



BEAUTY AND THE BEASTS



WHY ARE WE HERE?





A BRIEF HISTORY

- ❖ The Cosmetic Act-FDA 1938
 - ❖ Companies and individuals who manufacture or market cosmetics have a legal responsibility to ensure the safety of their products. Neither the law nor FDA regulations require specific tests to demonstrate the safety of individual products or ingredients. The law also does not require cosmetic companies to share their safety information with FDA.
- ❖ US: 11 banned chemicals in cosmetics
- ❖ EU: 1300+ banned chemicals in cosmetics



MoCRA

The *Modernization of Cosmetics Regulation Act of 2022 (MoCRA)* was signed into law on December 29, 2022. This law, which provides a major overhaul of existing cosmetic regulations, requires the Food and Drug Administration (FDA) to create Good Manufacturing Practices for all cosmetics manufacturers. The law states that these established practices must include mandatory reporting of serious adverse health events caused by cosmetic products and mandatory testing of asbestos levels. This law will also include updates to cosmetic listing requirements. As of now, our understanding is that the listings will be made through an online portal and will not require Structured Product Labeling (SPL) but the subject matter experts will be closely monitoring any guidance updates from FDA. Barring any changes, the listing requirements will be enforced on December 29, 2023, one year after the enactment of MoCRA. Interestingly, this is the first major change to cosmetics regulations since the enactment of the Federal Food, Drug, and Cosmetic Act established in 1938.

HOW WILL MoCRA AFFECT MANUFACTURERS?

MoCRA creates new standards and requirements that cosmetic and personal care product manufacturers will be held to. These standards will be enforced by the FDA. Some of these requirements include:

- Establishment/facility registrations
- Product listings
- Adverse event reporting
- Version tracking and safety tracking

ADDITIONALLY, FAILURE TO COMPLY WITH CERTAIN FDA REQUIREMENTS CAN LEAD TO A COSMETIC OR PERSONAL CARE PRODUCT BEING MARKED AS MISBRANDED, A CONSEQUENCE VERY FAMILIAR TO PHARMACEUTICAL MANUFACTURERS. MOCRA ALSO GIVES ADDITIONAL POWERS TO FDA IN REGULATING COSMETICS AND PERSONAL CARE PRODUCTS. THESE POWERS INCLUDE:

- Establish Good Manufacturing Practices that all manufacturers need to follow
- Ability to request records to substantiate a product's safety
- Authority to request a mandatory product recall
- Establish an asbestos testing method for talc-containing products
- Assess the safety and use of PFAS (per- and polyfluoroalkyl) chemicals

WHAT IS A COSMETIC?

Products that are:

- Rubbed, poured, sprinkled on, or sprayed on the body

Uses: Cleansing, Anti-aging, Beautifying

Risks

- Carcinogens
- Endocrine Disruptors
- Neurotoxins
- Reproductive toxins
- What about the ocular surface?



WHAT ARE THE BEASTS?

- ❖ Cosmetics-As defined by the FDA: Product intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body's structure or function
- ❖ Habits
- ❖ Lash Love

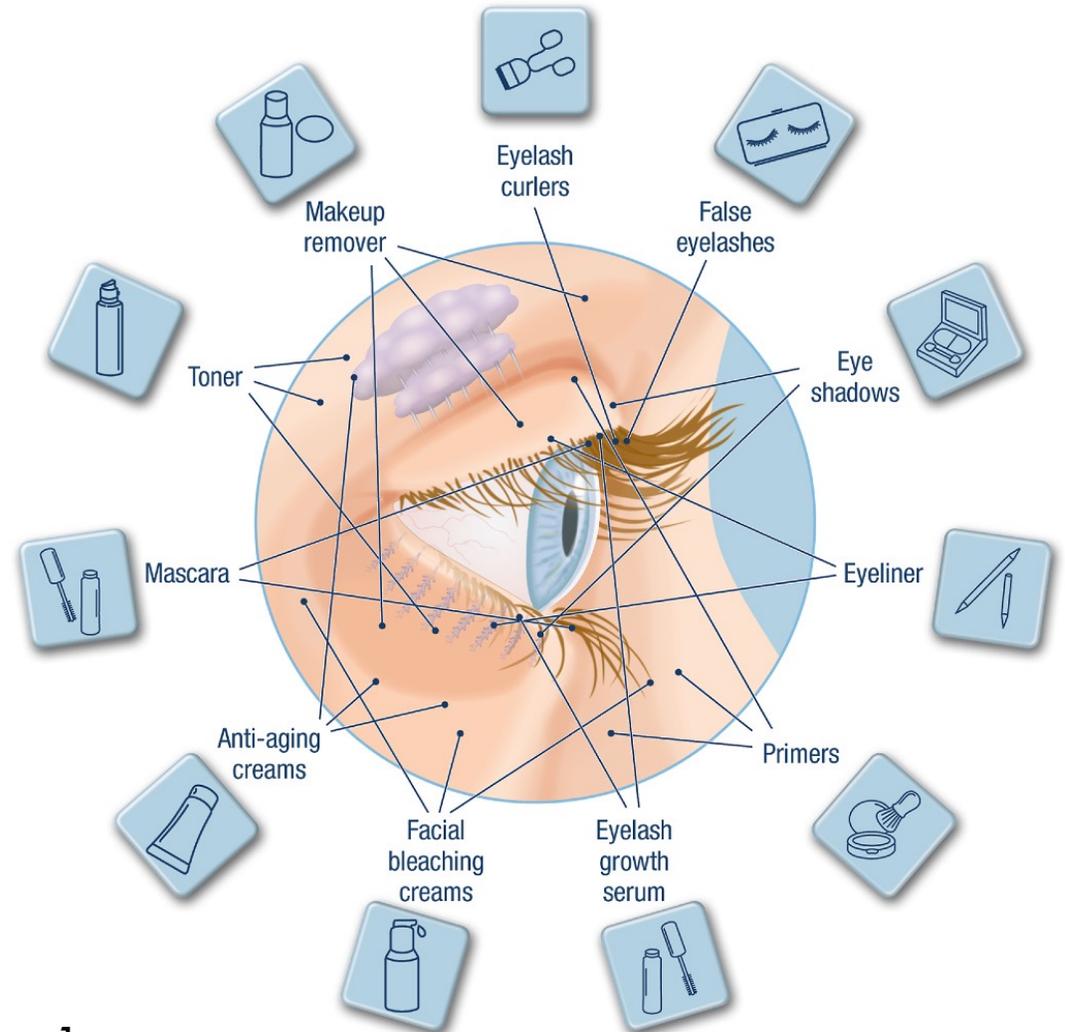
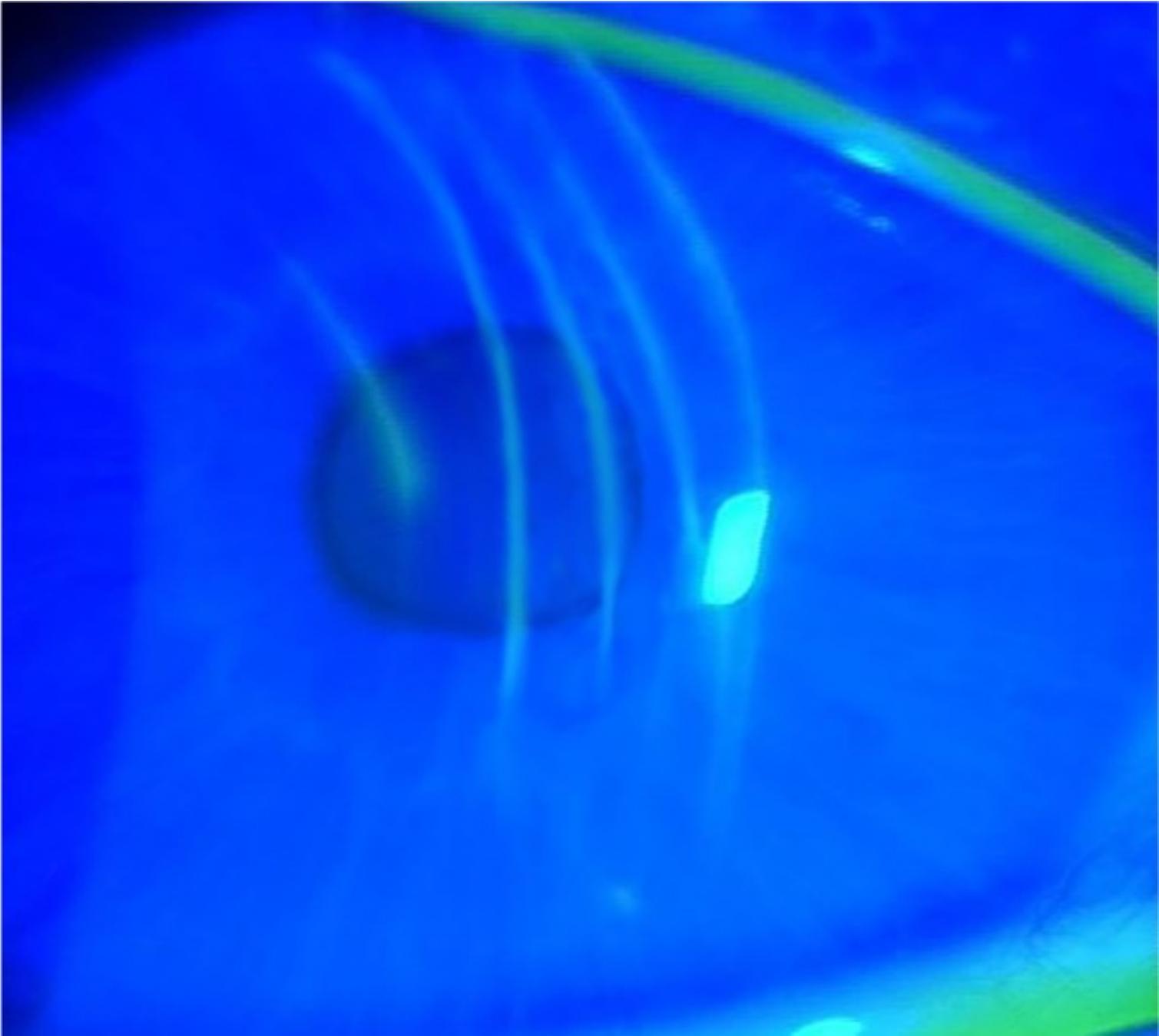


Figure 1:
TFOS Lifestyle: Impact of cosmetics on the ocular surface.
Sullivan et. al

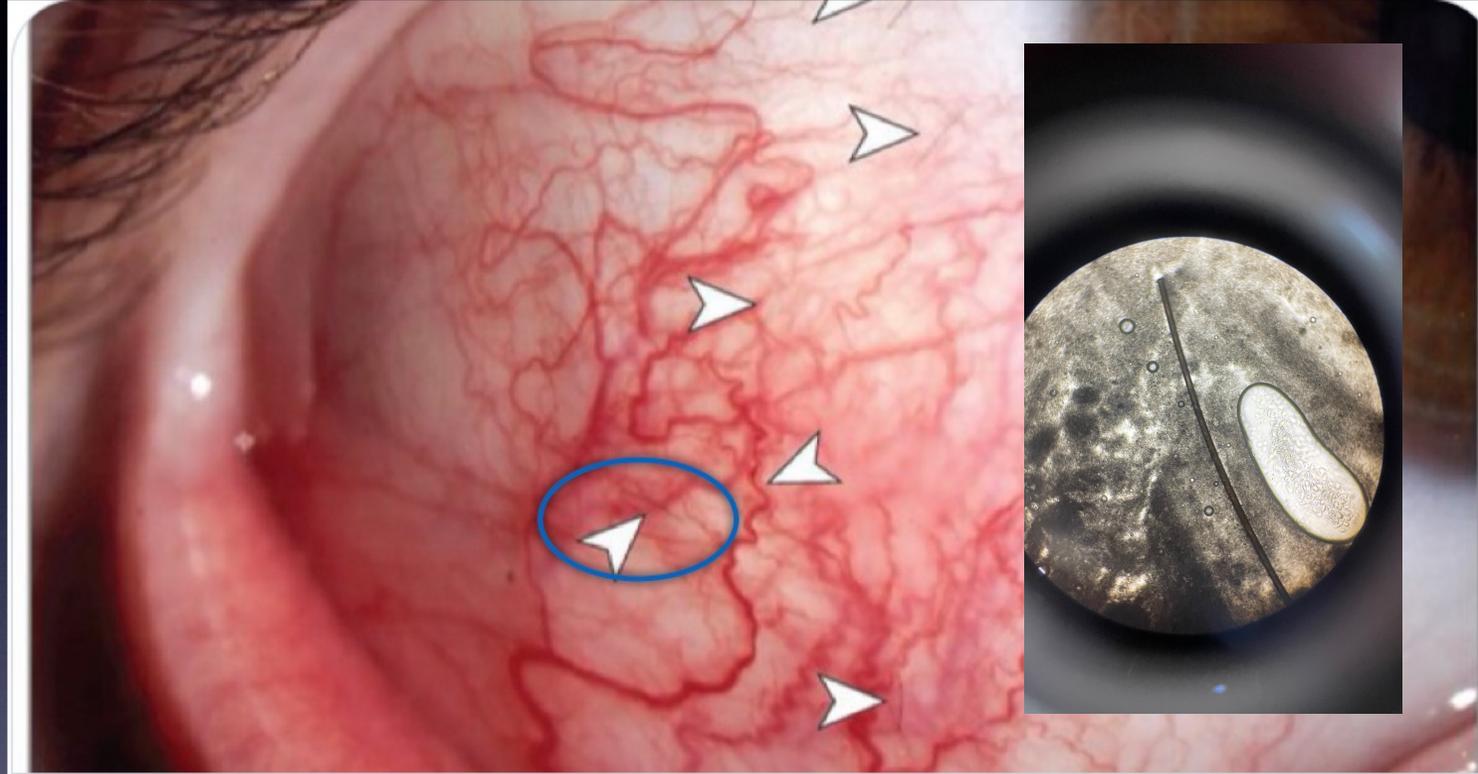




Nylon Fibers in Mascara

- Moodstruck 3D Fiber Lashes
- several 1mm long fibers on the conjunctiva
- 6 fibers lodged in the subconjunctival space
- sharp enough to enter subconjunctival space
- reactivity could be partly due to the chemicals coating the nylon fibers
- \$3M CLASS ACTION LAWSUIT FOR FALSE CLAIMS: "NATURAL FIBERS"

Dowlut et al, JAMA Ophthalmic 2018;136(1)



Ocular Inflammation
Associated With Fibers From...
jamanetwork.com

Customer Reviews

- & Up
- & Up
- & Up
- & Up

Brands

- Maybelline New York
- L'Oréal Paris
- Revlon
- Estée Lauder
- Beauty cosmetics
- THE GIRL
- AN DECA

5
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Discounts

Discounts
Deals

Beauty

Results

Check each product page for other buying options.



Sponsored

400X Pure Silk Fiber Lash Mascara [Ultra Black Volume and Length], Longer & Thicker Eyelashes, Waterproof, Long-Lasting, 2 Piece Set

~ 13,795

300+ bought in past week

\$19⁴⁹ List: \$24.99



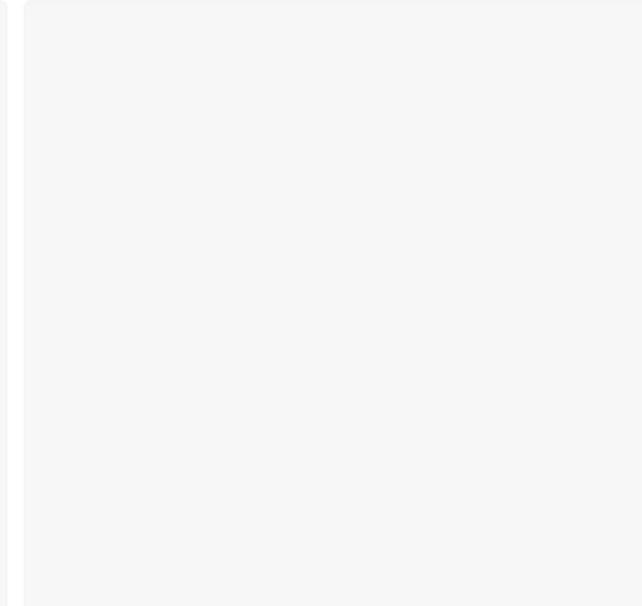
[+4 more colors](#)

Sponsored

Maybelline The Falsies Lash Lift Waterproof Mascara Volumizing, Lengthening, Lifting, Curling, Multiplying, ...
0.29 Fl Oz (Pack of 1)

~ 33,308

600+ bought in past week



Sponsored

Youngfocus 3D Fiber Lash Mascara Waterproof, Luxuriously Longer, Thicker, Voluminous Eyelashes, Long-Lasting, ...
2 Count (Pack of 1)

~ 2,887

100+ bought in past week

\$13⁹⁹ (\$13.99/Count)

FORMALDEHYDE DONORS

High formaldehyde-emitting product

- ❖ Hydroxymethyl glycinate
- ❖ DMDM Hydantoin
- ❖ Ureas
- ❖ Quaternium-15

What I've found for Myristoyl pentapeptide-17 — it is reported on the internet to stimulate keratin gene expression, thereby promoting increased keratin protein production and enhancing eyelash growth. But, the major cause of obstructive meibomian gland dysfunction is hyperkeratinization of the meibomian gland's external duct (which is very close to eyelashes). A concern is whether myristoyl pentapeptide-17, in concentrations permitted in cosmetics, also increases ductal keratinization. If so, chronic use of this pentapeptide could possibly promote the development of meibomian gland dysfunction and ocular surface disease. 🤔

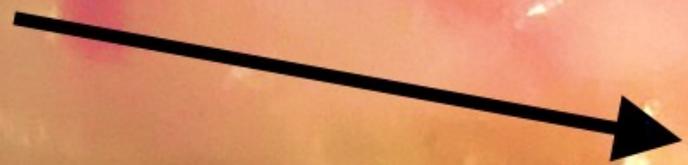




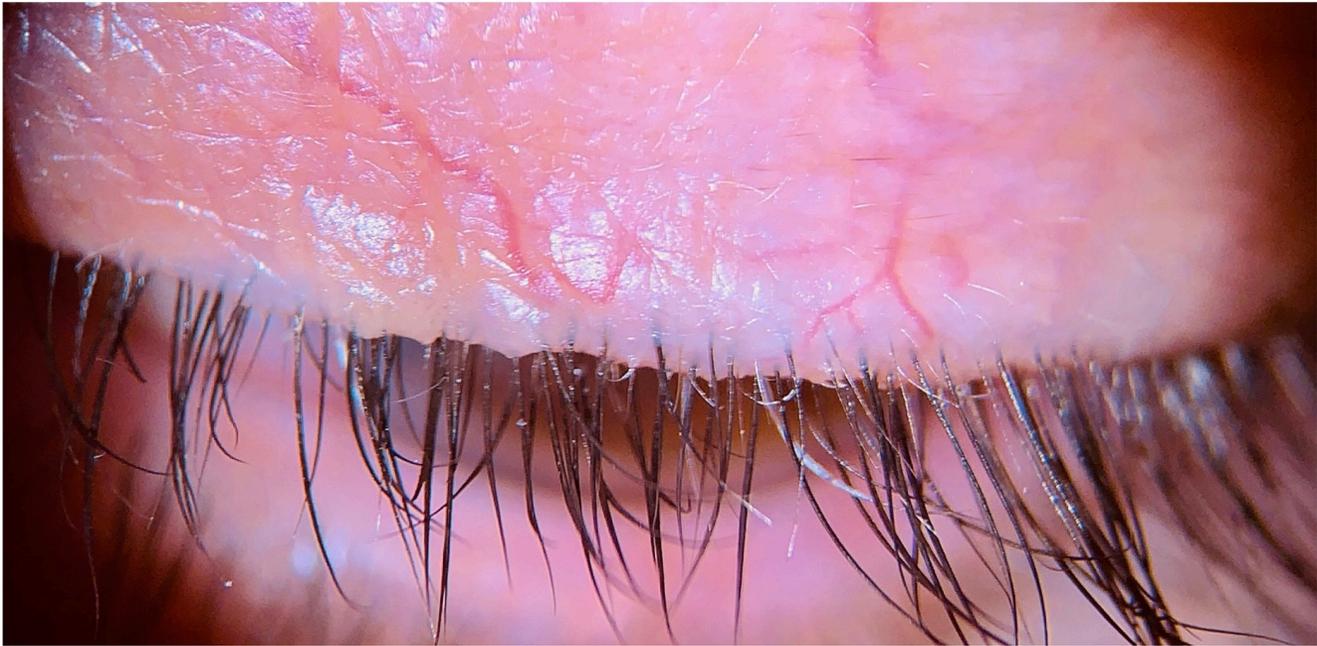
Inflammation



Scurf and Demodex



Laura Periman, MD



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.



EYELASH EXTENSION CARE

THE PROBLEM

- Gaining rapidly in popularity, lash extensions are notorious for leading to a build up of oil, debris and infection-causing bacteria as well as mite infestation
- Many extension wearers avoid cleansing their lashes for fear of breaking down the adhesive and causing the extensions to fall out prematurely

THE SOLUTION

Using hypochlorous acid twice daily along with a clean lash brush not only keeps lashes clean ands but also helps them last longer

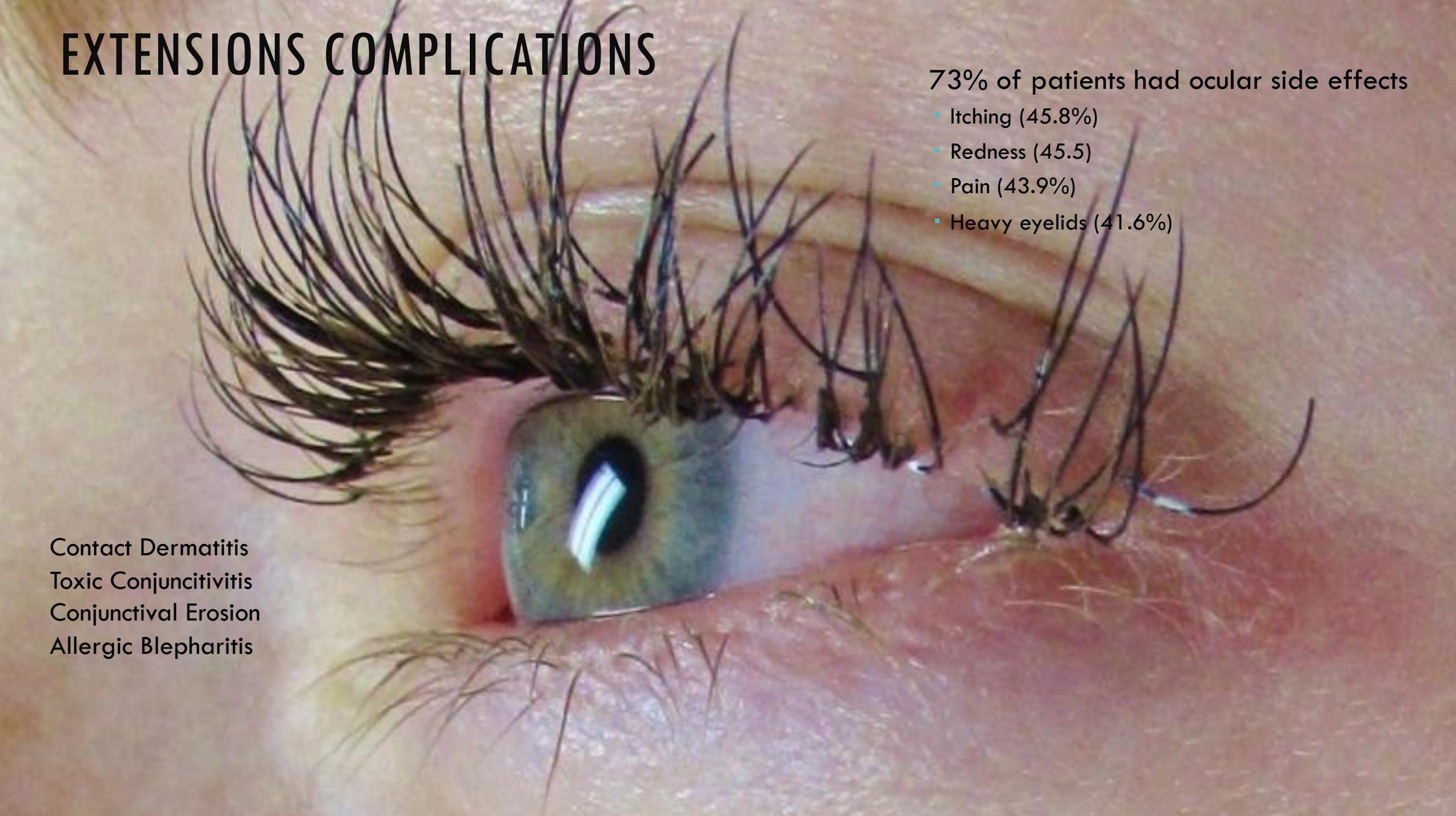


EXTENSIONS COMPLICATIONS

73% of patients had ocular side effects

- Itching (45.8%)
- Redness (45.5)
- Pain (43.9%)
- Heavy eyelids (41.6%)

Contact Dermatitis
Toxic Conjunctivitis
Conjunctival Erosion
Allergic Blepharitis



GLUE ADHESIVE FORMIDABLE FORMALDEHYDES

Cyanoacrylate-based containing latex
and ammonia

High formaldehyde-emitting product

DMDM Hydantoin

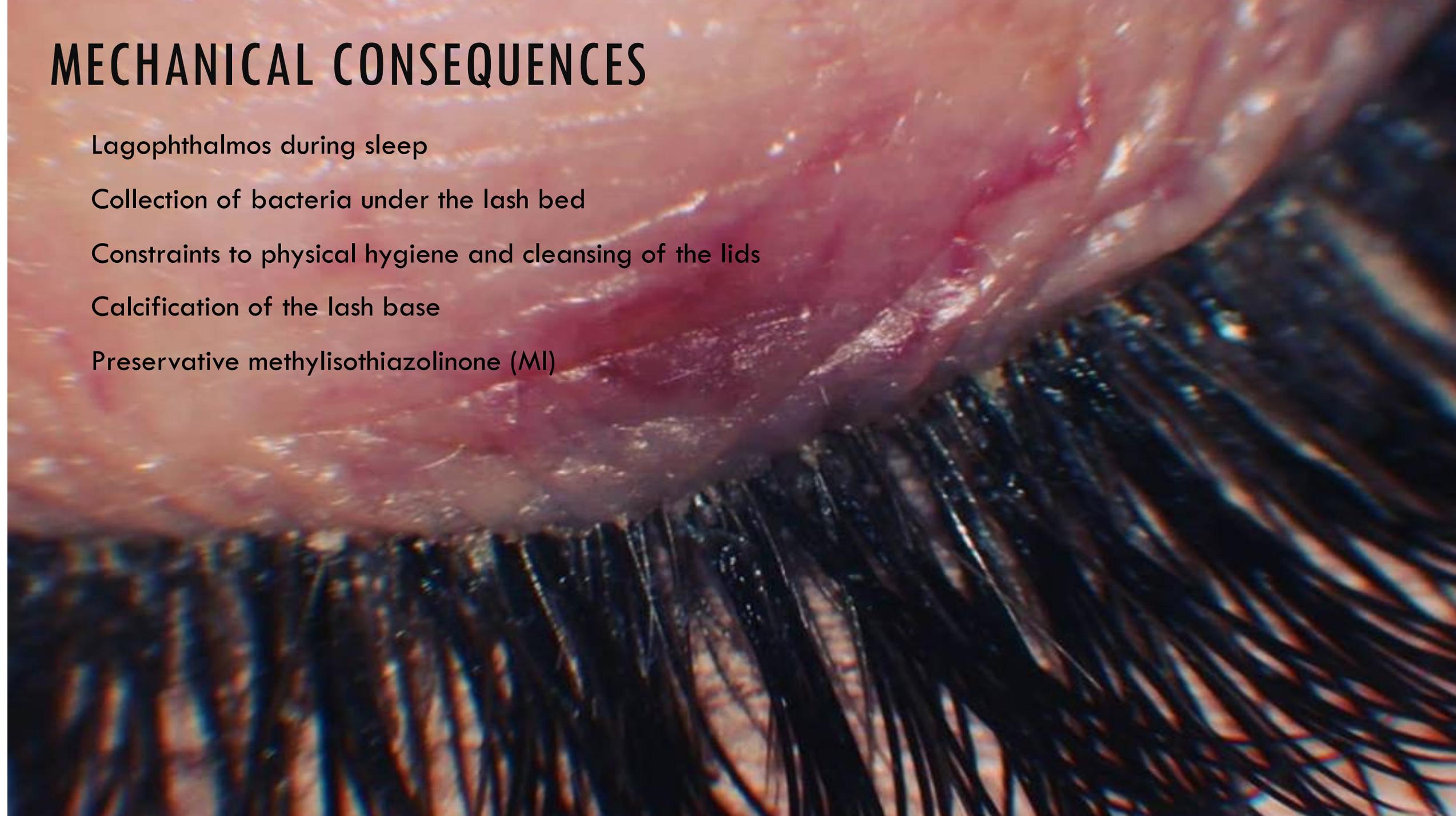
Ureas

Quaternium-15

Sodium Hydroxymethylglycinate



MECHANICAL CONSEQUENCES

A close-up photograph of a human eye, focusing on the eyelid and eyelashes. The eyelid is partially closed, and the eyelashes are dark and thick. The skin around the eye is pinkish and appears slightly irritated or red. The lighting is soft, highlighting the texture of the skin and the individual eyelashes.

Lagophthalmos during sleep

Collection of bacteria under the lash bed

Constraints to physical hygiene and cleansing of the lids

Calcification of the lash base

Preservative methylisothiazolinone (MI)



QUIZ: WHICH IS BETTER? A OR B?



A woman with brown hair is sleeping peacefully in a bed with white linens. She is lying on her side with her hands clasped under her head. She is wearing a white, short-sleeved top. The lighting is soft and warm, suggesting a morning or late afternoon setting. The text 'HABITS CAN BE HARMFUL' is overlaid on the right side of the image.

HABITS CAN BE HARMFUL

- ❖ Sleeping in make-up
- ❖ Tight-lining
- ❖ Not throwing make-up away in a timely fashion





AMERICAN ACADEMY OF DERMATOLOGY-AT LEAST SPF 30, BROAD SPECTRUM (UVA AND UVB), WATER RESISTANT

Chemical sunscreens work like a sponge, absorbing the sun's rays. They contain one or more of the following active ingredients: oxybenzone, avobenzone, octisalate, octocrylene, homosalate, and octinoxate. These formulations tend to be easier to rub into the skin without leaving a white residue.

Physical sunscreens work like a shield, sitting on the surface of your skin and deflecting the sun's rays. They contain the active ingredients zinc oxide and/or titanium dioxide. Opt for this sunscreen if you have sensitive skin.

Current FDA regulations on testing and standardization do not pertain to spray sunscreens. The agency continues to evaluate these products to ensure safety and effectiveness.



EYELASH SERUMS

Latisse-only FDA approved lash serum

- Active ingredient

Synthetic prostaglandins

- Isopropyl cloprostenate

Ptosis

Relative Enophthalmos

Inferior Scleral Show

Periorbital Fat Atrophy

Involution of dermatochalasis

Meibomian Gland Dysfunction

Hyperpigmentation

Redness

Pruritus





BLEPHAROPIGMENTATION (EYELINER TATTOOING)

“Permanent” Tattooed eyeliner

Dermatitis

- Body’s reaction to the ink

Allergic Blepharitis

- Allergic reaction to the pigment
- Misapplication of the ink

Tear Film Instability



BROWS ARE TRENDY



TERMINOLOGY

❖ Hypoallergenic-Fragrance Free-Paraben Free

❖ In one study that evaluated 187 products labeled as “hypoallergenic”, “dermatologist recommended/tested”, “fragrance free” or “paraben free”, 167 (89%) products contained at least 1 contact allergen and 117 products (63%) contained 2 or more contact allergens present in the North American Contact Dermatitis standard screening series

❖ Hamann CR, Bernard S, Hamann D, Hansen R, Thyssen JP. Is there a risk using hypoallergenic cosmetic pediatric products in the United States? *J Allergy Clin Immunol* 2015;135:1070–1.

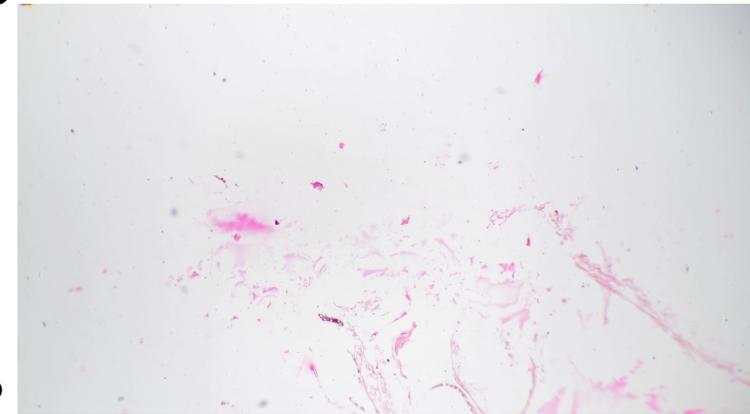
TOXINS IN COSMETICS: WHAT DOES THE PUBLISHED LITERATURE SAY?



1. Benzalkonium Chloride BAK
2. Butylene Glycol at high concentrations
3. Ethylenediaminetetraacetic acid (EDTA)
4. Formaldehyde donating preservatives, even at low concentrations
5. Isopropyl Cloprostenate, PGAs. Unknown conc in OTC ELGS
6. Parabens (methyl-, isobutyl-, propyl- and others) at certain concentrations
7. Phenoxyethanol: at certain concentrations
8. Cis-retinoic acid: impairs survival and differentiation of HMGEK in cell culture but not HCEC

RETINOIDS-DERIVATIVES OF VITAMIN A

- ▶ Retinoids regulate the cell apoptosis, differentiation and proliferation. Anti-wrinkle properties of retinoids promote keratinocytes proliferation, strengthen the protective function of the epidermis, restrain transepidermal water loss, protect collagen against degradation and inhibit metalloproteinases activity. by regulation of cell growth and differentiation
- ▶ Retinoic acid: Rx Klingman et al, demonstrated the effects of tretinoin on photodamaged skin.
- ▶ When identifying the ideal topical agent for periorbital rejuvenation, damage to the delicate meibomian glands, ocular cornea and conjunctiva must be taken into account. One study shows exposure to 13-*cis* RA inhibits cell proliferation, increases cell death, alters gene expression, changes signaling pathways, and promotes inflammatory mediator and protease expression in meibomian gland epithelial cells. These effects may be responsible, at least in part, for the 13-*cis* RA–related induction of MGD. (2505) (Ding J & doi:10.1167/iovs.13-11863)



RETINOIDS CONTINUED

- ▶ Retinoic Acid-Rx-Tretinoin-most bioactive available
- ▶ Every type of retinoid must be converted into bioavailable retinoic acid, which can mean going through longer or shorter convergent stages dependent on the original form
- ▶ Retinaldehyde-most effective OTC-Retinaldehyde is oxidized to retinoic acid by retinaldehyde oxidase
- ▶ Retinal-Retinal is the aldehyde formulation of vitamin A, i.e. the oxidized form of retinol.
- ▶ Retinol-must be converted twice-first to retinal then to retinoic acid
- ▶ Retinyl esters-Retinyl esters, such as retinyl acetate and palmitate, are commonly used in cosmeceuticals. They are very stable but first they need to be converted to retinol by cleavage of the ester bond, and in the subsequent stage into retinoic acid.
- ▶ First generation – natural retinoids, monoaromatic compounds obtained by modifying polar groups at the end and side chain of the polyene vitamin that do not act selectively – retinol (vitamin A) and its metabolites – retinal, tretinoin, isotretinoin,
- ▶ Second generation – monoaromatic retinoids, synthetic compounds in which the cyclohexene ring is replaced by a benzene ring; synthetic analogues of vitamin A (etretinate, acitretin),
- ▶ Third generation – polyaromatic retinoids formed as a result of cyclization of polyene side chain and characterized by selective activity towards receptor (arotinoid, adapalene, tazarotene) [3].

RETINOL ESTERS



RETINOL

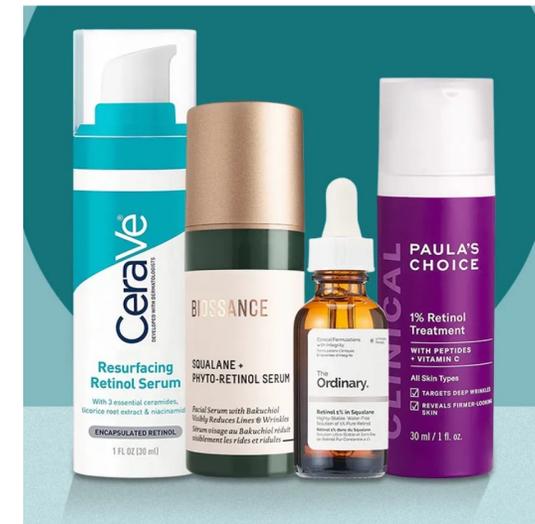


RETINALDEHYDE



RETINOIC ACID

THE SKINCARE EDIT



Wow, your lashes are really long, is that natural? (Lucky them 😊) 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?

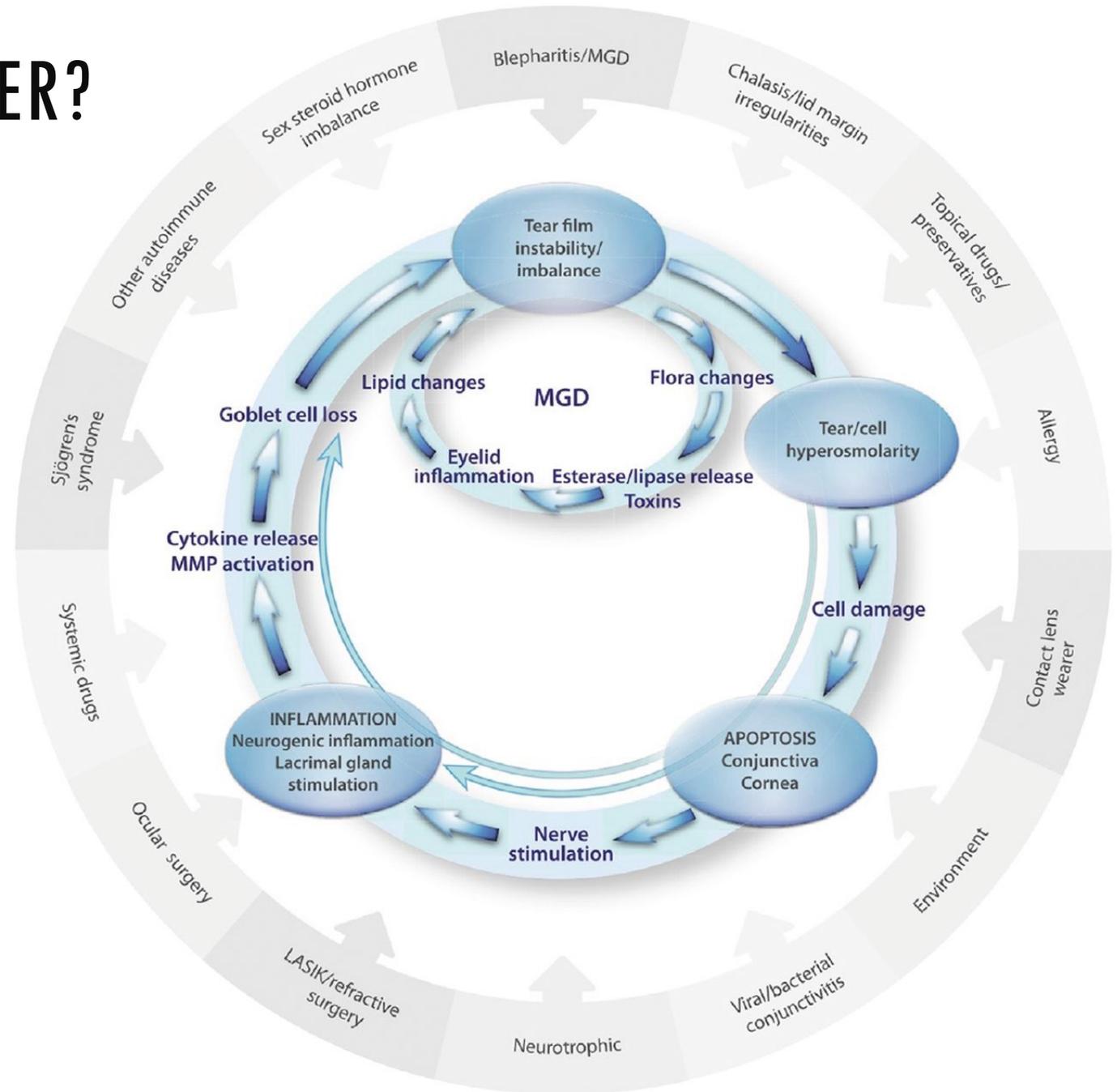
Do your eyelids bother you?

Do you want your eyes to be more open?

WHAT QUESTIONS DO I ASK?

WHY DOES IT MATTER?

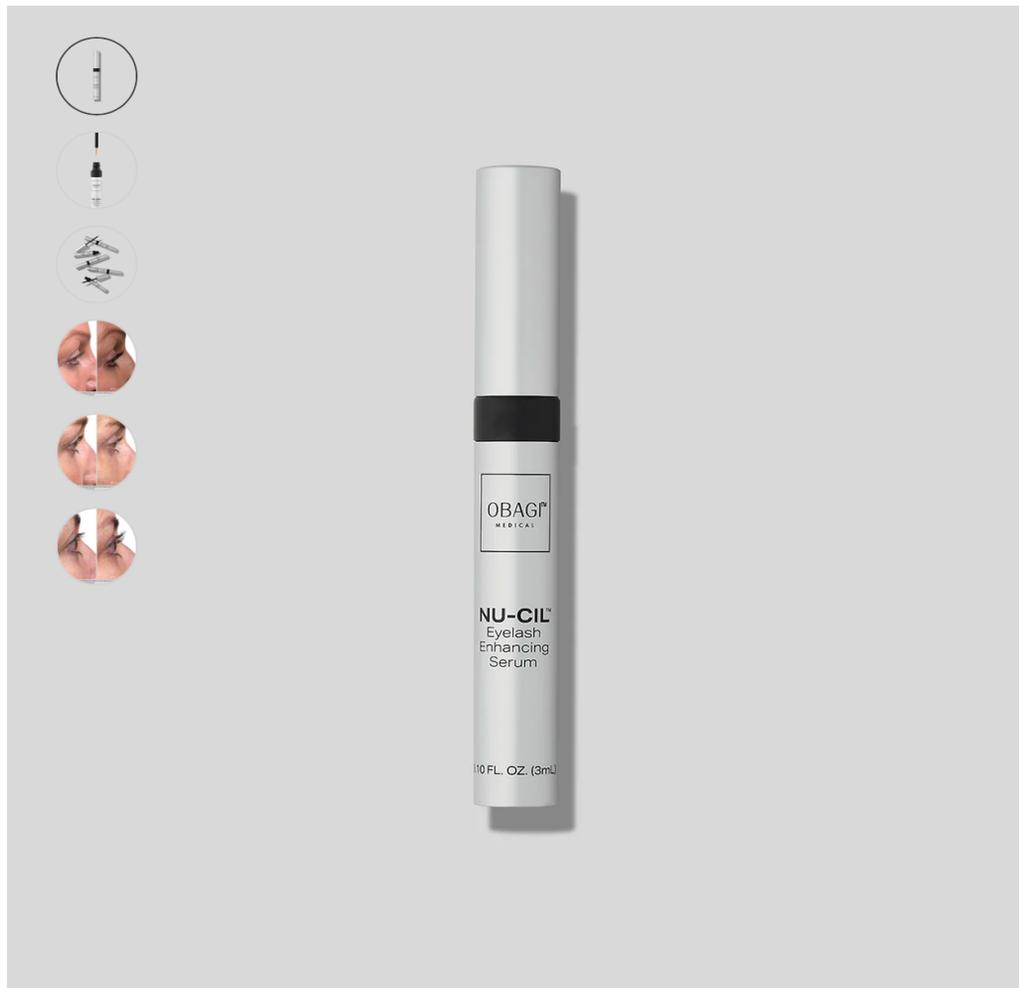
Desiccating Stress



USE THIS NOT THAT

Not this	This
Prostaglandin Analog-Isopropyl Cloprestonate	Polypeptide/Lipopeptide Lash Conditioner
Waterproof Mascara	Non-waterproof*
Glitter Eyeshadows	Shimmer/Matte Eyeshadows
Retinol-if dry eye dx then don't use. If no dry eye dx, then can use, but stay two finger widths away from eyelid margin to avoid migration-MUST USE SUNSCREEN	Caffeine, Vitamin C, Vitamin E, Ferulic, Hyaluronic Acid, Niacinimide 
False Lash Strips with Latex and Formaldehyde	Individual False lashes with non-formaldehyde and Latex lash glue
Eyelash Extensions	Individual False lashes with non-formaldehyde and Latex lash glue
Oil based eye-makeup remover cleansers	Micellar Water*
Eyeliner on the water line	Eyeliner on the dry side*

*Be mindful of ingredients



Skin Types: [Normal to Oily](#) [Normal to Dry](#) [Combination](#)

DESCRIPTION

+

INGREDIENTS

-

NOURIPLEX™ TECHNOLOGY

NouriPlex Technology a unique combination of ingredients Biotin, Panthenol, Sodium Hyaluronate and a Proprietary Lipid Compound that targets the anagen phase of the lash cycle.

BIOTIN

Supports the natural production of keratin.

PROPRIETARY LIPID COMPOUND

Targets the phase of the lash cycle to provide thicker, fuller-looking eyelashes.

SODIUM HYALURONATE

A form of hyaluronic acid that attracts and retains water to both hydrate and thicken the appearance of eyelash hair.

PANTHENOL

Also known as Vitamin B5, helps with hair conditioning, moisture and texture improvement.

FULL INGREDIENTS

water (aqua), dehydrolatanoprost, biotin, panthenol, sodium hyaluronate, phenoxyethanol, C12-15 alkyl benzoate, caprylyl glycol, acrylates/C10-30 alkyl acrylate crosspolymer, alcohol, sodium hydroxide, phenethyl caffeine

[Show Less](#) -





RESOURCES



Contents lists available at [ScienceDirect](#)

The Ocular Surface

journal homepage: www.elsevier.com/locate/jtos



TFOS Lifestyle: Impact of cosmetics on the ocular surface

David A. Sullivan^{a,*}, Alexandre X. da Costa^b, Ester Del Duca^c, Tracy Doll^d,
Christina N. Grupcheva^e, Sihem Lazreg^f, Su-Hsun Liu^g, Selina R. McGee^h, Rachna Murthyⁱ,
Purvasha Narang^j, Alison Ng^k, Steven Nistico^l, Leslie O'Dell^m, Jonathan Roosⁱ, Joanne Shenⁿ,
Maria Markoulli^o

WHAT ABOUT THESE CIRCLES?

Dark Circles

- Can be tough to treat. Partially the result of oxygenated blood pooling in the veins underneath the thin under-eye skin.
- Can be exacerbated due to fatigue, aging, and allergies
- Topical eye cream with retinol stimulates collagen so that can thicken skin and help with appearance



WHAT ABOUT MY PUFFY EYES?

What is the puffiness really due to?

- Many times it's actually fat prolapse, which is a surgical issue and no amount of cream is going to take that puffiness away.



WHAT ABOUT THESE CIRCLES?

Dark Circles

Etiology and Management Options

Daniel P. Friedmann, MD^{a,*}, Mitchel P. Goldman, MD^{b,c}

		Treatment Option
Hollowing/ shadowing	Age-related infraorbital skin laxity and volume loss SOOF pseudo herniation Orbicularis oculi muscle hypertrophy	Hyaluronic acid filler Fractional ablative CO ₂ laser resurfacing
Excessive pigmentation	Periorbital melanosis (“constitutional type”, may be an extension of pigmentary demarcation lines) ¹⁰ Postinflammatory hyperpigmentation (allergic contact dermatitis, atopic dermatitis) Melasma Oculodermal melanocytoses (bilateral nevus of Ota-like macules) Rare: Acanthosis nigricans, fixed drug eruptions, and erythema dyschromium perstans	IPL Q-switched laser Nonablative fractionated resurfacing
Prominent vasculature	Thin, translucent skin Excess subcutaneous vascularity Venous stasis	Long-pulsed laser IPL Hyaluronic acid filler Fractional ablative CO ₂ laser resurfacing
Exogenous	Penicillamine-induced periorbital pigmentation Bimatoprost-induced periorbital hollowing and hyperpigmentation	Hyaluronic acid filler Fractional ablative CO ₂ laser resurfacing

INFRAORBITAL DARK CIRCLES: A REVIEW OF THE PATHOGENESIS, EVALUATION AND TREATMENT

IVAN VRCEK, OMAR OZGUR,¹ AND TANUJ NAKRA



Before and after examples of patients with infraorbital dark circles who underwent treatment with: Volume enhancement with hyaluronic gel injection (a). Volume enhancement with autologous fat transfer (b). Laser skin resurfacing (c). Lower eyelid blepharoplasty with inferior orbit fat transposition (d) (adapted from Nakra, 2015)

TOPICAL ANTIOXIDANTS

- ▶ Neutralize dangerous free-radical molecules
- ▶ Vitamin C-10, 15, 20%
- ▶ Vitamin E
- ▶ Ferulic Acid
- ▶ Phloretin

TOPICAL SKIN CARE

- ▶ Cleanse
- ▶ Hydrate
- ▶ Exfoliate
- ▶ Even skin tone
- ▶ Combination of the above
- ▶ THAT is all they do-they do not remove wrinkles, or eye bags, or any other claim
- ▶ *Retinoic Acid: Vitamin A secreted in tear film and metabolized by cornea and conjunctiva are necessary for ocular surface health





SCREENING PROCESS



HOW DO WE INCORPORATE AESTHETICS INTO OUR PRACTICES?

These patients are already in our practices, just waiting to have a conversation about eye beauty.

- Do your lids bother you?
- Do you want your eyes to be more open?
- Have you noticed...?
- Do you experience...?
- Are your eyes tired?
- Do you suffer from red eyes?

Offer a consultation,
they still have
the power to say no.

Are my Eyes Comfortable & Is My Vision Optimized?

Please check all symptoms experienced:

- Dry Eyes
- Blurry Vision
- Redness
- Burning
- Itching
- Light Sensitivity
- Excessive tearing/watery eyes
- Tired eyes/eye fatigue
- Stringy mucus in or around the eyes
- Foreign Body Sensation/Gritty
- Scratchy, feeling of sand or grit in eye

Have you used eye drops in the last 2 hours?
Yes No

Does your vision change throughout the day?
Yes No

Can you wear your contacts comfortably as long as you'd like?
Yes No

Am I at risk for a stroke?

Do you wake up in the morning with a headache?
Yes No

Do you find it necessary to take a nap in the afternoon?
Yes No

Do you snore?
Yes No

Yes No

Ocular Rosacea

Does your face flush or have redness easily, eating spicy foods, alcohol, or hot showers?

Yes No

Do you have bloating with certain foods?

Yes No

If so, which ones?

Am I at Risk for AMD?

Please check all that applied since last visit:

- Light colored eyes/and or skin
- Cardiovascular disease
- Difficulties driving at night
- Difficulty distinguishing an object from a similar color background (dark car on a dimly lit street)
- Family history of AMD or taken a genetic test (23 & Me) and tested for an AMD risk
- Outdoor occupation or excessive computer use (2+ hours per day)
- Bright light sensitivity
- Current or former smoker
- Low vegetable intake (< 5 servings/day)
- Scanner score _____

Am I putting my best face forward?

In a perfect world, what would I want to change about my eye appearance? Check any or all that apply

Would you like your eyes to be more open?



Red eyes?

Fewer wrinkles-forehead, frown lines, crow's feet?

Tighter skin around lids?

Less sun damage?

Glowing skin?

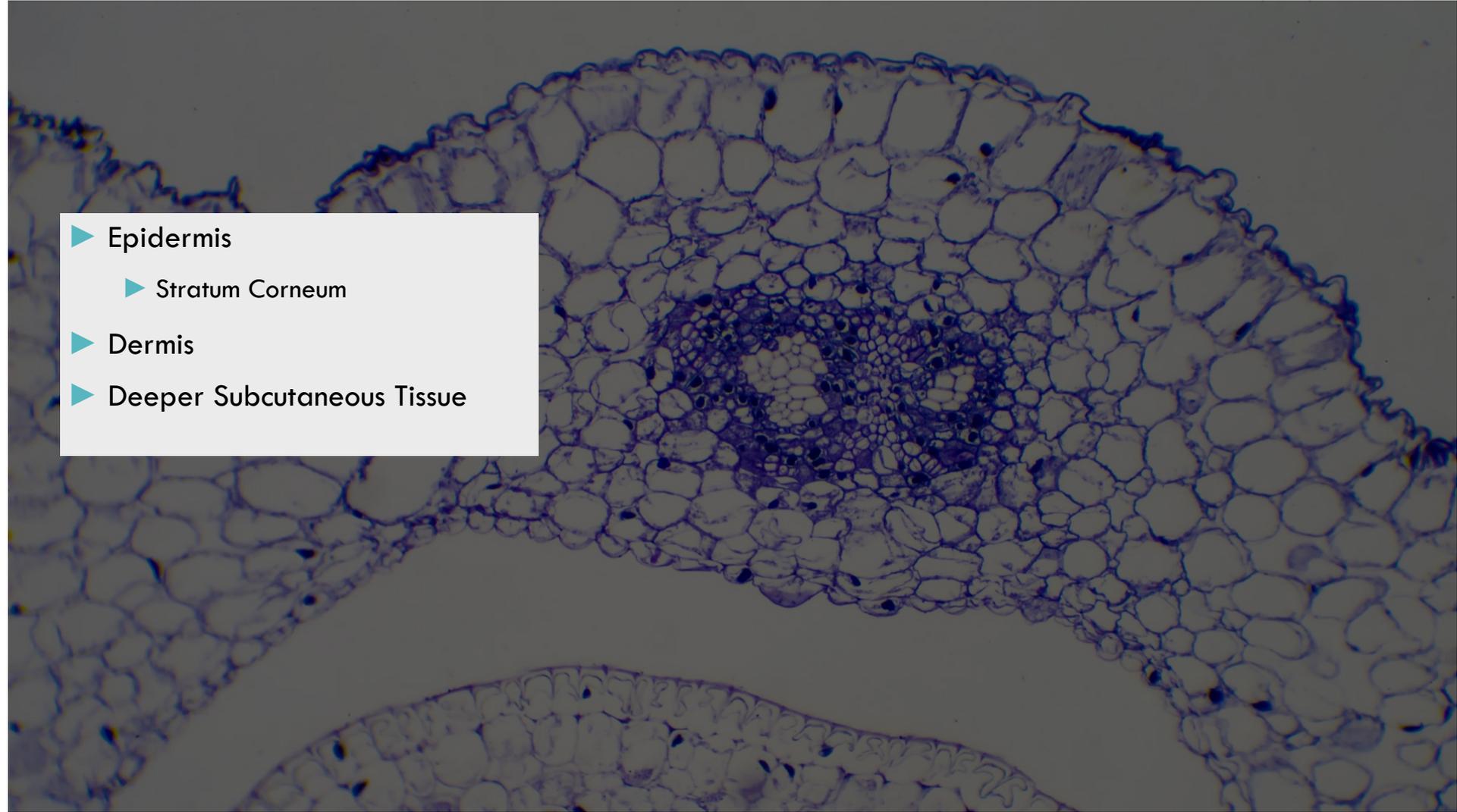




SKIN AND AGING



SKIN FUNDAMENTALS



- ▶ Epidermis
 - ▶ Stratum Corneum
- ▶ Dermis
- ▶ Deeper Subcutaneous Tissue

INTRINSIC AND EXTRINSIC AGING

Genes

Ethnicity

Disease

Medical Conditions



WRINKLE GENERATORS

Sun Exposure

Smoking

Excessive alcohol intake

Poor nutrition

- Relative oxygen species (ROS) are produced. It's not just aging that is a risk factor, it's also cigarette smoke, low humidity, sunlight (UV radiation), pollutants, autoimmune diseases like Sjogren's, Lupus, rheumatoid arthritis, and also certain preservatives (like BAK.)



ANATOMY AND AGE

UV exposure-Free Radicals

Gravity

Loss of collagen

Loss of elasticity

Skin thinning



UNDERSTANDING HOW THE FACE AGES



UNDERSTANDING HOW THE FACE AGES



UNDERSTANDING HOW THE FACE AGES



UNDERSTANDING HOW THE FACE AGES



UNDERSTANDING HOW THE FACE AGES



THANK YOU!

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