Practicing Full Scope Primary Care Optometry: Is This Still Fun??

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Disclosures

Speaker’s Bureau for:
- Alcon
- Dipsys
- Heidelberg
- Maculogix
- Optos
- Reichert
- Zeavision

Know Your Lecturer

- Loyola University of Chicago, 1984
- Illinois College of Optometry, 1988
- Associate optometrist private practice 1988-1992
- Solo practitioner after purchase of Chicago practice 1992
- Professional Eye Care Center, Inc. is a full-scope, primary care setting-moved location in 2007 from 1900 sq. foot space to 5400 sq. foot facility, currently employ one full-time associate doctor, eight full-time employees, and four part-time staff, part-time marketing director

Lecture Objectives

- Look at trends that affect the profession
- Look at best practices for practicing optometry into the future
- Look at practical applications for implementing technologies
- Practicing good optometry is best for patients health and great for practice health!

Optometric Oath

- “I will advise my patients fully and honestly of all which may serve to restore, maintain or enhance their vision and general health.
- I will strive continuously to broaden my knowledge and skills so that my patients may benefit from all new and efficacious means to enhance the care of human vision.”
The Why?

• Profession roots based on optics
• Practice of optometry grew to behavioral/functional vision incorporating therapy other than spectacles
• Optometry scope of medical practice grows from diagnostic only to therapeutic
• We owe it to our profession, and, most importantly our patients, to advance with technology

Trends in Optometry

• With scope of practice expansion and market place trends making the "retail" side of optometry a "commodity" our practice models must change and adapt

• Practice growth will be based on advanced technologies and converting to a medical model

Is this still fun??

Super Buzz Kill!!

ICD-10?

AINT NOBODY GOT TIME FOR THAT

IT HAPPENED!!
Is it fun??

Let’s take a different view!

AMD-The Bohemoth!!

June 16, 1922-February 19, 2012

Nicholas C. Fanella

AMD LANDSCAPE
Large Unmet Need

Prevalence of AMD
- 9.2 million Americans
- 7 out of every 100 adults over 40 years old
- 1 out of every 8 adults over 60 years old
- 1 out of every 3 adults over 75 years old

Prevalence of diabetic retinopathy
- 4.6 million Americans
- 3 out of every 100 adults over 40 years old

Prevalence of glaucoma
- 2.7 million Americans
- 2 out of every 100 adults over 40 years old

Prevalence of AMD
- 2.7 million Americans
- 2 out of every 100 adults over 40 years old

Call for Early Diagnosis

David Brown, MD, FACS
Retina Consultants of Houston

"Many AMD patients are arriving at our practice with unnecessary vision loss. Ideally these patients would see their primary eye physician and be diagnosed earlier."

Gap in Diagnosis of AMD

Normal
Early/Dry AMD
Late/Wet AMD

- Up to 78% of AMD patients have irreversible vision loss at first diagnosis, including 37% who are legally blind in at least one eye
- Early AMD is not adequately detected by current methods

Preventing Unnecessary Vision Loss

Available Interventions Prior to Advanced AMD
- AREDS2 nutritional supplements lower risk of progression by 25%
- Behavior modification also lowers risk of progression

Available Interventions for Choroidal Neovascularization (CNV)
- Prompt anti-VEGF therapy can save up to 5 lines of visual acuity
- Dramatic loss can occur in as little as 8 weeks

ROLE OF DARK ADAPTATION IN AMD

Cholesterol accumulation leads to panvascular deposits (Blind and Blinder)
Peaks in these deposits eventually become clinically visible drusen
These extracellular cholesterol deposits affect photoreceptor health, causing inflammation and predisposing to CNV
In addition, they impair normal transport, including that of vitamin A, across Bruch's membrane
In effect, AMD causes a localized deficiency of vitamin A, and dark adaptation is the best test to measure this change.

**First Symptom of AMD**

- Night vision impacted in early disease: 20+ studies
- AMD patients often give up driving at night
- Night vision is impaired before day vision
- Difficult to determine whether night vision is impaired because of AMD or aging

**ADAPTDX® OVERVIEW**

- First dark adaptometer for rapid, routine clinical use
- Simple, objective tool to measure dark adaptation as earliest functional correlate of macular dystrophies
- Two clinical protocols
  - ≤6.5-minute rapid test (for quick assessment)
  - ≤20-minute extended test (for benchmarking)

**How AdaptDx® Works**

- Simple, noninvasive test performed in-office by ophthalmic technician
- While continuously focusing on fixation light, patient is exposed to a mild bleaching flash and asked to indicate when a progressively dimmer stimulus light appears (randomly timed)
How AdaptDx® Works

Dark Adaptation

Dark Adaptation Is a Major Impairment in AMD

AdaptDx® Diagnostic Study

AdaptDx® Diagnostic Study Results

How Good Is 90%?


Dark Adaptation Is a Major Impairment in AMD

Rapid Test: ≤6.5 minutes
Extended Test: ≤20 minutes

Multisite study
Sample consisted of 127 AMD patients and 21 normal adults
Clinical diagnosis confirmed by retina specialist grading fundus photographs

AdaptDx® Diagnostic Study Results

- Patients classified as having AMD if dark adaptation >6.5 minutes
- High sensitivity: correctly identified 90.6% of confirmed AMD cases
- High specificity: correctly identified 90.5% of confirmed normal cases
- High overall accuracy of 90.6%
- AMD cases exhibit no rod recovery of dark adaptation
- AdaptDx rapid test – ideal for routine clinical use

How Good Is 90%?

Visual field testing to detect glaucoma is 83% sensitive and 95% specific

Retina specialists using slit lamps to detect AMD are 82% sensitive and 91% specific

Clinically Validated at Leading Institutions

Example of an AdaptDx® Report

- Patient name, DOB, and ID number
- Eye tested and characteristics
- AdaptDx dark adaptation curves
- Rod intercept time and clinician assessment (>6.5 minutes consistent with AMD)

Case 1: AMD

- 75 Year old female
- 20/25 OU
- No AMD family Hx
- Nonsmoker
- Large soft drusen
- 75 Year old female
- 20/25 OU
- No AMD family Hx
- Nonsmoker
- Large soft drusen
- OCT findings of drusen
- Abnormal dark adaptation

Case 2: Subclinical AMD

- 65 Year old female
- 20/20 OU
- No AMD family Hx
- Nonsmoker
- Subtle drusen
- Unremarkable OCT
- Abnormal dark adaptation

Dark Adaptation Is NOT a Risk Factor for AMD

Genetic testing and macular pigment density (MPOD) can indicate a heightened risk for developing AMD, but neither indicates the actual presence of disease.

Impaired dark adaptation is NOT a risk factor. It is the earliest manifestation of disease.

AdaptDx® Advantages

- No prior adaptation required
- Low patient burden
- Short test duration
- Automated analysis
- Objective output (rod intercept)
- CPT 92284 ($63 avg)
- FDA 510K cleared (K100954)
WHAT DOES A POSITIVE ADAPTDX® TEST MEAN?

Case Example With Positive AdaptDx® Report

You have implemented AdaptDx in your practice and test a patient who has impaired dark adaptation.

NOW WHAT?

What Does a Positive AdaptDx® Report Mean?

Look at the patient’s other characteristics with imaging tools
1. Are there drusen?
2. Are there pigmentary changes including geographic atrophy?
3. Is there evidence of choroidal neovascularization?

AMD Patient – Treatment Protocol

Examination: annual, semi-annual, or more frequent dilated exams (depending on AMD severity)
Testing: BCVA, biomicroscopy, macular function assessment (such as dark adaptation), imaging (fundus photos or other), PHP (preferential hyperacuity perimetry), pERG
Management: consider anti-oxidant supplementation & UV protection, provide counseling on behavior, Amsler grid, PHP (preferential hyperacuity perimetry), pERG
Referral: immediate consultation with retina specialist upon clinical signs or symptoms of choroidal neovascularization

Subclinical AMD Patient – Treatment Protocol

Examination: monitor as appropriate depending on risk factors (age, family history, smoking, weight, genetics)
Testing: BCVA, biomicroscopy, macular function assessment (such as dark adaptation), imaging (fundus photos, OCT), pERG
Management: consider nutraceutical supplementation & UV protection, provide counseling on behavior (diet/exercise)

Co-Manage as Appropriate
Clinical Utilization Case #1

Multispecialty optometry practice

- Insurance reimbursement only
  - Primarily tests known AMD patients to benchmark impairment
  - Tests night vision complaints to differentiate cataract from AMD

- Cataract vs AMD
  - AMD benchmark testing

- Rapid Test to discriminate night vision impairment due to cataract vs retinal pathology

ROI: Conservative use based on known pathologies provides positive investment return with less than 1 test per day.

- Extended Test on both eyes to benchmark dark adaptation time that can be tracked from visit to visit
- Determine patient management program based on results of testing (eg, quarterly, semi-annual, or annual appointment schedule)

Clinical Utilization Case #2

Two optometrists, comprehensive practice

Patient-pay initial testing at future dedicated visit with follow-on insurance visits
- 50% dark adaptation test offered to patients meeting risk profile (over 60, family history of AMD, smoker, overweight, poor night vision, etc)

3 Hour follow-on appointment scheduled

Previously undiagnosed AMD is discovered in 20% of these patients

ROI: Patients that used to be worth $500 every 13 months are now worth $500 every year. Nutraceutical sales increased 60% year over year.

Clinical Utilization Case #3

High-volume refractive surgery/cataract practice; multiple DOs/MDs

Patient-pay initial testing during current visit with follow-on insurance visits
- 50% dark adaptation test offered to patients meeting risk profile (over 50, family history of AMD, smoker, overweight, poor night vision, etc)

40% decline testing

ROI: Practice is generating over $100,000 per year of new revenue from AdaptDx™ (including early f myopia testing such as OCT and nutraceutical sales triggered by AdaptDx findings) vs $14,700 AdaptDx kit price

Clinical Utilization - My Practice

Two optometrists, comprehensive practice

- Insurance reimbursement or patient pay if HMO/uninsured
  - Primarily tests known AMD patients to benchmark impairment
  - Tests night vision complaints to differentiate early AMD from all other conditions

Other conditions vs sub-clinical AMD

AMD benchmark testing

- Dedicated testing visit

Dedicated testing visit

- Extended Test on both eyes to benchmark dark adaptation time that can be tracked from visit to visit
- Determine patient management program based on results of testing (eg, quarterly, semi-annual, or annual appointment schedule)

How AMD Diagnosis Changes Your Practice

Good for your patients
- If AMD is detected early, there are effective interventions that can preserve vision and improve quality of life

Good for your practice
- An AMD patient is estimated to add from $350 to $600 per year to practice revenue
Proactive Testing Model

**Initial Assessment**
- Discovery of previously undetected early and subclinical AMD
- Benchmark characterization
- AdaptDx® Rapid Test on risk factors
- Patient self-pay or ICD-9 368.60 - night blindness, unspecified

**Subsequent Management**
- Increased exam frequency (as appropriate)
- Early AMD:
  - ICD-9 362.51 - dry AMD
  - ICD-9 362.53 - dry AMD
- Subclinical AMD:
  - ICD-9 368.63 - abnormal dark adaptation
- Recommend or sell nutraceuticals (as appropriate)

**Key Takeaways**
- AMD is a highly prevalent condition that causes preventable vision loss
- Proactive detection and management of early and subclinical AMD can transform a practice and ensure better patient outcomes
- AdaptDx® can help preserve vision and improve quality of life

**Cases: EG**
- 76yo WM with Hx of macular hole/epiretinal membrane
- 20/40 OD, 20/20 OS BCVA
- Sx’s of decreasing vision at night
- Active bowler; needs to maintain sharp VA
- OCT stable OD, negative OS

**Return on Investment Calculator**

Enter number of doctors in practice who will use AdaptDx
Enter practice volume (patients per doctor per week): 1

<table>
<thead>
<tr>
<th>Practice Volume (per week)</th>
<th>Total ROI (annual)</th>
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<tr>
<td>25</td>
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During a typical week, initial testing will be conducted on 13 patients which will find 1.6 new AMD patients.
Total new yearly revenue to the practice is $33,099.
Yearly additional revenue from initial AdaptDx testing is $543,940.
Yearly additional revenue from semi-annual visits is $38,916.
Yearly additional revenue from supplement sales is $13,182.
Total yearly revenue from each AMD patient is $727 not including retail vision.
Cases: JG

- 67yo WM with Hx of macular drusen
- 20/15 BCVA OU
- Monitored q3-6mos pERG & PHP with no changes over 3 years
- Taking Eyepromise Restore 2 tabs PO QD
- Do I need to monitor so often????

Case JG

Cases: FG

- 63yo WF with Hx of peripheral drusen
- 20/30+ BCVA OU from mild cataracts
- Sx's of decreasing visual comfort over time
- Considering cataract consult
- OCT negative OU

Case FG

Cases: WK

- 71yo WM with Hx of peripheral drusen
- 20/20 BCVA OU
- Family Hx of AMD with Mother and Sister
- HTN med only
- Genetic testing shows MR1, 75% Genetic Lifetime Risk, AREDS without zinc recommendation

Case WK
Cases: PS

- 67yo male Pacific Islander with Hx of macular drusen
- Negative family Hx of AMD
- Lipitor med only for Hypercholesterolemia
- pERG function mild decrease magnitude OD, normal sinusoidal curve OU
- No signs of choroidal neovascularization on OCT OU
- BCVA down-2014 noting cataracts 20/60 OD, 20/40 OS
- Successful cataract extraction OU 20/20 OD, 20/25 OS
- Genetic testing shows MR2, 34%-Genetic Lifetime Risk, AREDS without zinc recommendation

Are we having fun yet??

Medical Optometry-Anterior

- Lashes-Hypotrichosis

Medical Optometry-Anterior

- Lashes-what women really want

Medical Optometry-Lashes

- Latisse has been standard since 2009
- Rx only
- Potential side effects, IOP lowering, permanent iris pigmentation, permanent lid pigmentation
Medical Optometry-Lashes

- New cosmetic Tx; no pharmacy Rx needed
- Zoria distributed through OcuSoft
- No side effects

How it works

- Zoria™ Boost Lash Intensifying Serum utilizes patented polypeptide technology to naturally enhance and support each of the three phases of the eyelash growth cycle. The result: dramatically longer, fuller and darker looking eyelashes.

  These three phases are known as:
  1. Anagen (active growth)
  2. Catagen (transition)
  3. Telogen (resting)

Eyelash GROWTH cycle

1. The Anagen (active growth) Phase - lasts between 30-45 days. In this phase, the patented polypeptide technology in Zoria™ Boost stimulates keratin genes and hair follicles to support natural eyelash growth.

2. The Catagen (transition) Phase - lasts 2-3 weeks. During this phase, the eyelash stops growing once it reaches its maximum length and volume. Zoria™ Boost strengthens, repairs and protects the eyelash in this transition phase.

3. The Telogen (resting) Phase - lasts approximately 100 days (16-36 weeks) before the eyelash eventually falls out. Each individual eyelash undergoes each phase at different times. On average, complete replacement of an eyelash occurs between 4-8 weeks. Zoria™ Boost not only nourishes and conditions eyelashes to prepare for the next growth cycle, it also prolongs the Telogen phase creating the appearance of longer, fuller lashes.

Clinical study – in vivo data

- Thicker, Darker and Longer Looking Eyelashes
- Panel: 15 subjects, 24-82 years old
- Test Product: A conditioner with patented lipopeptide
- Measurement: EyeTest lash measurement by SigmaScan software

BOOST Lash intensifying serum

- Lili Fan, M.D. is visionary scientist and entrepreneur whose list of achievements include:
  - Ophthalmologist
  - Patents for polymeric and oligomeric biosurfactants
  - President and Founder of LukuSkin® Skin Biomedical
  - Founding Director of Owen Botanical Organics, Inc.

Clinical study – in vivo data

- After two weeks of use
Clinical study – in vivo data ii

- Thicker, Darker and Longer Looking Eyelashes
- **Panel:** 4 subjects
- **Test product:** Eyeliner serum applied on the root of the eyelashes once a day at night
- **Measurements:** 2, 4 and 6 weeks – Canon 5 – DMII calibrated with micrometers to accurately calculate distal length and width. Cameras mounted on permanently fixed tripods shooting directionally above the anterior eyelids. Patients are inclined on a physician lab chair to maintain subject stability. Software programs are a composite of commercially available Canfield, Hasselblad and proprietary programs to represent eyelash density analysis.

After 2-6 weeks of use

Day 0  Day 14  Day 28  Day 42

Availability/Cost

- **Zoria™ Boost Lash Intensifying Serum** is exclusively available through eye care professionals and now on-line...Amazon $100.00 OcuSoft $130.00

- Cost per tube: $60
- Suggested retail price: $100 - $120
- Item #720-5-01

Key Points

- All-natural
- Patented Polypeptide Technology
- Cosmetic grade active ingredient whereas Latisse® is a prescription drug
- Cosmetically safe – no allergic response, iris or skin discoloration
- Lasts twice as long as Latisse® for the same price (Latisse® = $120 for 3 mL fill and Zoria™ = 6 mL fill)

Marketing Materials

Interview with Dr. Marguerite McDonald

http://www.youtube.com/watch?v=PlACQvEGBA&feature=youtu.be
Other Lash Product

• Zoria™ Mascara For Sensitive Eyes
  – Creates beautifully defined, natural looking eyelashes without any clumps or flakes
  – Safe for sensitive eyes and contact lens wearers
  – Hypoallergenic
  – Ophthalmologist Tested
  – Cost per 0.25 oz. tube = $12.50
  – Suggested retail price = $24.99

Other Lash Products

• Zoria™ Mascara with lash boost
  – Creates beautifully defined, natural looking eyelashes with booster added
  – Safe for sensitive eyes and contact lens wearers
  – Hypoallergenic
  – Ophthalmologist Tested
  – Cost per 0.25 oz. tube = $24.50
  – Suggested retail price = $48.95

Medical Optometry-Lids

• Blepharitis; Anterior/Posterior
• Demodex Mites (Underdiagnosed)
• Dermatochalasis
• All conditions lead to dryness (Tears need lids!)

What is Blepharitis?

• Blepharitis is an inflammation of the eyelids causing red, irritated, eyelids and the formation of dandruff-like scales on the eyelashes.
• Symptoms include itching, burning and foreign body sensation.
• Reoccurrence is common and may lead to Trichiasis.

Two Types of Blepharitis

• Anterior Blepharitis: Occurs at the outside front edge of the eyelid where the eyelashes are attached.
• Posterior Blepharitis: Affects the inner edge of the eyelid that comes in contact with the eyeball.
### What Causes Blepharitis?

- Allergic
- Seborrheic (Dandruff)
- Bacterial (Staph Infection)
- Demodex Mites **(under diagnosed)**
- Irregular Oil Production by the Glands
- Other Skin Conditions Such as Acne, Rosacea, and Scalp Dandruff

### What Treats Blepharitis?

- Blepharitis cannot be cured but it can be treated and controlled through proper eyelid hygiene
- Gentle scrubbing of the eyes with a mixture of water and baby shampoo or an over-the-counter lid cleansing product – **OCuSOFT® Lid Scrub®** is often recommended
- Warm compresses can be applied to loosen the crusts
- In cases involving bacterial infection, an antibiotic may also be prescribed.

### Blepharitis Treatment Options

- Chronic condition needs to be monitored depending on its severity
- Those on oral meds need to be monitored every 3-6 mos.
- Patients need to be well educated on the importance of maintaining this chronic condition

### Newer Treatment Options

- Deep cleaning for lids
- In-office procedure
- Topical anesthetic
- Lid cleanser
- Saline Rinse

### BlephEx Tx

- Topical anesthetic
- Lid cleanser
- Saline Rinse
- Office visit + Tx fee ($150 sug.)
- One tip/margin (4 tips $16.00)

[https://www.youtube.com/watch?v=rnVYXqk8D28](https://www.youtube.com/watch?v=rnVYXqk8D28)
**BlephEx Tx Protocol**

- Chronic/Moderate to Severe Blepharitis
- Demodex Infestation (Tea tree oil)
- Proper patient at home Tx (Lid Scrubs)
- Follow up in 2-3 weeks for efficacy
- Re-treatment if needed or patient non-compliance

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**Newest Lid Scrub**

- **Phytosphingosine 0.2%**
- A water-binding agent that mimics the natural lipid layer of the outer epidermis
- Anti-bacterial and anti-inflammatory properties as well as aid in wound-healing

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**Severe Cases-Combo Tx**

- Adjunct to OCuSOFT® Lid Scrub® products in the most severe blepharitis cases.
- **Solution (0.02% Hypochlorous acid)**
- **Gel (0.02% Hypochlorous acid)**
- Combination Tx since no cleansing properties

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**Avenova (Neutrox-0.01% Hypochlorous acid)**

- A milder form of Hypochlorous acid
- Daily Use
- Non-irritating to skin
- Single therapy

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**Demodex Mites**

Demodex mites at 400x magnification: (A) D. folliculorum adult, (B) larva, and (C) D. brevis.

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**Life Cycle and Risk Factors**

- The life-span of the Demodex mite is very short, about 14 to 18 days from the egg to the larval stage followed by five days in the adult stage.
- Because of the limited life-span of the adult mites, mating plays an important role in perpetuating Demodex infestation. For transmission of mites, direct contact is required.
- The rate of Demodex infestation increases with age, being observed in 84% of the population at age 60 and in 100% of those older than 70 years.
- Rosacea predisposes patients to blepharitis mainly by creating an environment on the skin that congests all the oil-producing glands necessary for a healthy dermis and epidermis.
- Once Demodex infestation establishes in the face, it is likely to spread and flourish in the eye, leading to blepharitis and ocular inflammation. Again, this is because the eye is generally inaccessible by daily facial hygiene.
Demodex Mites**

Did You Know?

- Over 75% of patients over age 45 test Demodex-positive.
- Over 40% of blepharitis patients test Demodex-positive.
- 30-fold higher count of Demodex mites in patients with cylindrical dandruff (CD) than without CD.
- Strong correlation between the number of Demodex and the severity of ocular discomfort.

References:

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Demodex Mites

How to Identify Demodex® Mites:

1. **Clinical History**: Blepharitis, conjunctivitis or keratitis in adult patients or blepharoconjunctivitis or recurrent chalazia in young patients who are refractory to conventional treatments, or when there is madarosis or recurrent trichiasis.

2. **Slit-lamp Examination**: Identification of CD (cylindrical dandruff) at root of lashes.

3. **Microscopic Confirmation**: Detection of Demodex eggs, larvae and adult mites on epilated lashes.

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Demodex Mites

- [Image of clinical features of Demodex blepharitis]
- **Figure below.** The clinical features of Demodex blepharitis include: (A) cylindrical dandruff at the root of the lashes (yellow arrow) and inflamed eyelid, (B) conjunctival inflammation, and (C) a corneal lesion (yellow arrow).

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Demodex Mites

- [Image of Demodex mites in skin]

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Demodex Mites

- [Image of Demodex on lashes]

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Demodex Mites

- [Image of Demodex in skin]

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Demodex Mites

- [Image of Demodex on eyelashes]

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Demodex Mites

- https://www.youtube.com/watch?v=sgav_kZ_Hi4&feature=youtu.be
Demodex Mites

Treatment Goals:
- Remove adult mites and their offspring
- Help prevent re-infestation
- Alleviate patient’s symptoms

Demodex Convenience Kit

Kit includes:
- Demodex® Topical Solution
- OCuSOFT® Lid Scrub® PLUS
- Tears Again® Ointment
- Tears Again® advanced Liposome Spray
- BlephBrush™

Demodex Convenience Kit

Why Demodex® Convenience Kit?
- First and only kit designed to help practitioners remove Demodex mites in-office with an easy 2 step process
- Helps patients control re-infestation at home with daily cleansing and ongoing maintenance

Demodex Mites-Treatment

For the practitioner:
1. Cleanse eyebrows, eyelids and eyelashes using OCuSOFT® Lid Scrub® PLUS Pre-Moistened Pads. No rinsing necessary.
2. Place a small amount of Demodex® Topical Solution on the included BlephBrush™ and gently apply to the eyebrows, edge of the lower eyelid and lower eyelashes, then upper eyelid and upper eyelashes, rewetting the BlephBrush™ with more solution as needed. AVOID DIRECT CONTACT WITH THE EYE OR STINGING/BURNING MAY RESULT.
3. Wait 2 minutes and remove Demodex® Topical Solution along with softened debris from the eyebrow, eyelid and eyelashes using a fresh OCuSOFT® Lid Scrub® PLUS Pre-Moistened Pad. The smaller squared brush of the BlephBrush™ may also be useful in removing excessive debris.
4. Repeat Steps 2-4.
5. Remove any remaining Demodex® Topical Solution with OCuSOFT® Lid Scrub PLUS. Patient may also rinse face and eye areas with water if desired.

For the patient:
- Continue at-home hygiene regimen and help prevent mites from returning by cleansing eyebrows, eyelids and eyelashes with OCuSOFT® Lid Scrub® PLUS Pre-Moistened Pads twice daily.
- Spray Tears Again® advanced Liposome Spray onto closed eyelids throughout the day to soothe and relieve irritation. Use as needed according to package directions.
- Apply Tears Again® Eye Ointment to inner eyelids/eyelash margins at bedtime to relieve dryness and protect against moisture loss. Use according to package directions.

- Do not use
  - on unhealthy, numb, damaged, broken skin or areas with no sensation of feeling
  - on eyelids that do not close
  - on areas of bruising or swelling
  - on children under the age of 18 or elderly patients with reduced sensation of feeling

When using this product
- check skin frequently for signs of excessive skin irritation.
- do not place extra pressure or warmth over the product
- do not apply more than once in any seven (7) day period
Demodex Mites - Practice Management

- Initial visit diagnosed during a full exam or urgent care visit 92000 or 99000 codes
- See for f/u to initiate in office Tx; EP 4 with fee for Demodex kit (cost $30)
- See for f/u post Tx EP 3 or EP 4 with retreatment
- **VERY UNDERDIAGNOSED** condition - relief for many patients!!

Demodex Mites - Treatment

- Long term therapy/maintenance:
  - Tea Tree Oil is the key!
  - Cliradex - *Metaleuca Alternifolia*

Cliradex - Maintenance Tx

- 4-Terpineol, an organic compound that safely and effectively cleans and soothes the skin
  - Naturally: antifungal
  - antiseptic
  - antibacterial

Cliradex - Maintenance Tx

- Indications: Dry eye
- Rosacea
- Blepharitis

Cliradex - Maintenance Tx

- Directions: 1-2x/day
- 1 pad/use
- - apply to lids/face and do not open eyes for at least 1 minute after lid contact
- - tightly closed lids but no squinting

Cliradex - Availability

- www.directdermacare.com/Amazon - $42.99
- or
- Doctor’s office only - Biotissue (refers to OD) www.cliradex.com
- - cost to practice $24.00
- - retail price $39.00
Blephadex

-Tea Tree/Coconut Oil

Blephadex-In Office Use

-Tea Tree/Coconut Oil
-Gentler Tx
-Easy/efficient
-BlephEx tx with foaming cleanser

Blephadex Eyelid Wipes/Spray

-cost to practice $
-retail price $19.95-Amazon

Starting to get a groove again?

Amniotic Membrane Tx-Paradigm Shift

- Anti-scarring
- Anti-inflammatory
- Anti-angiogenic
- Wound healing
- Thick basement membrane & an avascular stroma
- Unique biologic actions
- Transparent
- Tensile strength

Amniotic Membrane Tx-Attributes
Amniotic Membrane Tx-Indications

- Used in ocular surface disease treatment since 1940s
- In 1997 Bio-Tissue patents a cryopreservation method which preserves the biological actions
  - anti-scarring
  - anti-inflammation
  - anti-angiogenic
  - wound healing functions
- Over 200 publications support its use

Amniotic Membrane Tx-Indications

- Band Keratopathy
- Bullous Keratopathy
- Chemical Burns of the Ocular Surface
- Corneal Epithelial Defects
- Corneal Ulcer
- Keratitis (Bacterial or Viral)
- Pterygium
- Stevens-Johnson Syndrome

Amniotic Membrane Tx-Clinical Preps

- Easy to use in office or bedside (sutureless) avoiding treatment delay & costs of surgery
- Improves Corneal Disease outcomes via the Wound Healing abilities of cryopreserved Amniotic Membrane
- New CPT Code: 65778 for in-office placement of PROKERA®

Amniotic Membrane Tx-Prokera

- Hold with blunt forceps or fingers
- The Membrane is already properly oriented within the device
- Remove PROKERA® from Inner Pouch

Amniotic Membrane Tx-Insertion

http://youtu.be/tsjql9lloM -
• IOP Ophthalmics
• Dehydrated amniotic tissue for use with a contact lens to hold it in place

• No special storage-room temperature
• No rinsing or special prep

• AmbioDisk™ is a 4th generation amniotic membrane (AM) technology - a sutureless, overlay AM disk for the office-based or surgical treatment of the ocular surface.
• The 15mm AmbioDisk configuration is available in both the Ambio2™ (35 microns thick) and Ambio5® (100+ microns thick) technologies. Our new 9mm and 12mm diameter versions are available in the Ambio2 option only.

• Patient laying back with lid speculum
• Place disk on with forceps

• New method is to apply with a contact lens and NO forceps, NO speculum using a 18mm scleral Kontour soft lens
• Apply graft to contact lens first, then patient
• Easier on patient and doctor
• Less cost of goods
Amniotic Membrane Tx-AmbioDisk

- https://www.youtube.com/watch?v=2VEe-y6RjiA

Amniotic Membrane Tx-Moria VisiDisc

- Visidisc is another dehydrated membrane
- Available in 10, 12 and 15mm discs in thin and thick
- 5 year shelf life
- Most cost effective of all membranes

Amniotic Membrane Tx-Maintenance

- Patient is seen for clinical f/u appropriate for healing of condition
- Amniotic membrane dissolves on it's own over course of Tx
- Any appropriate topical meds can be used just like with bandage CL Tx
- FDA approved to stay on ocular surface for up to 30 days

Amniotic Membrane Tx-Removal

- ProKera needs ring removed-easily with a forceps
- AmbioDisk and VisiDisc require removal of contact lens

Amniotic Membrane Tx-Medical Billing

- CPT 65778
- “Placement of amniotic membrane on the ocular surface for wound-healing; self-retaining”
Amniotic Membrane Tx - Practice Management

- Medicare approved with approximate reimbursement $1350 range
- Cost of ProKera depends on bulk bought ranges from $800-$949 (30/60/90 billing)
- Cost of AmnioDisk is $650 range
- Cost of Moria VisiDisc is $250-$420 range
- Symptomatic patients understand costs/benefits

Let's take this party up a notch!

THE ROLE OF NUTRITION IN COMPLETE PATIENT EYE CARE
MAXIMIZING CARE FOR THE AMD, DRY EYE AND DIABETIC AT RISK PATIENT

PAMELA A. LOWE, OD, FAAO
DIPLOMATE, AMERICAN BOARD OF OPTOMETRY

AMD-PREVENTION/MANAGEMENT
DRY EYE-MANAGEMENT
DIABETES-IDENTIFYING/MANAGEMENT

- THE NUMBERS...
- OUR RESPONSIBILITY AS PRIMARY CARE PROVIDERS
- OUR RESPONSIBILITY TO DIFFERENTIATE
- OUR DEDICATION TO PROMOTING/LEADING THE MEDICAL MODEL
- OUR RESPONSIBILITY TO DEVELOPING ACO/MD RELATIONSHIPS
- PRACTICE SUSTAINABILITY/GROWTH

THE NUMBERS
- AMD: 16 million have AMD (10 million dry AMD at risk to wet)
  - 5 million have Diabetic Retinopathy, 1 million have GIC
  - Nearly as many at risk AMD patients and DBR and GIC patients combined
- Dry Eye: 1 in 5 patients suffer from dry eye...main reason for Cl dropouts
- Up to 40% of Americans affected by dry eye at some time

Dry Eye: 1 in 5 patients suffer from dry eye...main reason for Cl dropouts
- Nearly as many at risk AMD patients and DBR and GIC patients combined
- AMD: 16 million have AMD (10 million dry AMD at risk to wet)
  - 5 million have Diabetic Retinopathy, 1 million have GIC

DIABETES: Affects more than 10 percent of the U.S. Population, but nearly 7 million people are unaware that they have the disease. According to estimates from the CDC,
**AMD-RISK FACTORS**

- Smokers - educating and recommending cessation strategies
- Obesity & Poor Diet - educating and recommending diet/exercise strategies
- Low Macular Pigment - educating and recommending measurement

**AMD LIFESTYLE RISKS**

- Tobacco Effects: Toxins build up at the cellular level, aging/oxidizing tissue at a greater rate
- Smoking Cessation: Hypnosis, oral medication, patch, cold turkey if possible
- Low Macular Pigment - educating and recommending measurement

**SMOKING RISK**

- Tobacco Effects: Toxins build up at the cellular level, aging/oxidizing tissue at a greater rate
- Smoking Cessation: Hypnosis, oral medication, patch, cold turkey if possible
- Low Macular Pigment - educating and recommending measurement

**OBESITY/POOR DIET RISK**

- Diet: Foods rich in antioxidants are essential (plant based foods vs. processed and fatty meats)
- Exercise: Educating on simple ways to implement motion/increasing heart rate
- Low Macular Pigment - educating and recommending measurement

**OBSERVATION:**

- 7 Side Effects of Soda
- Surgeon General's Warning: The Standard American Diet is deadly.
LOW MACULAR PIGMENT RISKS

- "Internal Sunglasses" - Less protection for macular aging/oxidation
- Macular Carotenoids - Lutein/Zeaxanthin
- Visual Performance - Decreases perception and clarity
- Reaction Time/Glare - Improves driving/night conditions

MPOD TESTING

- Any patient at risk should be educated and consider measurement
- Proactively identify during pre-testing
  - Utilize questionnaire
  - Pre-tester determination
- Complete testing where best in your patient flow
  - End of entrance test prior to doctor exam
  - End of full exam per doctor recommendation

DIET

- Every at-risk patient (no matter what pigment level) should be educated on a healthy diet
  1. Dark green leafy vegetables: spinach, kale, brussel sprouts, broccoli
  2. Peppers of color: red, orange, yellow
  3. Berries: darker the berry the better - blue/blackberries
  4. Omega 3's: Don't just think fish! Healthy oils in almonds, walnuts, flaxseed
  5. Indulgences: Red wine (pinot), dark chocolate (70% cocoa or greater)

SUPPLEMENT RECOMMENDATION

- Anyone with family Hx should be on AREDS 2 formula
- Low Pigment - AREDS 2 Formula
- Smokers - Formula without Vitamin A
- Drusen/peripheral or central - AREDS 2 Formula or further testing???
- Visual Risk Assessment Recommendation: Targeted Tx
EYE PROMISE RESTORE

Same 2:1 ratio of Zeaxanthin & Lutein as center of a healthy macula.

Science-based eye supplements designed to be taken with a multi-vitamin.

Highest quality and quantity of dietary Zeaxanthin in a single dose (8mg).

Backed by more than 20 years of research and development.

Available only through Eye Care Professionals and Zeavision.

• **ZEAXANTHIN (8 MG)**
  - A SUPERIOR PHOTO-PROTECTANT AND ANTIOXIDANT DUE TO ITS CHEMICAL STRUCTURE. PRIMARILY FOUND IN THE CENTRAL PART OF THE MACULA, LOW LEVELS ARE ASSOCIATED WITH INCREASED RISK OF AMD.

• **LUTEIN (4 MG)**
  - PRIMARILY FOUND IN THE PERIPHERAL PART OF THE MACULA, AN IMPORTANT PHOTO-PROTECTANT THAT HELPS FILTER DAMAGING BLUE LIGHT AS IT ENTER THE EYE.

• **OMEGA-3 (190 MG, TOTAL FISH OIL, 250 MG)**
  - FATTY ACIDS FROM FISH ARE A VITAL AND SERIOUSLY LACKING NUTRIENT – SIGNIFICANT STRUCTURAL COMPONENTS OF TISSUE CELL MEMBRANES THROUGHOUT THE BODY – ESPECIALLY RICH IN THE BRAIN AND PARTICULARLY IMPORTANT IN THE RETINA WHERE DEFICIENCY CAN RESULT IN DECREASED VISION.

• **VITAMIN C (120 MG)**
  - A MAJOR ANTIOXIDANT NUTRIENT – STRENGTHENS BLOOD VESSELS, AIDS IN IRON ABSORPTION, AND IS REQUIRED FOR THE SYNTHESIS OF COLLAGEN, THE INTERCELLULAR “CEMENT” WHICH HOLDS TISSUES TOGETHER. EXCELLENT HEALING AGENT THAT HELPS THE BODY RESIST INFECTION.

• **VITAMIN D3 (1,000 IU)**
  - D3 MAINTAINS ADEQUATE LEVELS OF VITAMIN D IN THE BODY – REGULATES THE BODY’S INFLAMMATORY RESPONSE; IMMUNE HEALTH; JOINTS AND MUSCLES; AND MORE.

• **VITAMIN E (60 IU)**
  - MAJOR ANTIOXIDANT THAT SLOWS CELLULAR AGING DUE TO OXIDATION, STRENGTHENS BLOOD VESSELS, AND MAY HELP COMBAT WET AMD.

• **ZINC (15MG)**
  - VERY IMPORTANT IN HUMAN METABOLISM – MORE THAN 100 SPECIFIC ENZYMES REQUIRE ZINC FOR THEIR CATALYTIC FUNCTION. RECOMMENDED UPPER TOLERABLE LEVEL OF ZINC IS 40 MG PER DAY.

• **MIXED TOCOPHEROLS (6 MG)**
  - PLAY A SIGNIFICANT ROLE IN SYSTEMIC INFLAMMATORY ADJUSTMENTS.

• **ALPHA LIPOIC ACID (10 MG)**
  - A POWERFUL ANTIOXIDANT THAT WORKS MOST EFFECTIVELY IN SYNERGY WITH VITAMINS C & E – FIGHTING FREE RADICALS THAT CAN DAMAGE CELL STRUCTURES, IMPAIR THE IMMUNE SYSTEM, AND MAY CONTRIBUTE TO VISION LOSS.

FOLLOW-UP RECOMMENDATION (NO RETINAL FINDINGS)

• Any diet/supplement prescribed should mandate a 6 month follow up.

• F/U still requires treatment plan.

• After nutrition/nutraceutical clinical balance found yearly reinforcing important
**RETINAL FINDINGS INCREASING RISKS**

- Peripheral drusen
- Macular changes
- Diagnosed AMD

**MACULAR RISK ASSESSMENT TEST**

- Genetic testing results to determine maximum preventive treatment plan:
  1. 2, 5 & 10 year risk
  2. Lifetime risk
  3. Targeting nutraceuticals

- Labs directly bills Medicare patients and any insured patient with only a $50 co-pay
- Vita Risk is NOT billable to insurance and costs $500.00

**MACULA RISK® - VITA RISK®**

AMD GENETIC TESTING & AREDS PHARMACOGENETICS

**CODES FOR GENETIC TESTING**

- 362.50 - NON-SPECIFIC AMD
- 362.51 - NON-EXUDATIVE AMD
- 362.52 - EXUDATIVE AMD
- 362.57 - DRUSEN

**OFFICE LOCATIONS**

- Toronto, Canada
- Grand Rapids, MI

**INCIDENCE OF AMD IS INCREASING**

- > 2 million new cases per year in USA
- Over 30 million in USA have AMD (AREDS 2, 3 and 4)
- More than 7 million have intermediate AMD
- 10,000 new cases turn 65 every day in North America
- 500 new cases of CHD every day in USA
MACULA RISK & VITA RISK
Who Will Lose Vision
Which Eye Supplement

Macular Risk®
2, 5, 10-year Prognostic
Prognostic Assessment of Dietary Supplements
Impacts on Different Stages of Age-Related Macular Degeneration Using Multistate Markov Models
Yi Yi, Robyn Reynolds, Bernard Rosner, Mark J. Daly, and Johanna M. Seddon
INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE, MARCH 2012, VOL. 53, NO. 3

10 YEAR PREDICTIVE POWER = 0.895 'C' STATISTIC SCORE

MACULA RISK - PROGNOSTIC VALIDATION - 2013 JAMA
VALIDATION OF A PREDICTION ALGORITHM FOR PROGRESSION TO ADVANCED AMD
Johanna Seddon, Robyn Reynolds, Yi Yi, Bernard Rosner
JAMA OPHTHALMOLOGY, VOLUME 131, NO. 4, APRIL 2013
PREDICTION MODEL INCLUDING 5 GENES, AMD STATUS AND DEMOGRAPHIC VARIABLES
10 YEAR PREDICTIVE POWER = 0.81
SENSITIVITY AND SPECIFICITY >80%

Macula Risk improves Outcomes
American Society of Retina Specialists
Annual Meeting – August 2013
Peter Sonkin MD, Tennessee Retina

Macula Risk® and AREDS Pharmacogenetic
CFH and ARMS2 Genes Played an Important Role in Macular Health and Pain in Patients with Age-Related Macular Degeneration
Carl C. Awh, Anne‐Marie Lane, Steven Hawken, Brent Zanke, Ivana K. Kim
Ophthalmology – November 2012

COMBINING CLINICAL EXAM AND GENETICS

CNV Cases = 2,105 Eyes
Average Visual Acuity at Presentation

Without Genetic Analysis: 20/145
With Genetic Analysis: 20/77
MACULA RISK PATIENT REPORT

Gene SNP Result Risk
ABCA1 rs1883025 TT —
APOE rs7412 CC —
APOE rs429358 TT —
ARMS2 372_815del443in ND *
C2 rs9332739 GG **
C3 rs2230199 CC —
CETP rs3764261 AC *
CFB rs541862 AA **
CFH rs412852 CT —
CFH rs3766405 CC —
CFH rs1048663 AG —
CFI rs10033900 TT **
COL8A1 rs13095226 TT **
LIPC rs10468017 CT *
TIMP3 rs9621532 AA **

Genetic Risk Percentile: 29%
(range: 0 - 100, average = 50)

Signed by Robert Carlson, MD
Signed on October 31, 2014

Accession Number:
AMLPGX-00000
Patient Name:
John Doe
DOB:
DD-MM-YY
Gender:
M
Accession:
AMLPGX-00000
Specimen Type:
Buccal Sample
Age:
74
Collection Date:
October 09, 2014
Receipt Date:
October 20, 2014
Report Date:
October 31, 2014

Progression Risk to CNV or GA
2-Year 5-Year 10-Year
Patient: Doe, John (74.0) 7% 24% 48%

10-Year Macula Risk Score:
MR4

PROGRESSION RISK (%)
TIME (Years)
1 2 3 4 5 6 7 8 9 10

10-Year Macula Risk Score
For Progression to CNV or GA

AREDS without Zinc
Vitamin Recommendation based on CFH and ARMS2 genotyping

Non Genetic Features
RISK PARAMETER VALUE
AMD Status OD Intermediate
AMD Status OS Early
Smoking Smoker
Education High School or Greater
Height 5 ft 10.0 in
Weight 180 lbs
BMI 26

Genetic Features
— Low *
— Med **
— High

Macula Risk
®
Report

PRIMARY EYE CARE PROTOCOL

AMD TREATMENT - STANDARD OF CARE

Dry AMD
Standard of Care
AREDS 2 Ocular Vitamins
Vitamins
Vitamin E (400 IU), Vitamin C (500mg), Lutein (10mg), Zeaxanthin (2mg), Copper (2mg), Zinc (80mg/25mg)

Wet AMD
Standard of Care
VEGF INHIBITOR INJECTIONS
• AVASTIN (bevacizumab)
• LUCENTIS (ranibizumab)
• EYLEA (aflibercept)
• Steroids, Visudyne, Macugen...

PERSONALIZED MEDICINE

Genetic Testing for Supplements – Why?

AMD Patients

AREDS for all AMD patients

Varied Response to Treatment
TAKE HOME MESSAGE (15%)

Patients with 2 CFH risk alleles and 0 ARMS2 risk alleles should not take the AREDS formulation.

AREDS AND CFH GENETIC RISK - 2009

"SIGNIFICANT INTERACTION BETWEEN THE NUMBER OF RISK ALLELES FOR THE CFH Y402H VARIANT AND TREATMENT, WHEREBY PATIENTS WITH THE CC (i.e., HIGH RISK) GENOTYPE WERE LESS LIKELY TO BENEFIT FROM THE ANTIOXIDANT–MINERAL SUPPLEMENTATION THAN SUBJECTS WITH THE TT AND CT GENOTYPES."


Why CFH Risk is pro-inflammatory

Complement cascade proteins and zinc found in drusen are considered evidence of local inflammation in the pathogenesis of AMD.

CFH binds zinc, which can neutralize its ability to inhibit complement component C3b.

Experimental Eye Research 84 (2007) 772-780

Bok D PNAS 2005;102:7053-7054

©2005 by National Academy of Sciences

IMRE LENGYEL, JANE M. FLINN, TÜNDE PETT, DAVID H. LINKOUS, KATHERINE CANO, ALAN C. BIRD, ANTONIO LANZIROTTI, CHRISTOPHER J. FREDERICKSON, FREDERIK J.G.M. VAN KUIJK

2009: Immunocytochemistry of a druse (D) - eye of an 85-year-old donor.
FOR 23% OF PATIENTS, THE AREDS FORMULATION WAS THE BEST TREATMENT.

FOR 49% OF PATIENTS DERIVE MORE BENEFIT FROM A FORMULATION OTHER THAN AREDS.

FOR 13% OF THE PATIENTS THE AREDS COMBINATION WAS HARMFUL AND ACCELERATED VISION LOSS SIGNIFICANTLY FASTER THAN PLACEBO.

AWH C, KIM I ET AL NOVEMBER 2013

CFH and ARMS2 Genetic Polymorphisms Predict Response to Antioxidants and Zinc in Patients with Age-related Macular Degeneration

CFH Zinc increases progression risk

ARMS2 Zinc increases progression risk

Antioxidants increase progression risk

Projected Results

ADVANCED OCULAR CARE (MAY 2014)

Potential Dangers From Zinc (and Copper) Supplementation: Implications for Alzheimer Disease and AMD

NEI – DISPUTES INTERACTION

No Clinically Significant Association between CFH and ARMS2 Genotypes and Response to Nutritional Supplements

AREDS Report Number 38

1. AREDS – Auxi Projects 75% of CFH will have progressed at 12 years
2. AREDS2 – No report on genotypic findings
3. Editors Request Auxi to reconcile results
OPHTHALMOLOGY – SEPT 2014

Treatment Response to Antioxidants and Zinc Based on CFH and ARMS2 Genetic Risk Allele Number in the Age-Related Eye Disease Study

Carl A. An, MD, Steven Harker, MD, Ross W. Zatz, MD, PhD1

1. 989 patients – 131 with Zinc anomaly – High CFH Risk
2. High-risk ARMS2 benefit from Zinc
3. Reconciled Chew Analyses

HIGH CFH RISK – LOW ARMS2

LETTER TO THE EDITOR FEB 2015

CARL AWH MD

CONTRARY TO THE CONCLUSION ADVANCED BY CHEW ET AL., THEIR DATA POWERFULLY DEMONSTRATES THAT THE BENEFITS OF ONE OF THE AREDS FORMULATION ACCRUE ALMOST EXCLUSIVELY TO THOSE WITH LOW CFH RISK AND HIGH ARMS2 GENETIC RISK, COUNTERED BY A DELETERIOUS EFFECT FOR THOSE WITH HIGH CFH AND LOW ARMS2 RISK. THE RESULTS EXPLAIN THE LACK OF GENERAL EFFICACY OF THE AREDS FORMULATION TO THE GROUP OF 1237 PATIENTS REPRESENTING ALMOST HALF OF THE TOTAL PATIENTS IN THE STUDY, FOR WHOM THE AREDS TREATMENT RECOMMENDATIONS WERE BASED.

AREDS REPORT 38 IS AN INDEPENDENT SOURCE OF GENOTYPING AND OUTCOMES DATA WHICH PROVIDES FURTHER EVIDENCE THAT GENETIC TESTING MAY IDENTIFY PATIENTS WHO ARE MOST LIKELY TO BENEFIT FROM THE AREDS FORMULATION, AS WELL AS THOSE WHO SHOULDN’T TAKE HIGH-DOSE ZINC ALONE OR AS A COMPONENT OF THE AREDS FORMULATION. EVEN THOSE WHO PROMOTE ITS USE PREFER IT TO BE BOTH SAFE AND EFFECTIVE FOR THE GROUP OF PATIENTS.

ARMS2 RISK IMPAIRS O2 METABOLISM IN RPE

Superoxide Dismutase 2 (SOD2) function may be impaired in the presence of ARMS2 risk alleles, leading to increased oxidative damage in RPE cells.
ZINC CATALYSES SOD1 AMELIORATES ARMS2 RISK

ARMS2 localizes to mitochondria, potentially affecting the interaction of antioxidants and free radicals.

Zinc activates SOD1 in Cytoplasm to support Oxygen Metabolism

1. High Risk ARMS2 Deactivates SOD2 in mitochondria in the RPE
2. Zinc activates SOD1 in Cytoplasm to support Oxygen Metabolism

VITA RISK PATIENT REPORT

Genotype Directed Eye Vitamin Formulations

10 Manufacturers of AREDS Formulations for Macula Risk

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Contact</th>
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<tr>
<td>1</td>
<td>Deocking Systems</td>
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<td>2</td>
<td>Fortify vitamins</td>
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<td>3</td>
<td>Macular Health</td>
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<td>4</td>
<td>Eye Nutraceuticals</td>
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<td>5</td>
<td>Vision</td>
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<td>NutriSun</td>
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<td>Eyecare Advantage</td>
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<td>8</td>
<td>Vision Health</td>
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<tr>
<td>9</td>
<td>Vision</td>
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</tbody>
</table>

www.macularisk.com

In your Practice
1. Check for Vitamins
2. Check for AMD
3. Swab for the Genetic Test
4. Rx the best Eye Supplements
5. Increased surveillance for High Risk Patients

GETTING STARTED

RECOMMENDATION - PERSONALIZED MEDICINE

Change the Way You Look at Eye Vitamins
One Eye Vitamin formulation doesn’t fit all!

Helpful or harmful?
The answer is in your genes.
SUMMARY

MACULA RISK TESTING IMPROVES PATIENT OUTCOMES IN AMD
- AMD PROGNOSIS
- AREDS SUPPLEMENTS

PERSONALIZED MEDICINE

FOLLOW-UP RECOMMENDATION

RETNAL FINDINGS
- Retinal findings increase risk and need for prevention with vitamin recommendations
- Retinal findings need greater monitoring of structure and function
- Structure: Fundus imaging, Auto-fluorescence, OCT
- Function: Preferential Hyperacuity Perimetry (PHP), Microperimetry, pERG, dark adaptation

CODING/BILLING

STRUCTURE/FUNCTION
- FUNDUS IMAGING/AUTO-FUORESCENCE-92250 -$83.04
- OCT-93202,92135,92134 -$44.76-$45.88
- PHP-92083 -$69.13
- MICROPERIMETRY-92284 -$64.80
- PERG-92275 -$168.59
- DRY ADAPTATION-92286 -$64.80

DRY EYE MANAGEMENT
- MUCH OF DRY EYE IS ENVIRONMENTAL/LIFESTYLE
- BABY BOOMER’S ARE MOST IN NEED...MEN-BLEPH/MEIBOMIAN...WOMEN-DRYNESS
- DON’T FORGET ABOUT THE SILENT SUFFERERS/CL WEARERS.
- PCP’S AND INTERNSISTS NOT HAVING THE DISCUSSION ABOUT NUTRITION!!

DRY EYE MANAGEMENT-TRADITIONAL
DRY EYE MANAGEMENT - LIFESTYLE

- Environment:
  - Force Air/Heat, Humidity Levels, Allergens, Dander
- Water Intake:
  - Hydration Daily
- Caffeine Intake:
  - Up to Two Servings Good... More Bad
- Makeup/Creams:
  - Potential for Meibomian Dysfunction
- Chronic Bleph/Meibomianitis, Rosacea - Medical Conditions

DRY EYE MANAGEMENT - SUPPLEMENTS

EZ TEARS SCIENTIFIC BENEFITS

- Omega-3 (1,145 mg, EPA/DHA = 590 mg/440 mg)
  - Fatty Acids from fish are vital and lacking in the typical diet. Significant structural components of tissue cell, linings throughout the body. Deficiency can result in decreased vision.
- Vitamin A (42,000 IU)
  - Fat-soluble vitamin absorbed by the body with the help of fats. For corneal surface health, conjunctival, meibomian and lacrimal gland health. Major importance in the mucous layer of tear production.
- Vitamin D3 (2,000 IU)
  - Fat-soluble vitamin deficient in the American diet. Positive effect on immunity and systemic inflammatory response. Important in stabilizing Omega-3 fatty acid formulas.
- Vitamin E (D-Alpha Tocopherol 60 IU)
  - Fat-soluble vitamins and related compounds essential for reduction of systemic and ocular inflammation. These compounds are found in a healthy diet and important in stabilizing Omega-3 fatty acid formulas.
- Evening Primrose Oil (100 mg)
  - Contains GLA (gamma-linolenic acid) - known to favorably affect dry eye symptoms by reducing the conversion of omega-6 fatty acids to pro-inflammatory molecules.
- Turmeric Extract (100 mg)
  - Includes Curcumin with systemic and ocular anti-inflammatory properties. Inhibits conversion of Omega-6 fatty acids to pro-inflammatory prostaglandins and inhibition of other pro-inflammatory signals on the ocular surface.
- Green Tea Extract (50 mg)
  - Provides antioxidant effects in systemic and ocular tissues, reducing the effect of inflammatory compounds that are a major cause of dry eye.
- Mixed Tocotrienols/Mixed Tocopherols (20 mg)
  - Plays a significant role in reducing systemic inflammation.

EZ TEARS PATIENT BENEFITS

- SAVED MANY PATIENTS FROM CL DROPOUT... BENEFITS IN AS SOON AS 2 WEEKS
- MONEY BACK 30 DAY GUARANTEE
- ADDED BENEFITS OF OMEGA 3... HEART, JOINTS, BRAIN
- LOVE THE D3 BENEFIT!!!

FOLLOW-UP RECOMMENDATION

- START 2 EZ TEAR TABS PO QD
- USE IN CONJUNCTION WITH OTHER TX... DAILY DISPOSABLES, BLEPH/MEIBOMIAN TX, PLUGS, TOPICAL (SX'S GREATLY REDUCED SO NEED FOR ADJUNCT TX IS LESS)
- SEE IN 2-4 WEEKS FOR PROGRESS... IF HIGH RISK FOR MACULAR DISEASE CAN USE WITH ZEAXANTHIN AND/OR ZEA/LUTEIN COMBO TX
OTHER OMEGA 3 SUPPLEMENTS AVAILABLE

• THERATEARS NUTRITION- 1200MG O3'S (450MG EPA, 300 DHA, 450MG ALA), VITAMIN E, 3 CAPSULES
• NORDIC NATURALS ULTIMATES- 1800MG O3'S (650MG EPA, 450 DHA, 180 OTHER) 3 CAPSULES
** CONTINUE TO LOOK AT STUDIES AND SCIENCE BEHIND PRODUCTS!

DIABETIC/MACULAR MANAGEMENT

• DON'T FORGET ABOUT THE GREATER RISK FOR MACULAR DISEASE!!
• NEW RESEARCH IN RECOMMENDING NUTRITIONAL SUPPLEMENTS FOR DIABETICS
• PCP'S AND INTERNISTS NOT HAVING THE DISCUSSION!!

DIABETIC/RETINAL MANAGEMENT

• DVS FORMULA TO REDUCE RISK OF VASCULAR CHANGES

  • Support retinal metabolism, structure, and function
  • Promote blood vessel health
  • Combat oxidative stress
  • Increase Macular Pigment Optical Density (MPOD)
  • Improved visual performance

MAINTAIN HEALTHY BLOOD VESSELS

• ALPHA LIPOIC ACID – POTENT MITOCHONDRIAL ANTIOXIDANT THAT TARGETS HARMFUL PROTEINS*
• GRAPESEED EXTRACT & RESVERATROL – REDUCED OXIDATIVE STRESS, ENDOTHELIAL DYSFUNCTION AND APOPTOSIS*
• COQ10 – IMPROVES ENDOTHELIAL CELL FUNCTION AND MAY HELP WITH LIPID PEROXIDATION*
• VITAMIN D – LOW SERUM VITAMIN D IS ASSOCIATED WITH A HOST OF PHYSIOLOGIC CHALLENGES*
• VITAMINES C & E (AND TOCOTRIENOLS) – HELP REDUCE OXIDATIVE STRESS AND IMPROVE ENDOTHELIAL FUNCTION*
• GREEN TEA LEAF – HELPS IN REDUCTION OF VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)*

MAINTAIN HEALTHY BLOOD VESSELS

• BENFOTIAMINE – AIDS IN SUPPORT OF BIOCHEMICAL PATHWAYS ASSOCIATED WITH VASCULAR HEALTH**
• CURCUMIN – DEMONSTRATES THE ABILITY TO IMPROVE THE STATUS OF ANGIOGENIC SIGNALING PROTEINS**
• FISH OIL (DHA & EPA) – IMPROVES CELL MEMBRANE INTEGRITY AND VASCULAR PERMEABILITY**
• LUTEIN & ZEAXANTHIN – REDUCES OXIDATIVE STRESS, AND HELPS PROTECT VISUAL CELLS (ROD PROTECTION)***

** CONTINUE TO LOOK AT STUDIES AND SCIENCE BEHIND PRODUCTS!
MACULAR MANAGEMENT

NO RETINAL FINDINGS
- Assess risk factors: Age, Gender, Family Hx, Diabetic, Cardiovascular Disease, Smoking, Obesity/Poor Diet
- Run MPOD
- Prescribe lifestyle and diet changes
- Prescribe nutritional supplements

RETNAL FINDINGS
- Offer MPOD to monitor progress
- Offer Macular Risk Assessment
- Target nutritional supplement & id
- Macular Status: MRT: micrometer, pMERG, AdaptDx (ONLY OBJECTIVE TEST IS pMERG)
- Macular Structure: Digital imaging, OCT, auto-fluorescence

DIABETIC MANAGEMENT

NO RETINAL FINDINGS
- Assess risk factors: Age, Gender, Family Hx, HgA1C, Cardiovascular Disease, Smoking, Obesity/Poor Diet
- Run MPOD
- Prescribe lifestyle and diet changes
- Prescribe DVS supplement
- See yearly (sooner if sxs)

RETNAL MACULAR FINDINGS
- Offer MPOD to monitor progress
- Offer Macular Risk Assessment
- Target nutritional supplement & id
- Macular Status: MRT: micrometer, pMERG
- Macular Structure: Digital imaging, OCT, auto-fluorescence
- See Prn with clinical presentation

OUR COMMITMENT AS DOCS KEEPING THE FAITH AND KEEPING IT FUN!!

- Our responsibility to differentiate
- Our dedication to promoting/leading the medical model
- Our responsibility to developing ACO relationships

OUR COMMITMENT TO OUR PATIENTS/PRACTICE

- Great patient management is the healthiest practice management

HAVE FUN AGAIN!!

“Working hard for something we don’t care about is called stress; working hard for something we love is called passion.”
Simon Sinek
Enjoy the ride!

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