MRD
- Evaluate Levator Function
- Wait 4 weeks post bleph to do a refraction for glasses

### + Lower lid examination

- Scleral Show
- Ectropian
- Punctum Position
- Telangiectasia
- Lumps/Bumps-Loss of hair follicle
- Blepahritis
  - Staph, Seborrhea, Demodex?
- MGD
- Lower lid Laxity-Floppy Eyelid Syndrome-DED
- Snap Test
- Malar Hypoplasia

# <sup>+</sup>Ectropian

- Congenital
- Cicatricial
- Mechanical
- Involutional



# Lateral Strip Tarsorraphy of

**lower lid** (realtach retractors, remove any overriding orbicularis pretarsal muscle as well)



Insurance will pay for LST with AT failure

# <sup>+</sup>Lower Lid Blepharoplasty

- ■Lower Blepharoplasty
  - Transconjunctival
  - Good for predominantly fat herniation (combined with laser resurfacing)
  - Transcutaneous
  - ■Good for excess skin
  - ■along with fat herniation





### Brow lift

#### ■ Brow Lift

- $\,\blacksquare\,$  Endoscopic Full forehead elevation via fixation posts (with or without suture)

  - Pros: no visible incision / scarring
    Cons: expensive, ~5yr duration, 'surprised' look
- Direct direct excision of excess tissue
- Pros: insurance often covers, long-lasting, minimal to no scarring if done properly
   Cons: Scarring is occasionally unavoidable, numbness

#### ■ Browpexy

- Elevate & stabilize brow by fixating to underlying periosteum
- Often done along with upper blepharoplasty
  No scar incision, but may lose effectiveness as tendons change (~10 yrs)

# +Lumps and Bumps-90% of BCC is on LLL







# +Who Is Considered Beautiful?











# \*Why Are They Beautiful?

KARLIE KLOSS





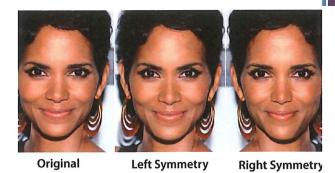


**ORIGINAL** 

RIGHT

LEFT

# +Symmetry



<sup>+</sup>Eyebrow Symmetry



Original Left Symmetry Right Symmetry

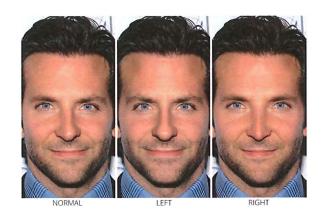
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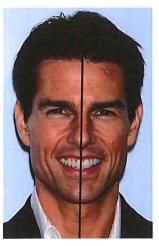


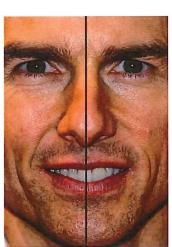


RIGHT LI









# <sup>+</sup>Anatomy and Age

- UV exposure-Free Radicals
- Gravity
- Loss of collagen
- Loss of elasticity
- Skin thinning



### + Why Do We Age?

- Causes / Signs of Aging
- Loss of collagen / elastin / volume
  - At ~35 yrs of age, women begin to lose collagen faster than men at a rate of 1.5% every year
- Damage from environment
  - Free radical damage from smoking, sun damage, autoimmune
- $\blacksquare$  Shift from radical surgical reconstruction  $\to$  utilization of natural processes to restore / reverse signs of aging
  - Our bodies are capable of replenishing / restoring collagen & elactin
  - Specific reactions are required to stimulate / mobilize our bodies resources

### \*Understanding How the Face Ages



### \*Understanding How the Face Ages



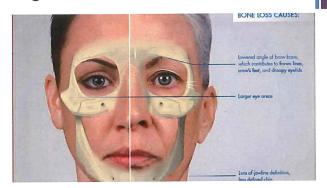
### <sup>+</sup>Understanding How the Face Ages



### <sup>†</sup>Understanding How the Face Ages



### <sup>†</sup>Understanding How the Face Ages



Goal with each modality is to repair damaged skin, eliminate laxity, and restore youthful







### <sup>†</sup>Neuromodulator

■ Originally approved for the treatment of eye muscle disorders like blepharospasm and strabismus, Botox has become an increasingly popular cosmetic procedure. According to the American Society of Plastic Surgeons (ASPS), botox injections were the single most popular minimally invasive cosmetic procedure performed in the United States in 2018. The ASPS report found that 7.3 million injections were given in 2018, up 3% from the year prior.



### +Neuromodulator

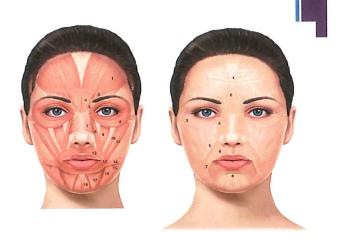
- Reduces / eliminates fine lines & wrinkles by temporarily preventing muscle contractions through blocking the release of acetylcholine
- Serotype A (Botox, Dysport, Xeomin, Juveau) is the commercially available form with emerging use of other serotypes (Myobloc Serotype B, indicated for cervical dystonia)







### +Anatomy



### +Muscle Action



+What muscles are they using?



<sup>+</sup>Remember No One Actually Looks Like This-Enhance Beauty







<sup>+</sup>Neuromodulator

- Neurotoxoin for <u>Dynamic wrinkles</u>
  \_\_\_\_(seen with facial movement)
- Forms during contraction of their underlying muscles



<sup>+</sup>What do you see?



### Now?



### + Another Example





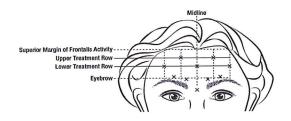
+Glasses Recheck ©



### <sup>†</sup>Do I need a lift?



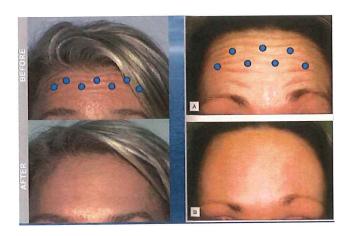
#### + Frontalis

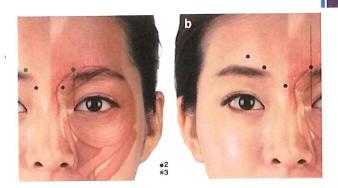


# Forehead Shaping Treatmer Pearls

- High concentration, low volume
- Intradermal Injections: Multiple sites (patterns)
- Inject only where rhytids appear
- Aesthetic brow shaping, try to avoid placement above medial or lateral eyebrow unless high on forehead.
- Spare frontal branch (1 finger breath above eyebrow)
- Higher location and placement to avoid possible eyebrow lowering.

# <sup>+</sup>Glabella









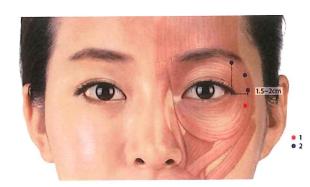








# <sup>+</sup>Lateral Rhytids



### +Lateral Canthal Rhytids



Full-fan Pattern: Lines that project from the lateral canthal area and extend into both the superior malar area and the tail of the brow



Lower-fan Pattern: Lines predominantly confined to the lateral canthal area and the





### <sup>+</sup>Lateral Canthul Rhytids

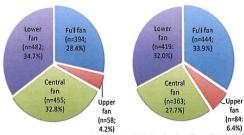
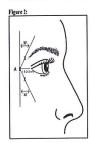
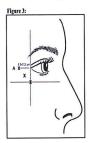


Figure 2. Distribution of CFL fan patterns at maximum smile and at rest. Full fan, lower fan, and central fan were the most commonly observed patterns at almost equ

# Injections should be given with the needle bevel tip up and oriented away from the eye. Inject 4 Units 0.1 mL of reconstituted BOTOX Councile into 3 sites per side (6 total injection points) in the lateral orbiculturis couli muscle for a total of 24 Units 0.6 mL (12 Units per side). The first injection ((A) should be approximately 1.5-2.0 m temporal to the lateral canthus and just temporal to the objidult intil Title incis in the lateral canthul region are above and below the lateral canthus, inject per Figure 2. Alternatively, if the lines in the lateral canthul region are primarily below the lateral canthus, inject per Figure 3.





### <sup>T</sup>Orbicularis Oculi

- Very superficial muscle
- Immediately subdermal on many portions within periorbita
- Strong brow depressor especially laterally (largest part of the muscle)
- Lateral inferior orbicularis is active in:Squinting and smiling
- Typical smile involves both lateral orbicularis and zygomaticus major.









# +Infraorbital Hypertrophic Orbicularis

- "Jelly Roll"
- Very conservative treatment (2U)
- Can induce ectropion or lagophthalmos if not performed properly and on the right patients
- Higher risk of bruising in this area due to superficial vessels



Slide courtesy of Dr. Chad Chamberlain















Fig. 1. (A) Before BoNT-A injection, (B) 2 weeks after BoNT-A in



Fig. 2. Proposed injection points of BoNT-A on the frontalis muscle in chronic migraine, with additional injection points marked in red. BoNT-A botulinum toxin type A.

### <sup>+</sup>Avoid BUT treat completely



# <sup>+</sup>Men and Women



### +

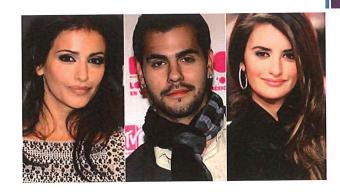
# Normal Female Eyebrow vs Male Eyebrow

- FEMALE EYEBROW-TYPICALLY MEDIAL PART DIRECTLY OR SLIGHTLY ABOVE SUPERIOR ORBITAL RIM
- LATERAL PART ABOVE SUPERIOR ORBITAL RIM
- PLUCKING AND DIFFERENT IDEAL EYEBROW SHAPES VARY THROUGH HISTORY (SUBJECT ALL TO ITSELF!)
- WOMEN'S EYESHAPE AND IDENTITY IS LINKED TO EYEBROW SHAPE

# \*MALE EYEBROW

- BROW TENDS TO BE LOWER AND MORE STRAIGHT WITH THE OUTER PORTION OF BROW ON SUPERIOR ORBITAL RIM, NOT ABOVE IT AS IS IDEAL IN WOMEN
- BROW THICKER THAN WOMEN AND THE SUPERIOR ORBITAL RIM IN MEN IS MORE PRONOUCED AS WELL

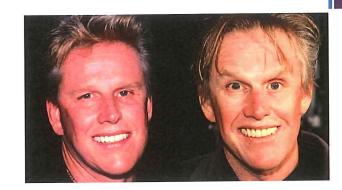
# <sup>+</sup>Cruz Siblings



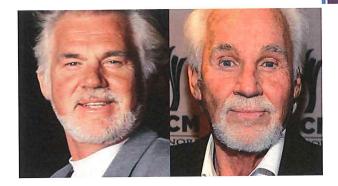
### Don't Feminize Men







+



Become an astute Observer!

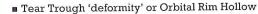


# + Fillers

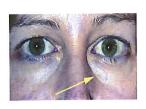
- Fillers for Adynamic wrinkles (seen at rest)
- Caused by repeated folding of skin in areas where skin has also lost it's elasticity
- Types of Fillers
- Hyaluronic Acid (HA)
- Juvederm, Restylane, Belotero,
- Can be reversed with hyaluror
- Poly-L-lactic acid
- Sculptra
- Calcium Hydroxyapatite

  - Found naturally in human bones, but is synthetically produced without animal products.

### +Tear Trough



- Hollow ridge beneath the eye caused by volume loss and skin laxity
- Accentuated by subcutaneous venous pooling / changes in skin thickness
- Must be placed at level of periosteum to cause elevation / replace lost volume
- Injections typically done from lateral to
- medial in a fanning pattern









# <sup>+</sup>Tear Trough

- Cautionary Notes
  - Beware the Tyndall effect occurs when injections are too superficial (also increases bruising)
  - Vasovagal not an uncommon response to infraorbital injections
  - Make sure they stop blood thinners they will bruise!
  - Swelling present for 2-5 days



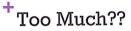




Photo courtesy of AH Laser

# <sup>+</sup>Fillers

- Site selection is important
  - Not ideal for dynamic wrinkles
- Very challenging in areas with prior scarring can accentuate existing scars
- $\blacksquare$  At ~\$550-850/1cc syringe it can become expensive quickly
- Topical Cream for numbing Benzocaine, Lidocaine, and Tetracaine





#### +PRP

· Platelet Rich Plasma

It is a way of extracting <u>platelets from</u> the patient's own blood and using them as a dermal filler – that is, as a <u>substance injected under the skin</u> of the face to fill out wrinkles so as to provide a more youthful appearance.

Can be used in conjunction with fillers Or standalone

AKA- "The Vampire Facelift"



# <sup>+</sup>Kybella



#### Become an astute Observer!



Macular Pigment Ocular Density Ove.

6 66 6

### Differentiation of Various Devices for Skin



- Laser Light Energies (Lasers-Light Amplification by Stimulated Emission of Radiation)
  - Both ablative and non-ablative (all indications depending on wavelengths)
- IPL Devices of Light Therapy (Intense Pulse Light-filtered light energies)
  - Typically non-ablative devices (melanin reduction, oxy/de-oxy hemoglobin)
- Radio Frequency Devices
  - Typically non-ablative devices (skin tightening, collagen remodeling)
- Ultrasound Devices
  - Typically non-ablative devices (skin tightening, collagen remodeling)

# <sup>+</sup>Intense Pulse Light (IPL)



- Differences between Lasers & IPL sources
- Laser Light
  - Monochromatic
- Coherent
- Parallel
- Intense Pulsed Light
- Non monochromatic
- Non coherent
- Defocused

laser		intense pulsed light (ipl)		
1	monochromatic: can tune out unwanted colors	1	polychromatic: broad spectrum visible light	
	coherent related in phase over long distances	3	non coherent: phases cross each other	
	collimated: beam spreads very little	-	divergent: beam spreads a lot	
The diode laser wo targeted for hair re-	rks on an 810nm wavelength, movel	IPL's work a bro ranging from 450	ad spectrum of wavelengths, 1200nm	

# Intense Pulse Light (IPL)

# <sup>†</sup>IPL (Intense Pulsed Light)



- How it works
  - Emits a broad, continuous spectrum of light in the range of 515-1200 nm, with the ability to apply filters to target specific chromophores (i.e. melanin and hemoglobin).
  - Melanin absorption is in the 400–700 nm range
  - <u>Blood</u> absorption in the 900–1,200 nm range
  - Role of oxyhemoglobin
  - The light that's emitted from the flashlamp is absorbed by the oxyhemoglobin in the blood vessels → generates heat that coagulates the cells
  - Think Red's & Browns!

OptiLight safely and effectively targets the inflammation



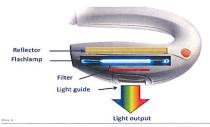






PB-00030660 145

Light emitted passes through a filter which "cuts off" undesired wavelengths and maximizes the pass of the chosen



Filters for the M22 are available in 515, 560, 590, 615, 640, 695, vascular, 755, and Acne\*
\*Know what your license allows through your Board of Examiners!

MaxG™ Pulsewidth (ms)	Minimum Fluence (J/cm²)	Maximum Fluence (J/cm²)	Fluence Increments	
1	3	11	1	
2	5	21	2	
3	6	30	2	
5	6	36	2	
10	20	54	2	
15	15 20 60	60	2	
20	20	68	2	
25	20	74	2	
30	20	80	2	
40	20	80	2	
60	20	80	2	
80	80 26		2	
100	32	80	2	

Handpiece	Spot size (mm)		Spectral Range (nm)	Fluence Range* (J/cm²)	Application
MAXG	10 x 15	2-20	500 - 670 £ 870 - 1200	Up to 80	Pigmented and Vascular Lesions (skin types I-IV)



# Most popular cosmetic skin procedures performed

#### Photofacial

- #1 Cosmetic procedure performed in the United States
- 80 million Americans have some kind of venous disorder (80% of those are cosmetic)
- Rosacea represents 16 million alone
- $\blacksquare$  Hyperpigmentation is the  $2^{\rm nd}$  largest skin disorder in the US (Acne #1)
- Chang AL, Riter FH Jr., Qu K, Lin M. Rapicavoli NA, Chang HY. Rejuvenation of gene expression pattern of aged human trin by broadband light resument: a pilot study [published correction appears in J Invest Dermatol. 2013 Jun; 133(6):1691]. J Invest Dermatol. 2013;133(2):334-402. doi: 10.1036/id-910.237

American Academy of Dermatology

### +IPL

- IPL-Intense Pulsed Light On Label
  - Telangiectasias
  - Photorejuvenation (reds & browns)
  - Acne
  - Rosacea
  - Hair removal
  - Benign Cutaneous Vascular Lesions
    - Angiomas, spider angiomas, leg veins,
    - Venous malformations
  - Poikiloderma
  - Cutaneous Lesions:warts, scars, striae
  - Fine lines and wrinkles-non-ablative



■ Meibomian Gland Dysfunction



 Historically Rosacea (a chronic skin condition) was classified into 4 subtypes: New system is 2 Diagnostic Phenotypes

- Erythematoustelangiectatic
- Papulopustular
- Phymatous
- Ocular
- Fixed centrofacial erythema
- Phymatous changes
- Papules & Pustules
- Flushing
- Telangiectasia
- Ocular Manifestations





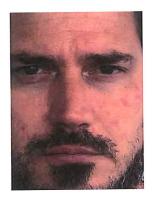


Erythematous-Flushing, Telangiectasia



Gallo RL, Granstein RD, Kang S, et al. Standard classification and pathophysiology of rosacea: The 2017 update by the National Rosacea Society Expert Committee. J Am Acad Dermatol 2017 Oct 28. pii: S0190-9622(17)32297-1. doi: 10.1016/j.jaad.2017.08.037.

# +Papulopustular-Papules and pustules



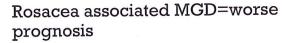




### +Rosacea and MGD

- 80 % of Rosacea patients suffer from MGD.
  - Viso et al. Eur Ophthalmic Rev 2014;8(1):13-6
  - Presence of One or More of the Following Primary Features
  - Flushing (transient erythema)
  - Nontransient erythema Papules and pustules
  - Telangiectasia
  - May Include One or More of the Following Secondary Features
  - Burning or stinging
  - Red plaques
  - Dry appearance
  - Oedema
  - Ocular manifestations
    Peripheral location
    Phymatous changes (most commonly rhinophyma)
- 20% of facial rosacea is preceded by ocular rosacea







#### 20% of ocular rosacea precedes facial rosacea

- Trigger Avoidance
  - Spicy food, Alcohol, Sun, Caffeine
  - Whole 30, Gluten Free, Dairy Free
- Medications
- Azelaic Acid Metronidazole
  - Alpha-Adrenergics Agonist (topical) RhofadeR
- Isoretinoin
- Beta Blockers (oral)
- Brimonidine (topical) Mirvaso<sup>R</sup> IPL Minocycline and low dose Doxycycline 50 mg
  - PDL (Pulse Dye Laser)
- Ivermectin

Schaller M, et al. Rosacea treatment update: recommendations from the global ROSacea COnsensus (ROSCO) panel. BJD 2016 Nov 12. 465-471. https://doi.org/10.1111/bjd.15173

### **+**Eyelids Before and After









SELIXA B MCGEE OD FAAO

Toyos 2017

#### +

### **IPL** Treatment

- Face
- Neck
- Décolleté
- Hands
- Up to Fitzpatrick IV-very carefully!

SON TYPE	APPLATANCE/ CHARACTERISTICS	SKIN REACTION TO UV SUN EXPOSURE & LUSERS		
THE	Pale to very fair skin Red or blond har Light colored eyes Vay have fredles	Always burn Never tans High risk of skin cancer and vascular damage		
THE THE	Farskn Light eyes Light hair	Burns easily Rarely tass High risk of skin cancer and vescular damage		
THE I	Farske Medium to dark har Eye color may vary	Sometimes burns Tans gradually Risk of hyper/hypopymentation Moderne risk of skin corcer and vaccular damage		
THEN	Light brown to tanced skin Durk halt and eyes	Farely burns but bors early High risk of hyperhypopymentation Scars early Medicate risk of vancius damage		
пич	Dark stan Dark eyes Dark hair	Sin Safters but never burst high risk of hypechysophymentation high risk of scaring Understeement of rescular damage time risk of aging and skin damage from sun exposure		
пии	Yery dark dan Dark eyes Dark hair	Tars easily but never hums Very high mix of hypophysopigmentation high mix of scaring Moderate mix of viscolar damage Low risk of aging and skin damage from pun consource		

### **Patient Selection**



- Exclude any lesion with malignant potential
- For any suspicion on cancerous lesion, excision biopsy may be considered

■ Use of a medical questionnaire and informed consent form

- Patients with unrealistic expectations should be identified during the consultation and discouraged
- DO NOT TREAT MELASMA PATIENTS!

#### +Skin Assessment

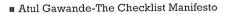
- Tanning of all forms (sun, tanning beds) is formally contraindicated as melanin would be redistributed and migrate towards upper epidermis building a "light-blocker" to any treatment
- lacksquare Also exclude self tanning lotions which give the skin a competing artificial coloration through a chemical reaction with the amino acids of the stratum corneum
- Tanned skins CANNOT be "defined" by selecting a darker skin
- On areas with slower "de-tanning" passed the minimum solar eviction of 3-4 weeks, recommend gentle exfoliation of the area 1 week prior treatment

### Skin Assessment



- Amounts of Target Chromophore and Competing Chromophore What's a Chromophore?
  - Water, Pigment, Oxyhemaglobin
- Any active sun or lamp exposure
- Ethnicity
- Thickness of skin
- Overall skin health
- Medical history
- Medication Review
- THIS NEEDS TO BE DONE BEFORE EVERY TREATMENT

### <sup>+</sup>Utilize Pilot Checklist for safety



#### + Contraindications

- Treatment should not be attempted on patients with the following conditions in the treatment area:
  - Active infections
- Dysplastic nevi
- Significant concurrent skin conditions or any inflammatory skin conditions
- Active cold sores, open lacerations or abrasions
- Chronic or cutaneous viral, fungal, or bacterial diseases
- Exposure to sun, remaining suntan or artificial tanning in the 3-4 weeks pre-op plan
- Tattoo
- Treatment should not be attempted on patients with a history of skin cancer or pre-cancerous lesions on the treatment area

# PRE-TREATMENT PATIENT EDUCATION

- The following should be discussed with patients prior to performing IPL treatment
- Results are not guaranteed.
- Not all red and brown areas will disappear.
- Red and brown spots removed by treatment may recur, especially with excessive sun exposure.
- Deep wrinkle lines will not be removed by the treatment.
- Adverse effects include redness, swelling, burning, pain, crust formation, bruising, hyper- and hypopigmentation (including striping), and scar formation.
- Multiple treatment sessions (typically three to five) are required for optimal results.
- Maintenance treatments are often recommended four to six months after the initial series.
- In addition, patients should be quoted a price for the treatment course.

#### +Pre-treatment Instructions

- Do not take isotretinoin (Accutane®) for 6 months before your treatment.
- If you are tanned, please reschedule your appointment.
- Do not apply make-up or lotions on your day of treatment, or be prepared to remove them at our office.
- If you have a history of cold sores, take your prescribed medication (e.g., Valtrex, Famvir, Zovirax) on the day before, day of, and day after treatment.
- Inform the doctor before each appointment if you (1) are taking new medications or (2) have tattoos or beauty marks you do not want treated.
- Inform the doctor immediately if the area being treated feels "too hot."
- Please arrive on time.

### Procedure Checklist

- Patient education form read and understood
- Pretreatment instructions reviewed and understood
- Informed consent signed
- Skin type identified
- Pretreatment test site confirmed with no adverse reaction
- Confirm that patient has taken prophylactic antiviral medication has no contraindications for treatment
- Pretreatment photograph taken
- Set up procedure tray including eye shields and masks
- Select treatment parameters
- Perform intense pulsed light treatment
- Provide verbal and written post-treatment instructions to patient
- Complete procedure note including device settings
- Subsequent treatment scheduled







- Treatment Parameters-Cut-off filters, pulse duration, fluence, and number of pulses (single, double, triple) per treatment session are chosen to assure safety and selective photothermolysis.
- Mode

- **590**
- Single Pulse
- **560**
- Double Pulse
- **515**
- Triple Pulse
- Vascular
- Duration (ms) per pulse
- Delay (ms)-Time delay between pulses
- Fluence (Joules/cm²)
- Cut-off Filter Wavelength
  - **695**
  - **640**
  - **615**



### <sup>†</sup>Pulse Durations

■ Pulse durations are selected to slowly heat vessels to coagulation while avoiding purpura. This allows patients to return to normal activities quickly rather than suffering from purpura for one or two weeks. (PDL-Pulse Dye Laser is notorious for this)

# <sup>+</sup>Energy Levels

- Energy levels (fluence in J/cm2) are governed by clinical response. If tissue reactions do not occur, fluence levels may be increased by 1 J/cm2 (Lumenis One) or 2 J/cm2 (VascuLight SR or Quantum IPL [Lumenis, Inc.]). A good rule of thumb is to use mild to moderate erythema as the treatment end point. (If target is pigment-1-2 shades darker)
- Vessels should blur or disappear-no purple

#### + Cut-off Filters

- Cut-off filters are selected to optimize targeting of the chromophore while filtering out wavelengths damaging to the epidermis. These vary by skin type and target chromophore.
  - 695 nm
  - 640 nm
- 615 nm
- 590 nm
- 560 nm
- 515 nm



# Treatment Aggressiveness Less Aggressive

- Higher cut-off filter
- Lower fluence
- Higher pulses
- Longer delay
- Eg. 590 nm, Triple pulse, 6 m/s delay, 4 ms
- More Aggressive
  - Lower cut-off filter (meaning treat longer wavelengths and more superficial treatment)
  - Higher fluence
  - Shorter Delay
  - Fewer Pulses
  - Eg. 515 nm, single pulse, 4 ms



6

0

0.40

6

CON MOXE

0

11· 5

- A good rule of thumb is to use mild to moderate erythema as a treatment endpoint. Darkening of target pigment also represents a treatment endpoint.
- Always double-check that the settings you want to use are the settings you are using.
- As a rule, darker skin types require cautious treatment with lower energies, longer pulse durations, longer delay times, and higher-wavelength filters (e.g. 590, 615, and 640 nm). Deeper in the skin.
- Utilize a white make-up pencil to cover pigment that people want to keep<sup>©</sup>

<sup>+</sup>Test 3 and then move on















### <sup>+</sup>Post Procedure

- Remove gel with tongue depressor
- Keeps treatment area clean by gently cleansing
- Keeps on moisturizing with an emollient
- Avoids direct sunlight
- Renews application of sun block SPF 30-50 until next
- Avoids use of deodorants or fragrance as long as skin is sensitive or fragile
- Avoids scrubbing the skin

#### +Pitfalls

- Do not press hard on the skin when treating blood vessels. If you press hard, you will squeeze the target from the vessels.
- Always cover the eyebrows and other hairbearing areas to avoid unintended hair loss. Stay 1 finger width away from hair and tattoos
- Remove all makeup and lipstick before starting treatment. Dark makeup and lipstick absorb significant amounts of light, which can lead to a burn.
- Do not hurry when treating vessels or pigment. Aggressive treatments can lead to burns. Remember, "You can always add more but cannot take away.'

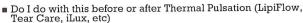


# Complications

- Erythema (redness) and edema (swelling) of the treated area can occur
- Irritation, itching, and/or a mild burning sensation or pain similar to sunburn may occur within 48 hours of treatment.
- Pigmentary changes such as hyper pigmentation and hypo pigmentation of the skin in the treated areas can occasionally occur.
- Other known complications of this procedure include blisters, redness, pinpoint pitted scars, bruising, superficial crusting, burns, pain, and infections. These side effects are usually temporary, lasting from five to ten days but can be permanent as well.

### +FAQ's

- Can I treat if patient is on doxy?
- If low dose doxy yes, photosensitivity occurs with UV light, IPL but UV light
- Can I use topical numbing agents?
  - No! Due to the vasoconstrictive properties this will diminish your target rendering your treatment less effective. You also need the patient to give you proper feedback
- Do I need to treat lids and do expression?
- Periman Protocol=Yes/No. Richard Adler Protocol=Yes/No Toyos=No/Yes
- McGee=Depends on the patient/No-All patients improve!!



- Prior to, most patients won't need thermal pulsation in my experience, some still will but wait until 3-4 treatment of IPL before performing, Dr. Ed Jaccoma is doing some very interesting work with RF in conjunction with IPL-stay tuned!
- No harm in doing more treatments

### Shields

#### Anthonyproducts.com







### + Periman Protocol with M22 "The Dry Eye Master"

- Full face rosacea settings
- Toyos settings to V2 (Double Pass)
- Treat lids

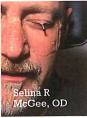
(with laser grade corneal shields)

■ Aesthetic clean-up

(spot treat pigment and

telangiectasias)









### + IPL Demonstration







**+Treatment Settings** Treating deep & large to smaller &



more superficial First Pass I did: medium to deep depth 590 nm, triple pulse, 3msms 20 J/cm<sup>2</sup>

- 2<sup>nd</sup> pass Shallow depth 560 nm, triple pulse, 3.0ms 25ms 18 J/cm<sup>2</sup>
- Toyos settings over V2 with double pass 590 filter, triple pulse 6.0 msec pulse, 50msce rest, 12 J/cm<sup>2</sup>
- Eyelids-Periman Protocol LASER Grade Corneal Shields!

Small rectangle light guide 3 pulses per lid with double pass, Stay 2 mm away from the lash line (Total 24 pulses) 590 filter, triple pulse 5.0 msec

pulse, 50msec rest, 10-14 J/cm<sup>2</sup>

### After 3 treatments



First Pass is mealum to deep depth (590 nm)

- Triple pulse 3.5 ms PD, 25ms D, 21J/cm<sup>2</sup>
- Second pass was 560 nm, triple pulse, 3.5ms, 20 ms and 19 J/  $cm^2$
- Toyos settings over V2 with double pass
  - · 590 filter, triple pulse 6.0

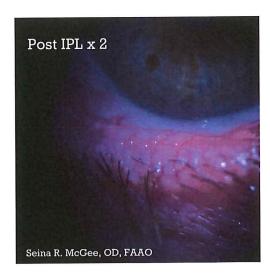
Stay 2 mm away from the lash line (Total 24 pulses) 590 filter, triple pulse 5.0 msec pulse, 50msce rest, 10-14 J/cm<sup>2</sup>



- Type II
- Lentigines
- Light
- **Epidermal**
- 515 nm filter, Single Pulse, 4.0 msec pulse, 19.0 J/cm<sup>2</sup>
- Clinical endpoint the pigment will **Immediately** turn darker-Salmon colored

Telangiectasia's-Spot treat with 6 mm circle

- Vascular Lesion Menu
- Skin Type II
- Circle
- Facial Telang
- Shallow or Medium
- Vacular Filter, Double Pulse, 3.5 ms 15 ms 28 J/cm<sup>2</sup>
- Clinical endpoint-Vessel vaporizes-very satifsfying@





# + Patient with DED, MGD but no facial rosacea if want photofacial too



- First Pass I did: 560 nm double pulse, 4ms-20 m I/cm<sup>2</sup>
- Toyos settings over V2 with double pass
   590 filter, triple pulse 6.0 msec pulse, 50msce rest, 12 J/cm²
- Eyelids-Periman Protocol LASER Grade Corneal Shields!

Small rectangle light guide 3 pulses per lid with double pass,
Stay 2 mm away from the lash line (Total 24 pulses)
590 filter, triple pulse 5.0 msec pulse, 50msec rest, 10-14 J/cm<sup>2</sup>

+ Chalazia Treatment-Incision Free, Injection Free, Scar Free Management-Pioneered by Dr. Laura Periman







# <sup>†</sup>Chalazia Managment





Settings: Periman Protocol with extra pulses on the lesion. Used small light guide with Toyos settings x 2 and then 560nm 3.0ms 25ms 18 J/cm<sup>2</sup>

# How does IPL actually work? What is it doing to the tissues? Think BEISTO

- Photocoagulation
- Photoimmunomodulation
- Photomodulation
- Photothermolysis
- Photosanitization

# <sup>†</sup>Epionce Kits

















APPLICATION	MaxR, MaxRs	MaxG	MaxYs	1540	2940	1054
Hair Removal—All Skin Types	•					
Hair Removal, small areas, All Skin Types	•					•
Hair Removal, including Ughter, Finer Hair Skin Type I-IV			•			
Leg Veins				_		•
Photofacials (Pigmented and Vascular Lesions)						
Pigmented Lesions					•	
Vascular Leslons						•
Fractional Non- Ablative Skin Resurfacing				•		
Striae						
Acne Scars and Surgical Scars				•		
Fractional Ablative Skin Resurfacing					•	
Wrinkles, Fine Lines					•	

# +Laser Resurfacing: How it Works

- Ablative (2940nm, CO2) vs Non-ablative (1540nm erbium, 1450 nm diode, 1320 Nd:YAG)
- Mechanism: "Fractional photothermolysis" causes selective epidermal and dermal necrosis in microscopic columns → This thermal injury initiates the wound healing cascade and upregulation of cell mediators (HSP 70, TGF) which results in collagen production & dermal remodeling.

■ These lasers are focused at a single wavelength (as opposed to a range of wavelengths with IPL)

# +Stubborn crepey skin

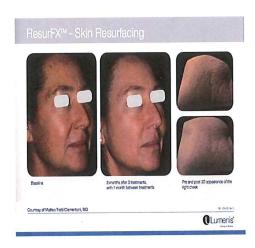


Before Icon

After 3 Icon Treatments (Courtesy of M. Sinclair, MD)

# <sup>+</sup>Laser Resurfacing







Photos courtesy of H. Alibhai, MD • 1540/2940 combination



Photos courtesy of D. Kent, MD









# Radio-frequency rejuvenation

- Periocular Indications
  - Skin tightening with modest reduction in fine lines & wrinkles
- How it works
- Elevation of dermal layer temperature (of at least 42°C) leads to a transient denaturation of structural collagen fibrils  $\rightarrow$  followed by contraction / tightening of the skin  $42^{\circ}\text{C} \rightarrow \text{Dermal}$ fibroblasts to elicit a heat shock response → net increase in collagen production in upon cooling
- 2-3 treatments 4 weeks apart are generally needed to see a clinically measurable response.
  - Narins, D.J. and Narins, R.S. (2003) Non-surgical radiofrequency facelift. J. Drugs Dermatol. 2:495–





### Non surgical Treatment of Ocular Adnexa

- Prolongs Blepharoptosis Surgery
- Treats Periorbital Fine Lines
- Lateral Hooding
- Dermatochalasis
- Ectropian



### <sup>+</sup>How RF Remodels Collagen and Improves Elastin

- The Wound Healing Response
  - Heat is applied to the epidermis creating an Inflammatory Phase (1-3 days)
     a. Early contraction of blood vessels (5-10 minutes)

    - b. Vasodilation in order to increase blood supply (multiple hours to 1-3 days)
  - c. Cells (macrophages, neutrophils,etc) infiltrate the damaged area to remove dead/damaged tissue and destroy bacteria
- Proliferative Phase 3 weeks
  - Ongoing Process to repair tissue
  - Day 2-3 Fibroblast activity is induced in damaged tissue. Fibroblasts multiply, sending mediators to stimulate repair, combining with damaged tissue
  - Day 5-7 Fibroblasts begin synthesis of collagen (Day 7-21)
  - Day 7-21 Old collagen is removed by collagenase
- Maturation Phase 3 weeks to 6 months and beyond
  - New collagen is generated
- Elastin becomes more uniform and its quality is improved

# <sup>+</sup>Clinical Endpoint



# <sup>+</sup>RF Before & After





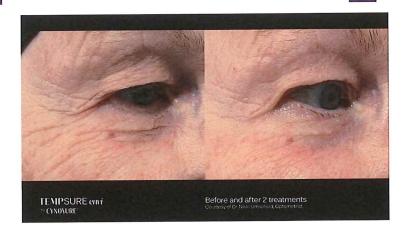




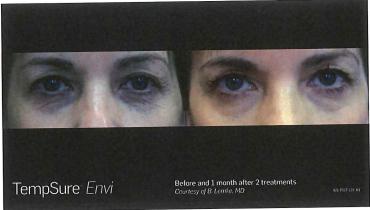
Before TempSure Envi

3 months after 4th treatment (Courtesy of B. D'Bernardo, MD)



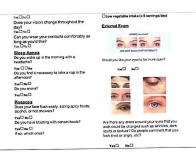






### How Do We Incorporate Aesthetics Into Our Practice?

- The great news is these patients are already in our practices, start a conversation.
- Do your lids bother you?
- Do you want your eyes to be more open?
- Have you noticed...?
- Do you experience...?
- Offer a consultation, they still have the power to say no.



# <sup>+</sup>Opportunities

- Dropped Brow
- Dermatochalasis
- Ptosis
- Entropian/Ectropian
- Lower lid "Bags"
- Lumps and Bumps
- Blepharitis/DED
- Rhytids



# <sup>+</sup>Integration & Collaboration

- In office solutions
- Co-management solutions
- Surgical Referral solutions



### Marketing

■ Internal Marketing

- Signage
- Rack Cards
- E-blasts
- Digital Marketing
  - Website
  - Social Media
- Blog
- Professional Referrals
- OD referrals
- MD referrals
- Allied health referrals
- External Marketing
- Market Research

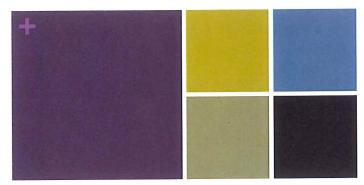












Thank You!!! drmcgee@bespokevision.org @bespokevisionok @selinamcgee