

A HOLISTIC APPROACH TO NUTRITION

COPE # 95893-PH

AN OPTOMETRIST'S PERSPECTIVE

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FINANCIAL DISCLOSURES:

DR. TIM EARLEY IS A PAID
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CAROTENOIDS AND OMEGA-3s: Critical for Ocular Nutrition

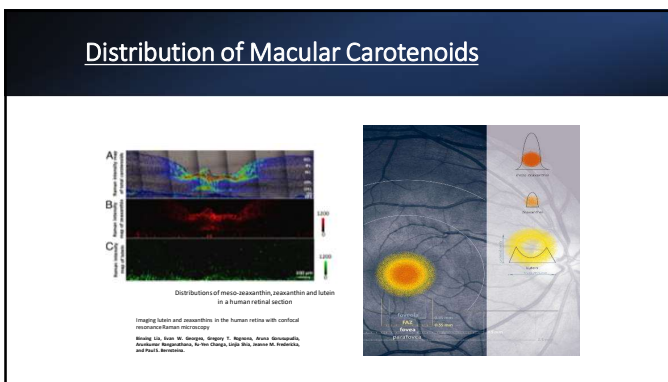
Are you having discussions
with your patients around the
benefits of a good diet on
ocular health?



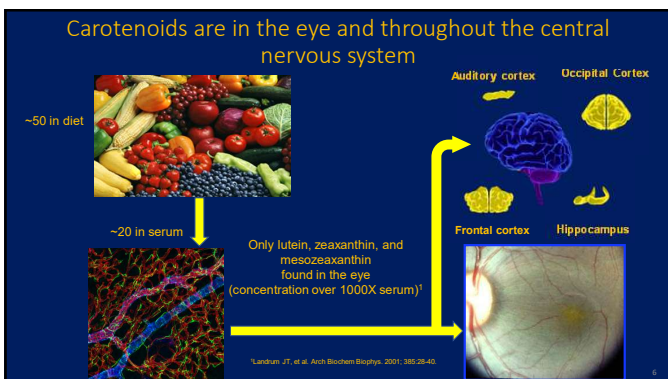
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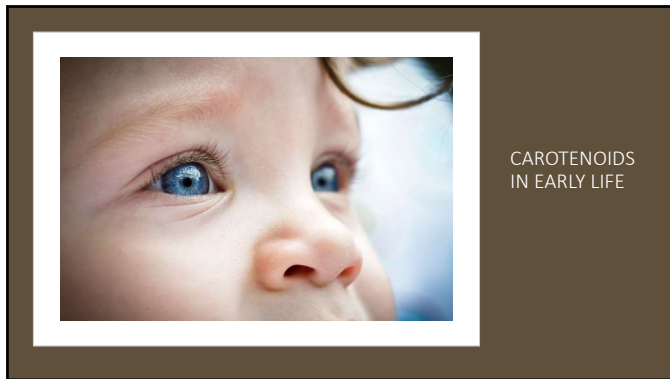
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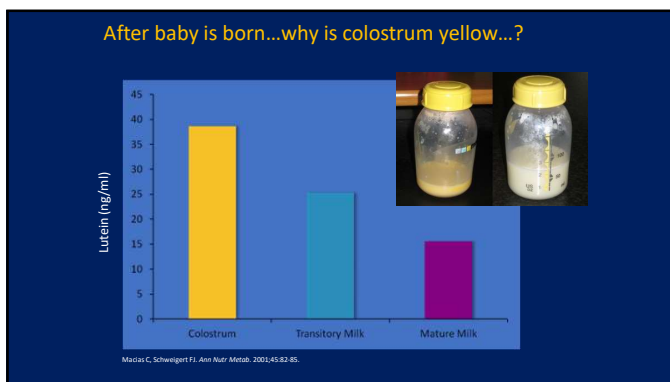
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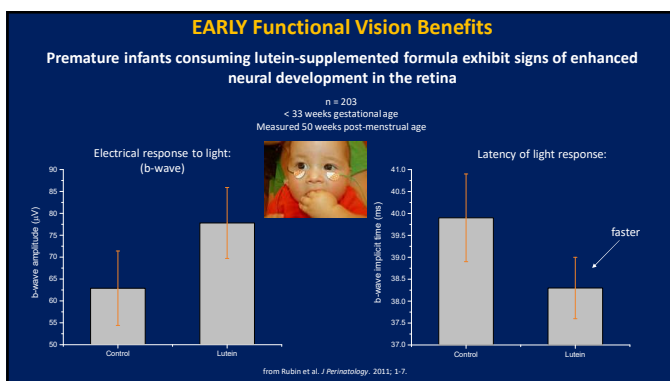
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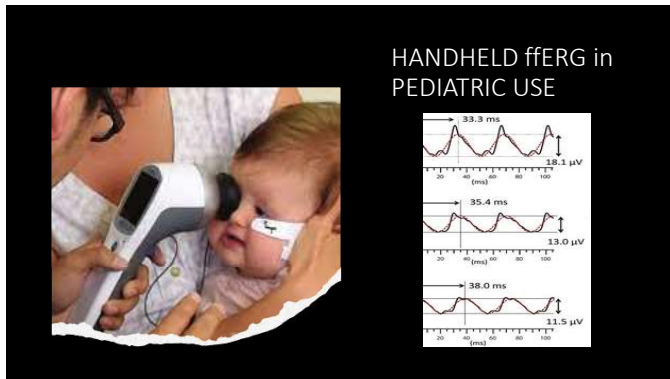
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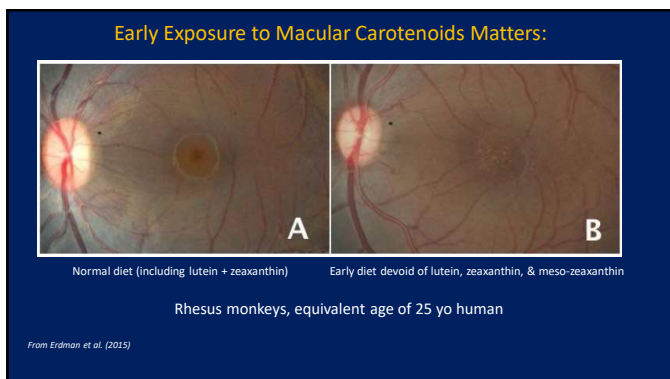
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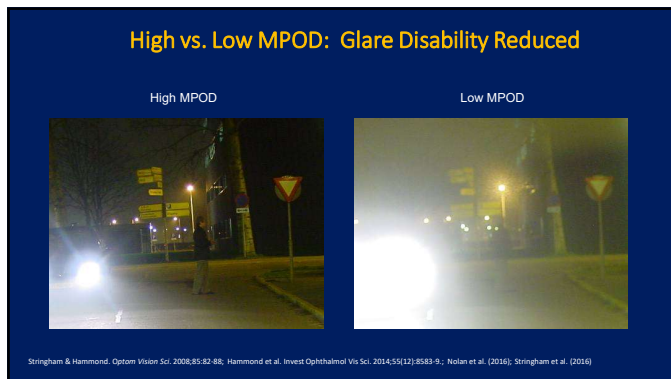
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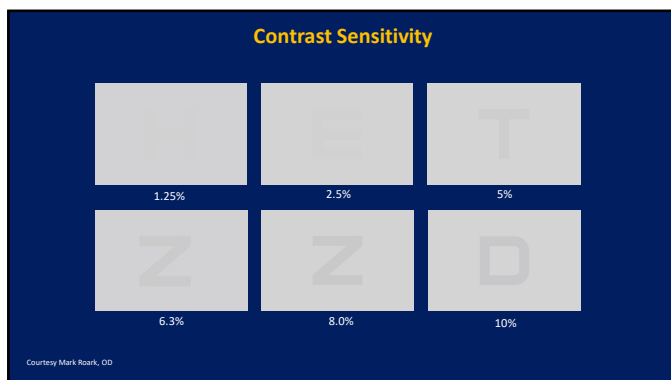
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CAROTENOIDS AND COGNITIVE FUNCTION IN CHILDREN AND TEENS

- CN Cannavale – 2022; Lutein and Zeaxanthin accumulation in neural tissue and subsequent effects on cognitive scores
- SE Saint – 2018; Relationship between MPOD and cognitive functioning in 7-13 year olds
- S Davinelli – 2021; Carotenoids and Cognitive Outcomes; A Meta-Analysis, mounting evidence that the availability of lutein and zeaxanthin to neural tissue positively effects cognition

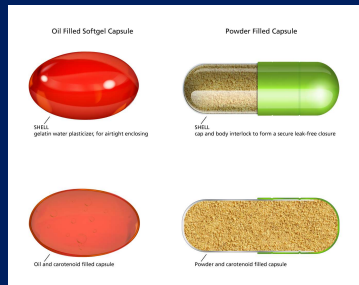
• BOTTOM LINE – A DIET DEFICIENT IN CAROTENOIDS CAN HAVE A NEGATIVE EFFECT ON COGNITION AND LEARNING ABILITY IN CHILDREN AND TEENS

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Formulation and Manufacturing Matter

Some forms of encapsulation are extremely vulnerable to oxidation & light exposure

- A recent study found that of 46 supplements tested, 61% did not meet the amount claimed on the label for carotenoid content



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ROLE OF CAROTENOIDS IN ADULT POPULATION



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Smoking Cessation is the First Step!



- SMOKING IS THE LARGEST MODIFIABLE RISK FACTOR FOR AMD. NEED TO REDUCE THESE FREE RADICALS!!**
- Current smokers carry a **2.5 to 4.8 times** higher risk than non-smokers for late AMD¹.
- However...*

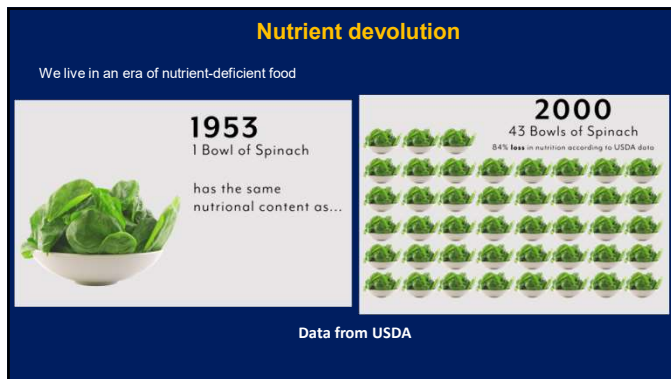
90% of patients with AMD were not advised to stop smoking²

<50% of smokers know that smoking may contribute to blindness³

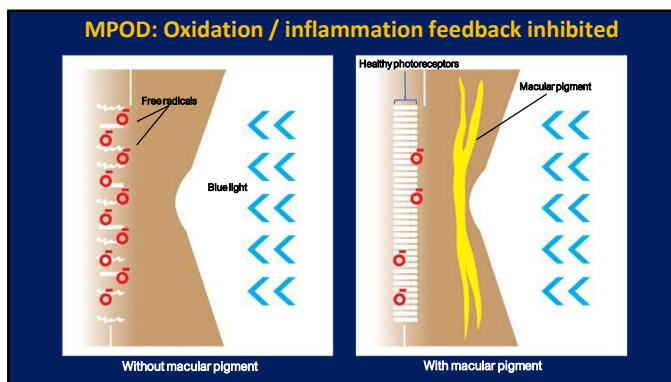
References: 1. Chakraborty et al. Cigarette smoking and age-related macular degeneration in the EUREYE Study. Ophthalmology. 2007;114(8):1150-1163.
2. Cohen-Mansfield et al. Age-related macular degeneration and smoking cessation advice by eye care providers. Prev Chronic Dis. 2011;8(6):A147.
3. Gensler et al. Awareness, understanding, and action on smoking-related diseases: an eye on smoking. Eye. 2011;25(14):1570-1576.

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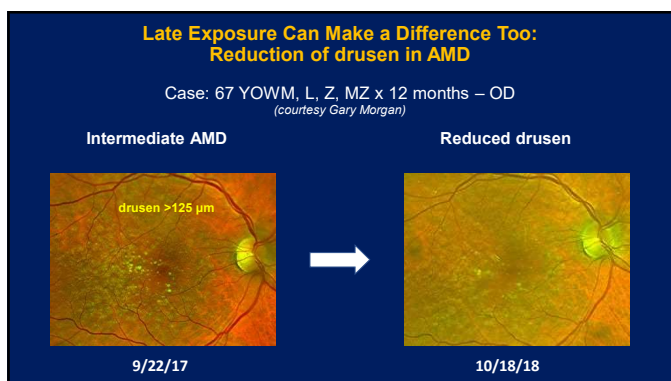
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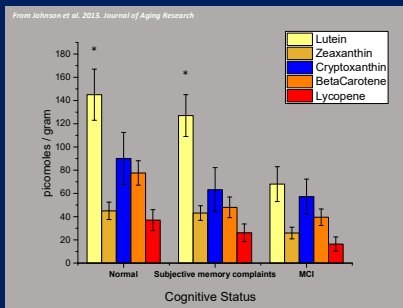


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Carotenoid concentrations in the brain, for those 80 – 107 years old, as a function of cognitive status:



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Skin Carotenoid Scanners

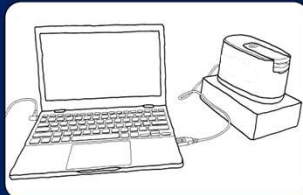
- A Skin Carotenoid Scanner is a clinical tool that uses advanced technology to accurately measure a patient's carotenoid concentration in their skin, a key indicator of overall health and visual performance. **This non-invasive test can be completed in less than three minutes.**
- The assessment empowers you to confidently talk to patients about nutrition. Motivate your patients to make positive changes to improve both visual and systemic health.

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HOW IT WORKS:

Skin Carotenoid Scanner uses **reflection spectroscopy** to measure the level of carotenoids in the skin.

The patient places a fingertip in the scanner and will get results in less than three minutes.



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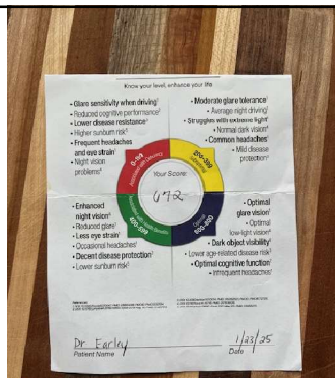
QUANTITATIVE RESULTS



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MY CAROTENOID SCANNER SCORE:

- **BRIEF HISTORY:**
- I STARTED SUPPLEMENTATION 4 YEARS AGO; WAS SPORADIC
- FIRST SCORE BEFORE SUPPLEMENTATION: 207
- SECOND SCORE WITH SPORADIC SUPPLEMENTATION: 340
- SCORE IN SUMMER 2024: 257
- THEN I GOT SERIOUS – DAILY USE SINCE 9/6/2024 (GRT SUMMIT) – LATEST SCORE: 672



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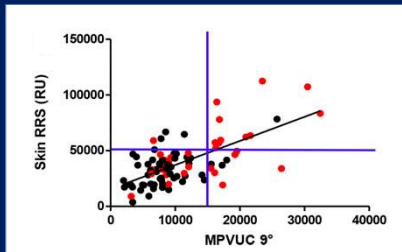
I SAW THIS HAPPEN TO ME TOO!!



- Supplementation can increase skin carotenoids in such a way that skin looks slightly tanned!
- My complexion and skin tone changed
- Results may be less noticeable in patients with autoimmune or inflammatory disease (or results may be prolonged)

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Correlation between skin and macular pigment:



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Consistent Carotenoid Intake is Linked To Better Overall Health

- Skin Carotenoid Scanners measures all carotenoids in the skin; there are six that are strongly represented there:

LUTEIN
ZEAXANTHIN
MESO-ZEAXANTHIN
BETA-CAROTENE
BETA-CRYPTOXANTHIN
LYCOPENE

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THE ROLE OF OMEGA 3 FATTY ACIDS

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Question:

- Which two Omega-3 Fatty Acids are essential for retina and brain health?

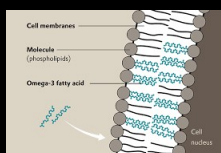
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OMEGA-3
FATTY ACIDS
IN
RETINA/BRAIN

- DHA – Docosahexaenoic Acid
- EPA – Eicosapentaenoic Acid

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OMEGA 3 FATTY ACIDS:
WHAT ROLE DO THEY PLAY IN
RETINAL/NEUROLOGICAL
HEALTH?



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Components of neural health and communication:

DHA makes up 30% of the total fat in the brain, and 50% of the neuronal membrane

DHA is a Structural Component in Membranes of Brain and Eye

Lutein protects DHA from oxidation and inflammation; breaks the oxidation → inflammation feedback loop, improves the health and performance of neural cells

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SYNERGY!!

The macular carotenoids / omega-3s have several, significant beneficial effects:

- Enhanced visual/cognitive health & performance
- Important role in neurodevelopment; systemic, retina, and brain
 - *Enhanced cognitive performance in pre-adolescents
- Antioxidant & anti-inflammatory effects
 - Enhance neuroplasticity
 - Relieve dry eye
 - Reduce blood cortisol, psychological stress
- THE FUTURE
 - Benefits to cognitive aging
 - May significantly reduce symptoms / pathogenesis of TBI
 - Cardiovascular health
 - Benefits in children / teens
 - Optometry can effectively manage AMD, Cognitive aging
- Effects may be realized within 3-6 months of consistent supplementation

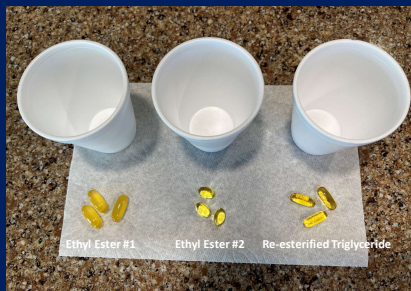
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SOURCE OF OMEGA-3 FA ALSO IMPORTANT:

<p>LOOK FOR THESE:</p> <ul style="list-style-type: none"> Open sea/Wild caught fish Smaller Fish (fewer toxins) Re-esterified triglyceride supplements The purer, the better (more distillations/less “fish burp”) 75% DHA/EPA in equal concentrations is ideal 	<p>AVOID THESE:</p> <ul style="list-style-type: none"> Farm-raised fish Larger fish (tend to accumulate more toxins/heavy metals) Ethyl Ester-based supplements Read the labels and do the math – some supplements have very little DHA/EPA
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Fish Oil Supplements: The Styrofoam Cup Experiment



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Roughly 30-45 seconds later...



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Two Hours Later...



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The Vitreous & Nutrition



Specific micronutrients are present within the vitreous, which help to maintain optimum health and function.



As with the rest of the body, the vitreous encounters oxidative stress throughout life, which contributes to its structural breakdown.



This oxidative stress, coupled with a natural decline in protective nutrients, contributes to glycation, the clumping of collagen fibers. This results in the loss of transparency & integrity of the vitreous.



Based on the FLIES Study, we know that antioxidant and antiglycation nutrients can be replenished inside the vitreous, improving floater symptoms.

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How does it work?

- Functions to counteract the mechanisms of vitreous degeneration, which create floaters.

Key Actions are :

Reduction of collagen glycation

Reduction of oxidative stress within vitreous

Increase of antioxidant protection

Increase in phagocytosis activity in vitreous cavity

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ARE WE MISSING
THE BOAT BY
RECOMMENDING
SUPPLEMENTATION
TOO LATE IN LIFE??



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SOME CLOSING THOUGHTS:

- START THE CONVERSATION EARLY
- MAKE STRONG RECOMMENDATIONS
- EXPLAIN THE DIFFERENCES IN PRODUCTS
 - FORMULATION
 - SOURCING
 - STABILITY
- GIVE PATIENTS THE OPPORTUNITY TO PRESERVE THE HEALTH OF THEIR RETINA, VITREOUS, and BRAIN!



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THANK YOU!!!

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