


# THE RISE AND FALL OF DRY EYE DISEASE!





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## CHRONIC DISEASE

- Public Health challenge of 21st century
- Over 75% of health care \$ goes towards management of Chronic disease
- Linked to **modifiable** lifestyle risk factors, Smoking, Diet, Activity levels and Alcohol consumption

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## HEALTH AND WELLNESS (W.H.O.)



- State of complete Physical, Mental and Social well being in the absence of disease
- Wellness is **Active** and includes **Prevention** thru maintaining healthy life style, smoking cessation, annual physicals, eye exams, therapies to manage chronic disease

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## SUCCESSFUL WELLNESS AWARENESS IN EYE CARE

### Age-Related Macular Degeneration


- Identifying and modifying risk factors
- Diet and Nutrition/Lutein and Zeaxanthin/Omega 3s
- Sun protection
- Smoking cessation

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## NATIONAL EYE INSTITUTE

- Over 30 million people are expected to suffer from Dry Eye between 2015-2025
- Estimated **5 million Americans** 50 years of age and older are thought to have Dry Eye.



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## 2016 CONTACT LENS SPECTRUM DRY EYE DISEASE REPORT


- March -May 2016 survey of 203 ECPs
- **39%** of patients report DE symptoms (Up from 33% in 2014)
- **69%** due to Evaporative DE (Up from 59% in 2014)

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**What are the Preferred DIAGNOSTIC TESTS?**

**23% prefer TEAR BREAKUP TIME (TBUT)**


Normal > 10 sec  
 Moderate between 5-10 sec  
 Low < 5 sec



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**20% prefer SYMPTOMS ASSESSMENT**

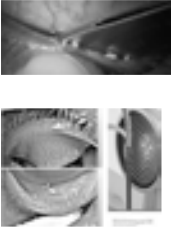
- 30% of respondents use a formal questionnaire
- SPEED questionnaire
  - Evaporative DE
- OSDI – Ocular Surface Disease Index
  - Aqueous Deficient DE



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**12% prefer MGD ASSESSMENT**

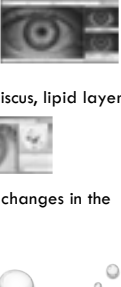
- Gland expression
- Gland imaging
  - Oculus
  - Keratograph- 5M
  - Lipiview- tear science



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**OCULUS KERATOGRAPH® 5M**

- R scan - bulbar and limbal redness
- Tf scan - measurement of the tear meniscus, lipid layer and tear film dynamics
- Meibo scan – identifies morphological changes in the glandular tissue



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**LIPIVIEW II OCULAR SURFACE INTERFEROMETER**

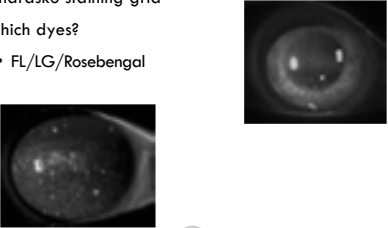


- Visualization of the lipid layer
- Captures blink dynamics
- Images meibomian gland structure

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**11% prefer CORNEAL STAINING**

- Andrasko staining grid
- Which dyes?
  - FL/LG/Rosebengal



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### OTHER ASSESSMENT TESTS




- Tear quality – 8%
- Assess lid margins – 3%
- Tear osmolarity – 3%
- Conjunctival staining – 2%

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### MEIBOMIAN GLAND DYSFUNCTION

- Primary cause of Evaporative DE and leading cause of DE
  - Evaluation of Meibomian Glands
  - Examination of Lipid Layer of tear film
- 41% of docs report expressing meibomian glands in "most" of their non-CL wearing patients (Up from 25% in 2014)



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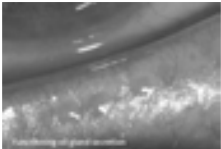
### Meibomian Gland Dysfunction

- 86% of patients with Dry eye patients have MGD
- 50% of acne rosacea patients may have MGD
- 63% of cataract patients have unstable tear film
- 50% of CL patients complain of ocular discomfort

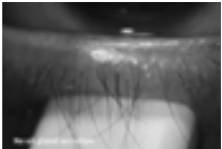
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### MGD

- Functioning oil gland secretion




- No oil gland secretion



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### MGD RISK FACTORS


- Over age 40
- Wearing Eye makeup and Eye liner
- Wearing Contact Lenses too long  
(Research shows possible alteration in MG)
- Poor Eyelid hygiene



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### MGD RISK FACTORS

- Certain prescription medications
  - Retinoic acid (acne treatment)
  - HRT (Hormone replacement therapy for menopausal women)
  - Antidepressants and antihistamines
- Endocrine disorder, like being pregnant or going through menopause.
- Immune system disorders such as acne rosacea, psoriasis, rheumatoid arthritis and Sjogren's syndrome.



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### DEFINING DRY EYE

2017 INTERNATIONAL DRY EYE WORKSHOP II (DEWS II)

*"Dry Eye is a **multifactorial** disease of the ocular surface characterized by a loss of homeostasis of the tear film, and accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities play etiological roles."*

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### SYMPTOMS OF DRY EYE


- 9 in 10 sufferers consider their symptoms bothersome
- Discomfort – stinging, burning, grittiness, itching, watering, dryness, pain, redness
- Poor quality of vision – intermittent blur, fluctuation of vision, decreased contrast, glare



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### MULTIFACTORIAL CAUSES

- Age – increase with age over 40 yr
- Women – traditionally post menopause over 40 yr
- Unhealthy ocular surface
- Eyelid inflammation
- Tear quality/quantity
- Demodex (mites)



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### MULTIFACTORIAL CAUSES


- Environment (cold, windy, Winter)
- Allergies
- Digital device use
- Contact lens wear
- Makeup application and removal
- Systemic disease
- Systemic medications



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### DIGITAL DEVICES AND DRY EYE

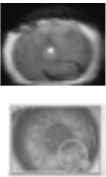
- 65% of all adults and 50% of kids use 5+ hours/day
- Blink 66% less when using a DD
- Decrease in blink rate from 18/min. to 12/min.
- Incomplete blink



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### DIGITAL DEVICES AND DRY EYE


- Poor tear film stability
- Increase in tear evaporation
- Decrease in TBUT
- Fluctuating vision and intermittent blur



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### DIGITAL DEVICES AND DRY EYE

- 20/20/20 rule
- Blink exercises
- Lower height of screen
- Ocular lubricants



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### CONTACT LENSES AND DRY EYE

- Major cause of CL dropout (remains steady at 20%)
- 50% CL wearers complain of discomfort
- Dailies Total 1 water gradient technology
- Oaysis 1 day
- Biotrue
- B&L Ultra
- Biofinity Energys



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### SYSTEMIC DISEASE



- Auto-immune Disease
- Acne Rosacea
- Sjogren's Syndrome
- Sarcoidosis
- Inflammatory Disease

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### PATIENT EDUCATION

- **CHRONIC and Progressive** condition
- Compliance to individualized treatment strategies
- Effect of exposure to elements (wind, dust, sun)
- Effects of digital device use
- Nutrition (Omega-3 supplementation)
- Hormones
- Overall systemic health (Inflammatory conditions and Autoimmune diseases) in the success of their dry eye treatment

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### TREATMENT OF DRY EYE

#### LID HYGIENE


- Soaks, scrubs, massage – removes biofilm bacteria
- Bruder Mask
- Ocusoft foam or pads
- Claridex/Sterilid/Blephadex
- Avenova



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### BRUDER EYE HYDRATING MASK

- Stabilizes tear film, improves gland function and slows tear evaporation
- Medibeads absorb and store air moisture
- Microwave for 20 sec. Stays hot for 5 – 10 mins.



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### BRUDER MASK CASE STUDY

TBUT measured on Oculus Keratograph

<p><b>Before:</b></p> <ul style="list-style-type: none"> <li>• First TBUT at 2.1 sec</li> <li>• Average TBUT at 3.7 sec</li> </ul>	<p><b>After:</b></p> <ul style="list-style-type: none"> <li>• First TBUT at 8.3 sec</li> <li>• Average TBUT at 12.5 sec</li> </ul>
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### OTC ARTIFICIAL TEARS

- Evaporative DE
  - Systane Balance/Refresh advanced
- Emulsions with liquid lipids
  - Retaine MGD
- Aqueous deficiency
  - Systane Ultra/Refresh Optive
- Preservative free
  - Refresh PF



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### 2015 RETAINE MGD CLINICAL STUDY

- **Preservative Free** Oil-based emulsion that's made to act like a restorative version of your own tear film
- 42 DE patients using Retaine BID
- Statically significant **Decrease** in:
  - Signs and symptoms of DE, including conjunctival redness "dryness," "grittiness," and "ocular discomfort".
  - Fluorescein staining
- **Increase** in:
  - Ability to work on a computer at night, read at night, drive at night, watch TV at night

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### RX DROPS FOR DRY EYE


- Xiidra - disrupts inflammatory cascade and treats the signs and symptoms of DE
- Restasis - helps decrease inflammatory nature multi-dose. Preservative-free bottle now available
- Visaid (December 2017)
- Steroids - reduces inflammation for immediate relief

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### TETRACYCLINE DERIVATIVES



- Minocycline, doxycycline and azithromycin
- Stabilizes the evaporation of tears caused by MGD
- Topical Azasite shown to be equally effective
- Reduces inflammation and growth of lid bacteria



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### DAILY LIFESTYLE MODIFICATIONS

- Drink water – plenty of water
- Use sunglasses to protect your eyes from cold bitter winds
- Eat foods rich in vitamin A, C and E containing omega-3 fatty acids
- Omega 3 supplements
- Avoid smoking: both active and inactive
- Decrease coffee intake as it acts a diuretic

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### DAILY LIFESTYLE MODIFICATIONS



- Use a humidifier in the home to prevent fluid evaporation from the eyes
- Avoid using overhead fans
- Avoid wearing Contact lenses for long periods of time
- If you use a hair dryer to blow dry your hair, avoid pointing it directly at the face.
- Redirect vent in car away from face





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### THERMAL PULSATION

- Miboflo (Mibo group)-heats from outside in
- Lipiflow (Tear science)-heats from inside out

Heat helps to liquefy the blocked meibum in the inflamed gland orifice

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### TRUTEAR

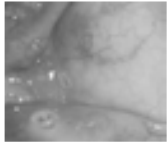


- Handheld device that stimulates the naso-lacrimal gland with electro-stimulation of the Trigeminal nerve (CN V) through the nose
- Able to produce a natural tear on-demand
- May benefit us in our digital age

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### PUNCTAL OCCLUSION

- Blocks drainage of the eyes natural tears
- Keeps tears on ocular surface longer
- Addresses the quantity but not quality of the tears



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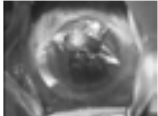
### AUTOLOGUS SERUM



- Uses patients own serum which contains several anti-inflammatory factors, lysozymes, proteins and enzymes which when present in the tears can inhibit the inflammatory cascade

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### AMNIOTIC MEMBRANE



- Promotes healing of the ocular surface through regeneration of the epithelial cells
- Reduces inflammation and establishes corneal stability
- Not a long term solution

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## DRY EYE CHALLENGE

- Ask questions/use questionnaire
- Begin to actively diagnose
- Initiate treatment
- Education – chronic and progressive
- Manage and monitor for life



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## THANK YOU!!

ANY QUESTIONS??  
GREAT TO MEET YOU ALL!

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