"MythBusters"

Top 10 Myths about Supplements and Nutritional Health in Primary Eye Care

COPE #50550-SD
NCOS Paraoptometric Education
Spring Congress

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NBEO Board Certified
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SouthEastern District of the North Carolina Optometric Society
January 26, 2017

Myth #1

"I can get all the calcium I need from Tums.™"

Minerals

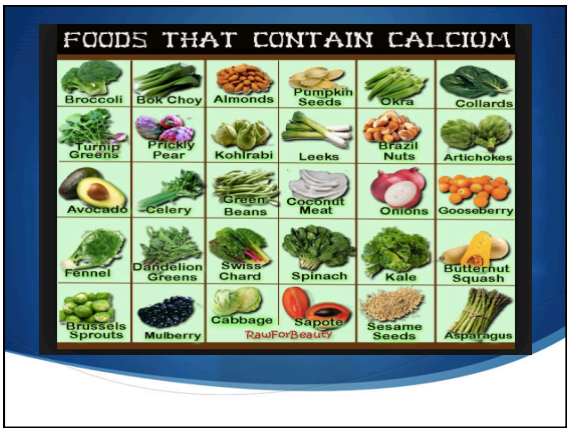
- **Macrominerals**
  - **(200 mg/day)**
    - Calcium
    - Chloride
    - Magnesium*
    - Phosphorous
    - Potassium
    - Sodium
- **Microminerals**
  - **(trace amounts)**
    - Boron
    - Chromium
    - Copper
    - Iodine
    - Manganese
    - Molybdenum
    - Vanadium
    - Iron
    - Cobalt
    - Zinc
    - Silicon
    - Selenium

Calcium

- Recommended dosage (guidelines):
  - **2::1 ratio** with magnesium (+ Vitamin D)
    - Example: 500 mg calcium; 250 mg magnesium
    - Total dosage depends on many factors but possible to have too much
    - CALCIUM CITRATE OR HYDROXYAPPETITE
      - **NOT carbonate**
  - Vitamin C increases absorbency by 100%
  - Caution: fluorquinolones, digoxin, tetracycline, thyroid
  - Milk is NOT a good source

"Where Your Calcium Comes From Matters for CVD Risk: MESA Study"

***MEDSCAPE*. October 26, 2016.**



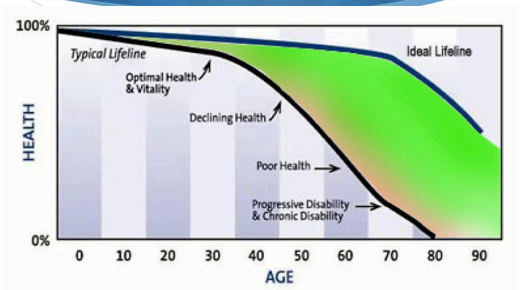
Myth #2

"If our patients eat a healthy diet we do not need to recommend a multivitamin or other supplements."

Let's talk about a 'healthy diet'

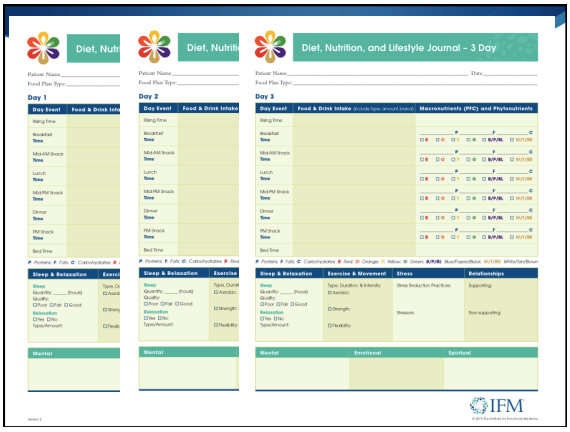
- How do you know what your patients eat?
- Standard American Diet (appropriately abbreviated S.A.D.)
  - How 'fresh' are 'fresh foods'?
- Consider: genetics, environment (stress), alcohol
  - 5 or more drinks per week, 24% increase in breast cancer
  - **Nutrigenomics**
    - SNP (single nucleotide polymorphism); Telomere testing
- Nutritional depletions caused by medications
- Is your goal to prevent disease or optimal health?

Lifespan vs. Healthspan
(Mobility, Memory and Vision)



How to assess patient nutrition?

- Digital (many!)
  - MyFitnessPal.com
  - Livestrong.com (MyPlate)
  - Fitbit
- 3 Day Food Diary
  - EVERYTHING patient eats/drinks



- The National Center for Chronic Disease Prevention and Health Promotion, a division of the Center for Disease Control, reports that less than 25 percent of the American population eat 5 fruits and vegetables a day….
- This dietary information convinced the Journal of the American Medical Association (JAMA - June 19, 2002) to recommend that everyone supplement their diet with a full-spectrum multiple vitamin/mineral/ antioxidant formula to help prevent and slow the progression of all chronic degenerative diseases.

High potency Multi-Vitamin Multi-Mineral (MVMP)

Ingredients

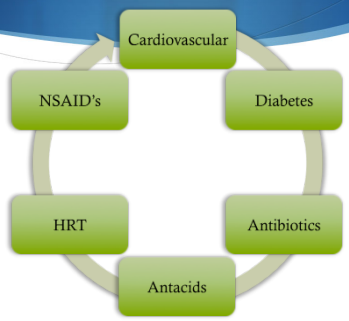
Serving Size: 4 Capsules
Servings Per Container: 30

Amount per Serving:
Vitamin A (as retinyl palmitate) 2,500 IU
Vitamin C (as ascorbic acid and ascorbyl palmitate) 500 mg
Vitamin D3 (as cholecalciferol) 1,200 IU
Vitamin E (as D-tocopheryl succinate and mixed tocopherols) 200 IU
Thiamin (Vitamin B1 as thiamine hydrochloride) 20 mg
Riboflavin (Vitamin B2) 10 mg
Niacin (Vitamin B3 from niacinamide) 50 mg
Vitamin B6 (as pyridoxine hydrochloride) 60 mg
Folate (as 5-methyltetrahydrofolate) 400 mcg
Vitamin B12 (as methylcobalamin) 60 mcg
Biotin 200 mcg
Pantothenic acid (Vitamin B5 from calcium pantothenate) 40 mg
Calcium (as calcium citrate and calcium malate) 100 mg
Iodine (as potassium iodide) 100 mcg
Magnesium (as magnesium oxide) 100 mg
Zinc (as zinc monomethionine) 20 mg
Selenium (as selenomethionine) 100 mcg
Copper (as copper sebacate) 250 mcg
Manganese (as manganese amino acid chelate) 2 mg
Chromium (as chromium polynicotinate) 150 mcg
Molybdenum (as molybdenum aspartate) 150 mcg
Taurine 300 mg
Bioflavonoid complex 210 mg (as 80 mg hesperidin complex, 100 mg quercetin and 30 mg rutin concentrate)
Betaine HCl 200 mg
N-acetyl cysteine 100 mg
Ginkgo (Ginkgo biloba) extract (leaf) 40 mg
Alpha lipoic acid 75 mg
Bilberry (Vaccinium myrtillus) extract (fruit) 25% anthocyanidins 30 mg
Grape (Vitus vinifera) extract (seed) 95% proathocyanidins 30 mg
Choline (choline bitartrate) 10 mg
L- carnosine 10 mg
Lutein (FloraGlo®) 12 mg
Zeaxanthin (as ZeaGold®) 3 mg
Boron (boron amino acid chelate) 2 mg
Lycopene (tomato extract) 1 mg
Vanadium (vanadyl sulfate) 30 mcg

Myth #3

"The patient's doctor would tell him/her if they were taking a medication that causes a nutritional depletion and advise accordingly."

Iatrogenic Nutritional Depletions



Medication induced nutritional depletions

(partial list)

- **NSAID's (Aleve, Advil, ASA, etc.)**
  - Vitamin C, Folic Acid, Potassium, Zinc, Vitamin K
- **Antibiotics**
  - All B vitamins, Vitamin C and K, Magnesium, Manganese, Zinc, Lactobacillus, Bifidobacter
- **Cardiovascular Drugs**
  - **(Hypertension, Elevated cholesterol, etc.)**
  - Calcium, Magnesium, B_1, B_6, B_{12}, Potassium, Zinc, **CoQ_{10}**
- **Anti-diabetic Medications**
  - CoQ10, B_{12}
- **HRT/BCP's**
  - Vitamins A, B_2, B_6, B_{12}, C, Folic Acid, Zinc, Magnesium
- **Antacids**
  - Calcium, Iron, Zinc (and other minerals), Folic Acid, B_{12}, Vitamin D

What happened along the way…?

There is overwhelming evidence that vitamin deficiencies are associated with the chronic disease process and the overall condition of one's health.

"Inadequate intake or subtle deficiencies in several vitamins are risk factors for chronic diseases such as cardiovascular disease, cancer and osteoporosis."

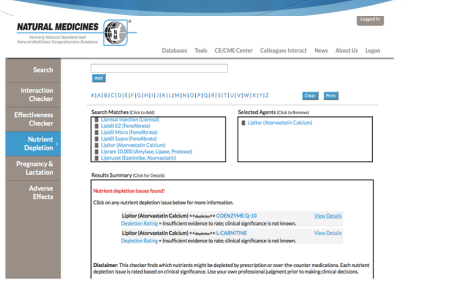
Journal of the American Medical Association (JAMA), June 19, 2002 – Vol. 287, No 23

?????

Co-enzyme Q_{10}
(antioxidant; ubiquinol or ubiquinone)

- Dosages:
  - 100 mg if over 50 yo (30-50mg >40 yo)
  - 100 mg additional if on a statin
  - ALA recycles CoQ_{10} (also great for the skin!)
  - Food sources: Broccoli, nuts, pork, salmon, sardines, spinach
- Congestive Heart Failure, Type 2 Diabetes (T_2D)
- Glaucoma, Macula Degeneration (Ocular surface)

https://www.functionalmedicine.org/my-account/naturalstandard/



Myth #4

"There's no sound method to test for proper nutrition in my patients."

"I'm sure that my the labs done by my doctor would point to any nutritional depletions".

Nutritional Testing

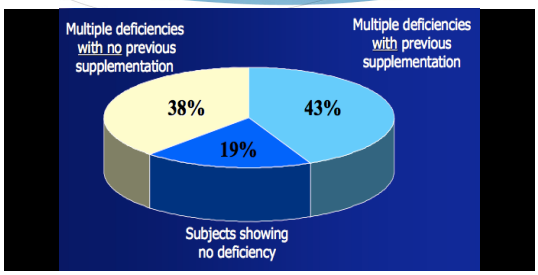
"Micronutrient testing offers a unique, scientifically based evaluation of functional deficiencies that allows targeted treatment with nutritional supplements…improving patient compliance with tailored therapy and success in the treatment of a variety diseases."

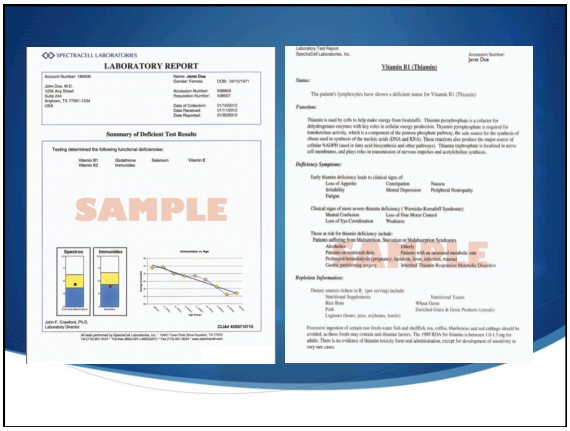
Mark Houston, MD

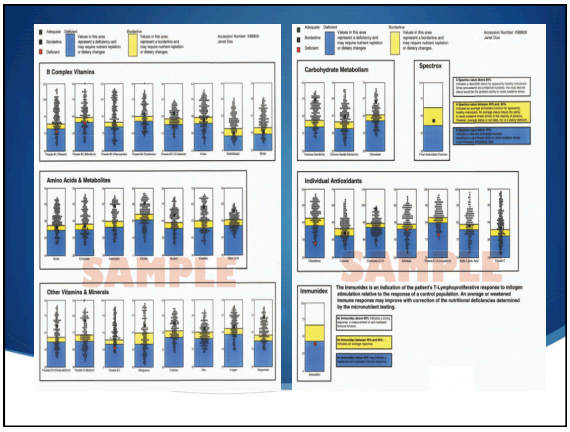
Hypertension Institute

St. Thomas Medical Center & Vanderbilt University

NUTRIENT DEFICIENCIES AND PREVIOUS SUPPLEMENTATION







Nutritional Testing
(Genova Diagnostics; GDx)

Myth #5

"Vitamin D seems to be a really big deal right now but it's not related to ocular disease or optimal vision/ eye health….is it?"

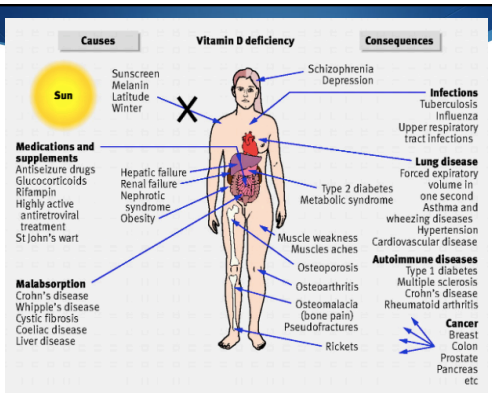
Vitamin D

"the sunshine vitamin"

- 1,25 dihydroxycholecalciferol
- Sun exposure (UVB)
  - Impact of indoor lifestyle at all ages
  - Use of sunscreen
- 34,000 studies YET 90% below optimal levels
- Impacts 3000 genes

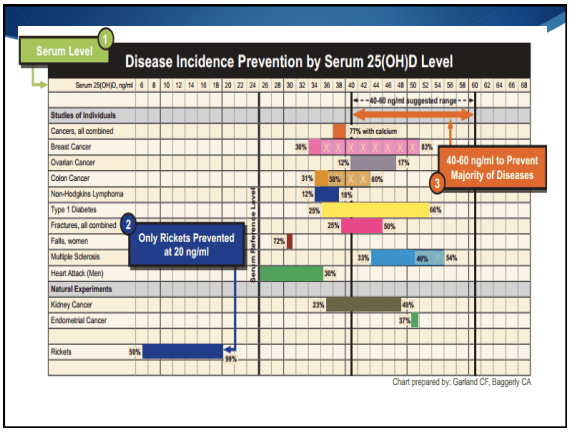
Functions of Vitamin D

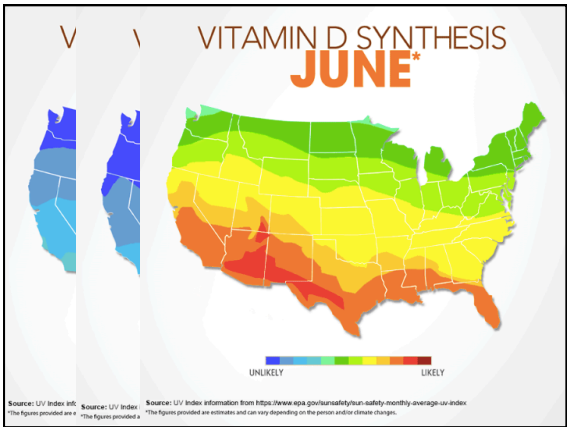
- Receptors:
  - bones, pancreas, intestine, kidneys, brain/spinal cord, reproductive organs, thymus, adrenal glands, pituitary gland and thyroid gland
- Calcium absorption from intestinal tract
- Phosphorous assimilation/breakdown
  - Nervous system stability
  - Cardiac function
  - Blood clotting
- **Mucous membrane enzyme synthesis**
- Pediatric growth (esp. bones and teeth)



Low levels of Vitamin D

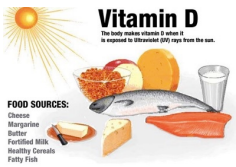
- Heart disease (HTN)
- Diabetes
- Chronic pain
- Cancer prevention & treatment
- Anti-viral
- **All cause mortality**
- Autoimmune disease and inflammatory conditions
- Neurologic
  - Depression (SADD), MS, optic neuropathies, migraines
- PCOS
- Osteoporosis and Osteoarthritis





Vitamin D and the Eyes

- Dry Eyes***
- Diabetic** Retinopathy
- AMD
- Glaucoma
- MS/Optic Neuritis



International Journal of Rheumatic Diseases, August 2015

- **DRY EYE/OSD**
  - The average vitamin D levels were **13.45** ng/ml (33.63 nmol/l) and **47.64** ng/ml (119 nmol/l) of vitamin D deficient women and vitamin D sufficient women, respectively.
  - **52%** of the vitamin D deficient women had dry eyes according to Schirmer's test compared to only 4% of the controls ($p = 0.001$).
  - **74%** of the vitamin D deficient women had dry eyes according to TBUT scores compared to 12% of the controls ($p = 0.001$).
  - **70%** of the vitamin D deficient women had dry eyes according to OSDI compared to 19% of the controls ($p = 0.003$).
  - VAS-pain, HAQ and FSS scores were higher in the vitamin D deficient group than the control group ($p < 0.005$), ***indicating that those considered vitamin D deficient experienced increased pain, fatigue and functional impairment of the eye.***

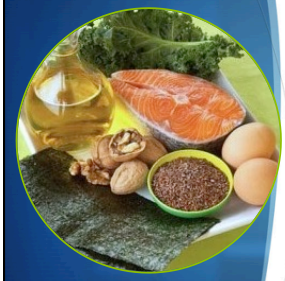
- **"A number of genetic and environmental factors influence whether a person will get MS…..studies are underway to determine if vitamin D levels influence MS disease activity. Recent research also pointes to a possible role for vitamin D in neuroprotection** and myelin repair."
  - www.nationalmssociety.org/Research/Research-News-Progress/Vitamin-D

Archives of Ophthalmology, April 2011

- People who ate more foods with vitamin D, or who took vitamin D supplements, were **less likely to develop age-related macular degeneration**. Specifically, researchers measured blood levels of vitamin D in 1,313 women under the age of 75 and found that higher levels of vitamin D were associated with a 59 percent reduced risk of developing early macular degeneration.

About vitamin $D_{25}OH$ testing….

- "Normal" is ~30-100 ng/ml
- **Optimal is 50 ng/ml or higher (50-70)**
  - toxicity>150ng/ml
  - Monitor calcium/phosphorous Rxing if high doses
- Recommended dosing:
  - 1000 IU for every 10 units below optimal
  - Example: if result is 30 – then add 2000 IU per day of D_3 (with food)
  - May need more based on season, skin, age, BMI, GI, outdoor activity, symptoms (achy, tired, blue), head-sweating
  - If dosing over 5000 IU D_3 then give with vitamin K_2
- **D_2 (Rx) vs. D_3 (OTC)**

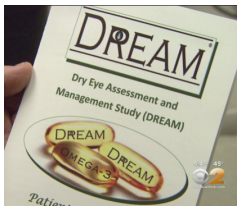


Myth #6

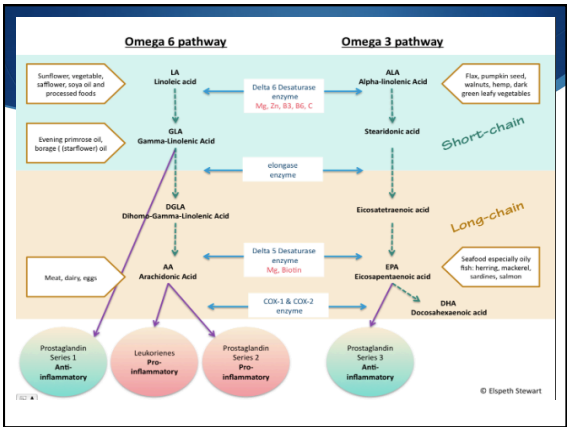
(essentially fatty acids; omegas)

"It doesn't really matter how much or what type of fish oil we recommend to our patients."

The D.R.E.A.M. Study



The Early Days of "prescribing fish oil"



Essential Fatty Acids in the Eye – DHA, EPA, GLA

- **Docosahexaenoic Acid (DHA)**
  - Visual development: DHA accounts for 35% of the fatty acids in the eye
  - The integrity of (RPE) is critical for photoreceptor cell survival & vision
  - DHA is the precursor of neuroprotectin D1 →directly protects RPE cells
  - Structural lipid in retinal photoreceptor and synaptic membranes
  - Protects from light, oxygen, and age-associated damage to the eyes
- **Eicosapentaenoic Acid (EPA)**
  - Anti-inflammatory → reduces inflammation of lacrimal gland, meibomian gland, and ocular surface
- **Gamma-Linolenic Acid (GLA)**
  - Reduces circulating inflammatory cytokines associated with DES
  - Precursor to PGE1, which supports tissue moisture and cellular health

Omega-3 Fatty Acids

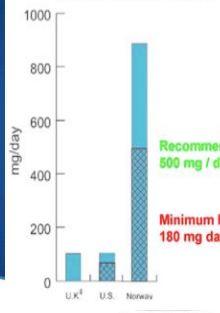
- ALA (alpha-linolenic acid)
  - Canola oil, dark green leaves, flax, hemp, soy bean, walnuts
- Stearidonic acid (morotic acid)
  - Black currant seeds
- EPA (eicosapentanoic acid)
  - Fish (albacore, tuna, mackerel, salmon, sardines), lamb, nuts
    - Wild or farm-raised?
- DHA (docosahexaenoic acid)
  - Same as above

Omega-6 Fatty Acids

- Produce prostaglandins
- LA (linolenic acid)
  - Flax oil, hemp, pumpkin, safflower, sesame, soybean, sunflower and walnut
- GLA* (gamma-linolenic acid)
  - Black current seed, borage oil, evening primrose oil
- DGLA (dihomogamma-linolenic acid)
  - Mother's milk
- AA (arochidonic acid)
  - Meats and other animal products (dairy and eggs)

NOTICE: THE U.S. IS "AT RISK"

DAILY OMEGA-3 INTAKE:



Recommended:
500 mg / day or more.

Minimum Required:
180 mg day.

DUE TO LOW OMEGA-3 INTAKE.

Dietary habits contribute to nearly 90% of all Heart Disease in the U.S. and U.K. This is not the case in Norway.

The U.S. average daily intake of Omega-3 is

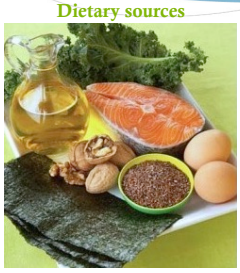
8 times
less than in Norway,

5 times
less than recommended,

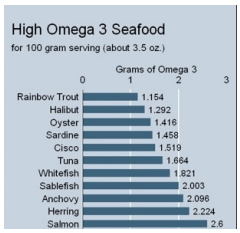
one half
the minimum required for basic health.

Omega 3's (EFA's from food)

Dietary sources



All fish NOT equal



Health Benefits of Supplementations

- Heart
- Pregnancy and Infant Development
- Brain health
- Joints and Arthritis
- Immune support
- Fit living
- Dry Eye, GLC, AMD, etc.

All fish oils are not created equal!

Omega 3's and the Eyes

- **Dry eye/Ocular surface disease**
- **Inflammatory/Autoimmune (e.g. uveitis)**
- **AMD**
- **Glaucoma/Optic Neuropathies**
- **Diabetic Retinopathy**

Studies to consider:

(omega-research.com)

- AMD and High-Dose Omega-3's
  - *PharmaNutrition 2014 Jan;2(1):8-11*
- Lutein and DHA on Macular Pigment Optical Density
  - *Nutrients 2013 Feb 15; 5(2):543-51*
- Macular Xanthophylls and Omega-3's in ARMD
  - *JAMA Ophthalmol 2013 May; 13(5):564-72*
- Omega-3 Fatty Acids in Dry Eye Syndrome
  - *Int J Ophthalmol 2013 Dec 18;6(6):811-6*
- Short-Term Consumption of Omega-3 and DES
  - Ophthalmology 2013 Nov;120(11):2191-6
- *Fish Oil and* DES Subjects
  - *Biomed Res 2013;34(5):215-20*

Fats in the Diet

- Omega 3's (essential fatty acids)
  - EPA
  - DHA
- Omega 6's
  - Processed vegetable oils
  - GLA is beneficial
  - Others are good only in moderation
  - Increases inflammation
- Omega 9's
  - Important but not essential
  - Olive oil
- Saturated Fats
  - Animal fat (solid at room temp)
  - Increases disease risk
- Trans fats
  - "partially hydrogenated"
  - Chemically modified
  - Increases disease risk
- MTC's (medium chain triglycerides)

DES and Omega-3's– WHY we should care

- Studies validate*:
  - 90 million Americans have two or more symptoms of OSD
  - 65% of contact lens wearers report dry eye limiting wear
  - 49% experience problems daily
  - 76% have had the problem for over 2 years
  - Visited ECP an average of 6 times since symptoms began
- A recent Harris Interactive study showed only 29% of patients with true DED felt their optometrist provided adequate care!**
- MGD and OSD are very likely to INCREASE dramatically in the near future due to three risk factors (age, diabetes and use of digital devices)

Linking to a Standard of Care Model

- In December 2014, a group of 30 professional leaders in the area of dry eye met in Dallas, TX
- Goal was to create, through consensus of the experts:
  - PRACTICAL recommendations that could be easily implemented
  - Recommendations that would have a substantial IMPACT on the quality and consistency of care that patients with dry eye disease have at the general practice level
- The outcome of The 2014 Dry Eye Summit* is simple, straightforward and can be implemented by any primary eye care practice

* Dry Eye Summit, Dallas, TX 2014-Review of Optometry

Reminders: Achieving Optimal Patient Outcomes in Dry Eye Disease

- **Know the Risk Factors**
- **Identify** patients with OSD and MGD risk through intake, eye exam and testing
- **Educate** patients on:
  - Chronic nature of disease
  - Treatment options
  - Potential long term benefits of using nutritional therapies
- Provide **follow-up care** to adjust therapy as needed and ensure clinical and symptom resolution
- Use **quality of life support materials** to reassure patients about product quality and experience of improved clinical outcomes
- Provide **long term care guidance** for patient wellness

Optimal Outcomes with Omega Therapy

- Prescribe Omega therapy EARLY
- Prescribe the TRIGLYCERIDE form
  - Manufacturing process (minimal exposure to heat, light, oxygen)
  - Third party testing (purity and claims)
- EPA + DHA at 2000-3000 mg/day until symptoms are reduced
- EPA + DHA at ~2000 mg/day for maintenance
- If not achieving desired results, add GLA to EPA + DHA (may help with light sensitivity)
- Ensure that Omega supplements are taken with meals

Challenges to Supplementation?

- Therapeutic Value or Not?
  - Controversy re: Prostate Cancer

Council for Responsible Nutrition (CRN) Press Release:
http://www.crnusa.org/CRNPR13-Omega3071113.html

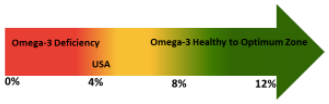
Global Organization for EPA and DHA Omega-3 (GOED) Rapid Review News Alert:
http://us1.campaign-archive1.com/?u=4ae075406cd789efec4e9ff09&id=6f3dc7a018&e=e358027545

Adam Ismail, Executive Director of GOED, Blog Column Posted on Virgo's Omega-3 Insights page:
http://omega3.supplysideinsights.com/articles/2013/07/media-hype-on-omega-3s-and-prostate-cancer-misrep.aspx

- What about Flax? Krill? Lovaza (Rx)?
- Triglyceride vs. Ethyl Ester

Fatty Acid Blood Spot Test

OMEGA 3 TEST
at home blood testing kit



OMEGA 3 TEST
at home blood testing kit

The Holman Omega 3 Test Report
www.Omega3Test.com

Date: 3/31/11
ID: 11387
Patient:
Sample Date: 3/22/11

Select Key Omega 3 and Omega 6 Fatty Acids

	Result (%)	Typical USA (Control) (%)	Percent of Control (%)	Optimal
Total Omega 3 Score	9.6	5.1	188	> 9%
ALA (18:3ω3)	1.6	0.8	197	>1%
EPA (20:5ω3)	1.8	0.6	305	>3%
DPA (22:5ω3)	1.2	1.1	108	>1%
DHA (22:6ω3)	3.7	2.6	142	>4%
% Omega 3 in HUFA (The Lands' Test)	46	24	195	> 50%
Omega 3 Index (RBC EPA + DHA)	5.8	4.4	131	> 8%
Total Omega 6 Score	27.3	42.1	65	
LA (18:2ω6)	18.0	23.9	76	
DGLA (20:3ω6)	1.4	1.4	97	
AA (20:4ω6)	6.1	12.8	48	<9%
% Omega 6 in HUFA	54	76	71	< 50%
Omega 6/Omega 3 Ratio	2.8	7.6:1	37	< 5:1
AA/EPA Ratio	3.4	21.8:1	16	<5:1

Myth #7

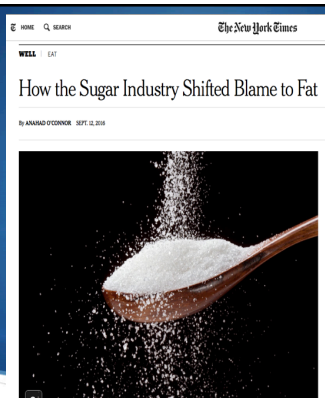
"I'm confused, haven't we been taught that a low fat diet is the best recommendation for my patients who need to lose weight?"

FALSE!

- Low fat diet has caused the incidence of obesity to nearly double
  - Replaced fat with sugar!
- AHA now promoting healthy fats and low carb
- Low carb = healthy fruits and vegetables (low glycemic) and avoiding processed foods
- Mediterranean "diet" or "Pegan"
- What about GLUTEN?
- Food allergy vs. Sensitivity?
- Top food sensitivities:
  - Gluten/Wheat
  - Corn
  - Dairy
  - Egg (yolk vs. white)
  - Soy (American)
  - Peanuts
  - Nightshade (tomato)

Breaking News!

JAMA 9/2016

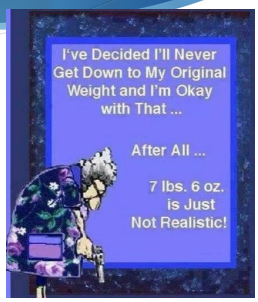


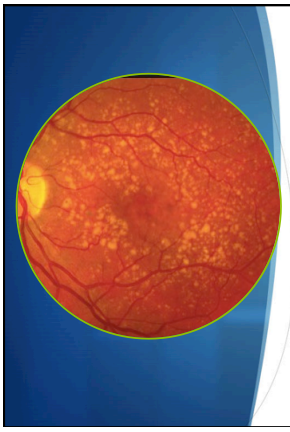
What is our responsibility?

- Ocular disease and excess weight (*Ocular Surgery News, 2004*)
  - Obesity/Sleep disorders → ocular surface disease (FLS)
  - GLC, Retinopathy, Cataracts
- Your practice culture/environment?
  - Walk with a Doc
  - In-office programs (yoga, walking)
  - Partner with YMCA, AAC, Health Coach
- Partnering to help patients become 'healthy at every size'
  - www.haescommunity.com

HEALTHY AT EVERY SIZE

- HEAS:
- Acknowledges that good health can best be realized independent from considerations of size
- It supports people—of all sizes in addressing health directly by adopting healthy behaviors
- Takes the focus of the scale





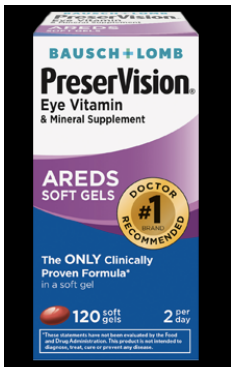
Myth #8

"AREDS 2 is the optimal formulation to recommend to my patients with macula degeneration."

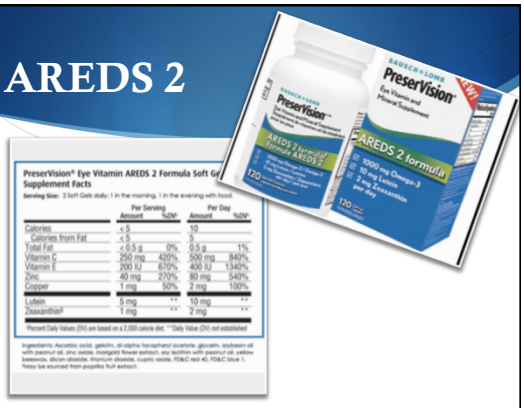
AREDS

28,000 IU synthetic beta carotene
500 mg Vitamin C
400 IU Vitamin E
80 mg Zinc oxide*
2 mg Copper oxide

What about…..
- *Lutein/Zeaxanthin*
- *Vitamin D*
- *Copper imbalance →anti-neogenesis*
- *Vitamin B complex*
- *Inflammation induced VEGF*
- *Carnitine, ALA, CoQ10*
- *Omega-3's (DHA)*



AREDS 2



PreserVision® Eye Vitamin AREDS 2 Formula Soft Ge
Supplement Facts
Serving Size: 2 Soft Gels daily; 1 in the morning, 1 in the evening with food

	Per Serving Amount	%DV	Per Day Amount	%DV
Calories	< 5		10	
Calories from Fat	< 5		5	
Total Fat	< 0.5 g	0%	0.5 g	1%
Vitamin C	250 mg	420%	500 mg	840%
Vitamin E	200 IU	670%	400 IU	1340%
Zinc	40 mg	270%	80 mg	540%
Copper	1 mg	50%	2 mg	100%
Lutein	5 mg	**	10 mg	**
Zeaxanthin†	1 mg	**	2 mg	**

Percent Daily Values (DV) are based on a 2,000 calorie diet. **Daily Value (DV) not established

Ingredients: Ascorbic acid, gelatin, dl-alpha tocopheryl acetate, glycerin, soybean oil with peanut oil, zinc oxide, marigold flower extract, soy lecithin with peanut oil, yellow beeswax, silicon dioxide, titanium dioxide, cupric oxide, FD&C red 40, FD&C blue 1. †may be sourced from paprika fruit extract.

Nutritionists are *still* asking….

- What about:
  - Vitamin D
  - CoQ_{10}
  - Copper imbalance --- anti-neogenesis
  - Vitamin B complex (Genome project)
  - Inflammation induced VEGF
  - Carnitine, ALA, Bilberry, Ginko, ECGC
  - DHA (EFA/Omegas)

Eye & Body Complete

Myth #9

"Glaucoma patients don't require any special attention to nutritional support."

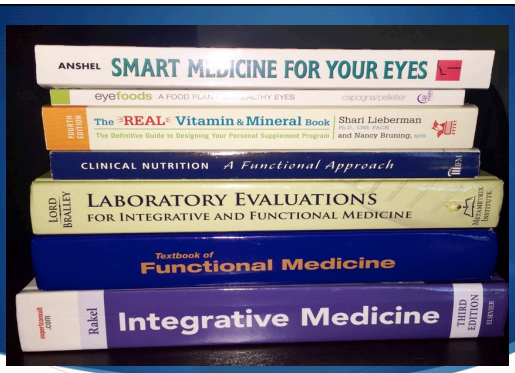
Nutrients important for GLC

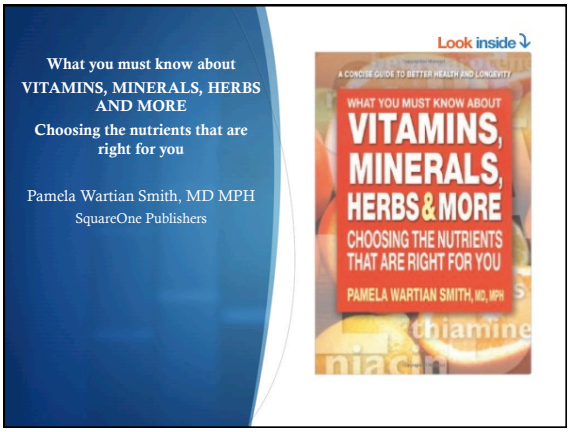
- EFA's (Fish Oil – especially DHA)
- Vitamins A, B_5, C and E
  - Rutin (50 mg tid, works with Vitamin C to lower IOP)
- Vitamin D
- CoQ_{10}
- Pycnogenol, Ginkgo biloba,
  - Increase microvascular circulation

Mark Hyman, MD

Myth #10

"There are no scientifically based materials on nutrition and supplements."





Summary: Recommendations

- High potency multi-vitamin, multi-mineral (MVMM)
- Fish Oil
  - 1200-2000 mg of OMEGA 3's per day (NOTcapsule size)
- Vitamin D_3
  - 1000-2000 IU per day above the MVMM (TEST!)
- CoQ_{10} if over 50 (100 mg; 200 mg if on Rx)
- Vitamin C (Pauling)
- Misc: B_{12}

SUMMIT EYE ASSOCIATES OD, PA

Bonus!

"I eat yogurt so I don't need to take a Probiotic."

Probiotic Use

- GERD (reflux)
- UC/IBS or other absorption challenges
- Antiobiotic use
- Diarrhea (c.diff)

BONUS MYTHBUSTER

"If I don't get the flu shot there is nothing I can do to prevent the flu….is there?"

Support for FLU Prevention

HEALTHY DIET, SLEEP, EXERCISE, STRESS MANAGEMENT & POSITIVE OUTLOOK

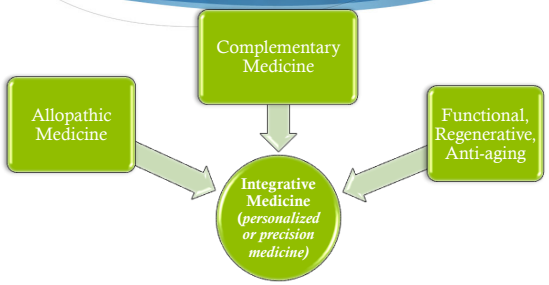
- **Vitamin D**
  - Study: low in vitamin D; 36% increase in URI
  - Asthma patients: 6 x's more likely to get sick
  - Produces cathelicidin (virus killing protein)
- **Vitamin C**
  - 2000-5000mg/day
  - Divided doses; diarrhea if too much
- **N-acetyl cysteine (NAC)**
  - Precurser to glutathione
  - 1000mg qd
- **Herbs**: echinacea, astragulus (chicken soup), mushroom extract
- **Licorice root extract**
  - (20-25 drops 2 x's/day)
  - Fights lung inflammation
  - Star anise: Tamiflu ingredient
  - Caution: high blood pressure
- **Selenium**
  - Strengthens white blood cells
  - 200mcg/day
- **Phytonutrients** (cranberries, red onions, garlic, grapes, broccoli, soy, flax, green tea)
  - Quercetin, resveratrol, EGCG, lycopene,
- **Fish oil**
  - ~2000 mg of EPA/DPA per day

Thank you!

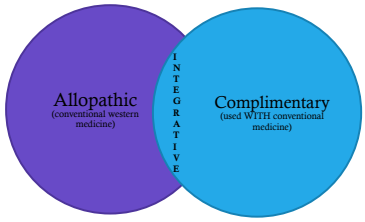
Be Well!

AnnHoscheit@gmail.com
704-616-8262

A little background…



NIH: National Center for Complimentary and Alternative Medicine (NCCAM)
National Center of Complimentary and Integrative Health (NCCIH)



*NOT ALTERNATIVE which is used INSTEAD of conventional medicine

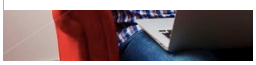
Domains of NCCIH (NCCAM)

- **Natural Products**
  - Omega 3 fatty acids
  - Probiotics
  - Antioxidants
- **Mind-Body Therapies**
  - Hypnosis
  - Meditation
  - Yoga
- **Manipulative & body-based practices**
  - Chiropractic
  - Osteopathy
  - Massage Therapy
  - Reflexology
- **Energy Therapies**
  - Reiki (therapeutic touch)
- **Whole Medical Systems**
  - Homeopathic
  - Naturopathic
  - Chinese Medicine
    - *Acupuncture*
  - Ayurvedic Medicine
- **Regenerative Medicine***
- **Anti-Again Medicine***
- **Functional Medicine***

How does one go from being an optometrist who was residency trained in ocular disease to becoming board certified in an INTEGRATIVE healthcare specialty….and having breakfast with "America's Doctor" ?

"Formal" Education

George L. Gaunt Jr, PhD, MD
Biochemist
Internal Medicine Physician
Functional Medicine Influencer



- **PCCA**
  - Professional Compounding Centers of America
- **ZRT Laboratory**
  - David Zava, PhD

American Academy of Anti-Aging Medicine
Metabolic Medicine Institute

EDUCATIONALLY PARTNERED WITH:

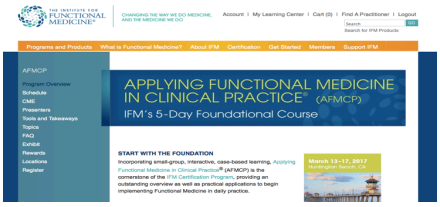
School of Medicine & Health Sciences
THE GEORGE WASHINGTON UNIVERSITY

A4M

USF HEALTH MORSANI COLLEGE OF MEDICINE
UNIVERSITY OF SOUTH FLORIDA

FELLOWSHIP
Board Certification/Diplomate
GRADUATE CERTIFICATE
MASTERS DEGREE

AFMCP Certification, September 2016



Medicine Woman or…..

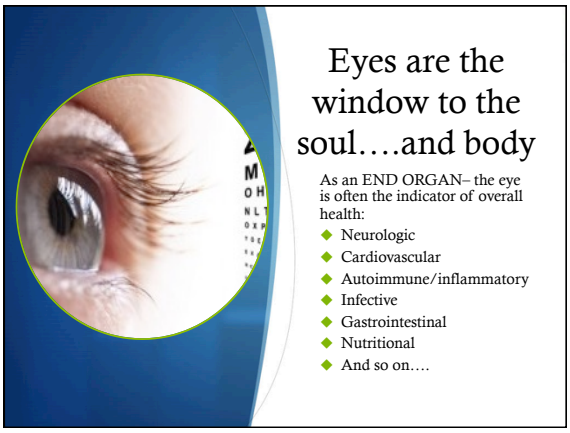
…..Integrative Optometrist

What is Integrative Medicine?

Why not Integrative Optometry?

Integrative Medicine "Alphabet Soup"

- ACLM: American College of Lifestyle Medicine (Harvard)
- ACAM: American College of Advancement for Medicine
- AIHM: Academy of Integrative Health and Medicine
- PMC: Personalized Medicine Coalition
- PMI: Precision Medicine Initiative (Obama)
- PLMI or P4MI: Personalized Lifestyle Medicine Institute
  - *(P4 –predictive, preventive, personalize, participatory)*



Eyes are the window to the soul….and body

As an END ORGAN– the eye is often the indicator of overall health:

- Neurologic
- Cardiovascular
- Autoimmune/inflammatory
- Infective
- Gastrointestinal
- Nutritional
- And so on….