The Forum For Integrative Medicine

April 3-6, 2025 AUSTIN, TX

Cracking The Code of Chronic Illness

Utilizing the D6D Anti-Inflammatory Pathway to Maximize YOUR Protocol

Professor Brian Scott Peskin*

Awarded 3 plant-based oil patents. Consults with numerous nutritional companies

Founder: Peskin Pharmaceuticals

*Brian Peskin earned his Bachelor of Science degree in Electrical Engineering from the Massachusetts Institute of Technology — BSEE.
He received an appointment as an Adjunct Professor at Texas Southern University in the Department of Pharmacy and Health Sciences (1998-1999).
The former president of the University said of Brian's discoveries: "...His nutritional discoveries and practical applications through *Life-Systems* Engineering are unprecedented."

Plant-Based Seed Oil EFAs & Their Derivatives — The Key to Decreasing Patients' Chronic Inflammation

< 2 months to heal

Organic / Unprocessed **Omega-6 Seed Oils = ANTI-INFLAMMATION**

Healing Progression in Crushing Fall

86-Year-Old Patient -- Multiple Metabolic Pathways positively affected by plant-based Essential Fatty Acids (EFAs) and their long-chain metabolites, responsible for this "remarkable" healing progression via the D6D pathway.

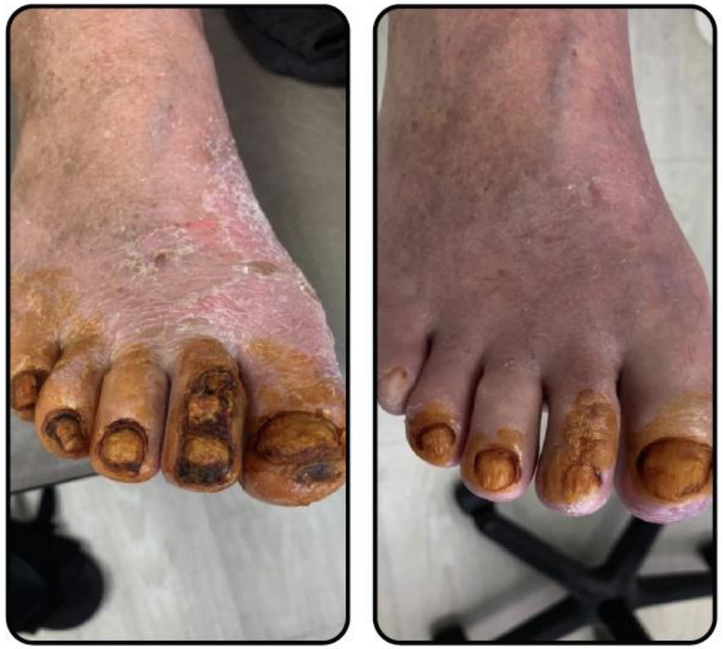
"This 86-year-old patient experienced a significant bilateral orbitofrontal and nasal crushing injury in a fall. She incurred the anticipated bilateral upper and mid-facial swelling and ecchymosis but surprisingly had much less nasal injury than expected, including no fractured/comminuted nasal bones or orbital rim/floor fracture. Within 10 days, she demonstrated remarkable resolution of the facial edema and bruising and quickly thereafter eliminated the remainder over the ensuing weeks. So not only did it seem that her facial soft tissues and bones were more resilient and the bones also not brittle, but her overall recovery was unusually expedited and uncomplicated."

Geoffrey L. Robb, M.D., F.A.C.S., Board Certified ENT
Professor / **Past Chairman (1998-2013)** Department of Plastic Surgery, The **University of Texas MD Anderson Cancer Center**, Houston, TX

Plant-Based Seed Oil EFAs & Their Derivatives — The Key to Decreasing Patients' Chronic Inflammation

Expedited Severe Wound Healing:
Toe SAVED / Venous Ulcer Heal
With Organic /
Unprocessed **Omega-6 Seed Oils**

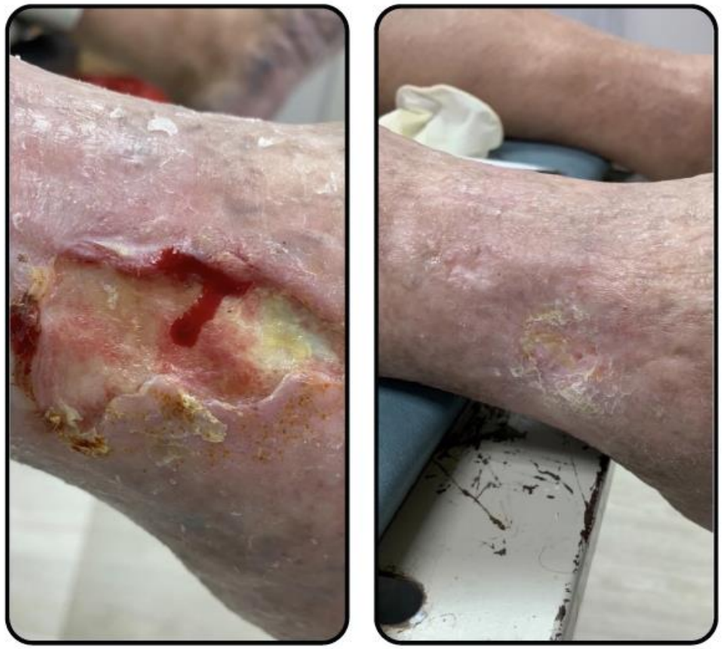
CASE #2



Feb. 4, 2021 — April 9, 2021

- 57-year-old white male presents with ischemic eschar of the 2nd right digit and eschar of the anterior distal hallux with pain on palpation.
- Told by the vascular service that it would likely demarcate and he would lose the digit. I treated him with betadine and **EZTREK™** 5cc, 5-days-a-week. Healing time was 9 weeks.

CASE #3



Jan. 29, 2021 — April 29, 2021

(Both images depict 2nd occurrence)

- 78-year-old male with a right ankle open venous ulcer. History of varicose veins and severe COPD. Patient has had two separate episodes with an open ulcer.
- First treatment, ulcer was managed with foam and three-ply compression, and it closed in 16 weeks.
- This time (2nd occurrence) treated with foam, three ply compression and 5cc of **EZTREK™** 5 days a week.

Diseases, Disorders & Impairment of the Δ-6 Desaturase Pathway Causing Chronic Inflammation

- Diabetes (Type 1 & Type 2) including Neuropathy
- Lipid-Enveloped Viruses (including COVID series)
- Dermatological Conditions (Eczema, etc.)
- Cardiovascular Disease (Soft plaque/ Calcified plaque, Hypertension, etc.)
- Inflammatory Bowel Disease
- Chronic Fatigue (including post-viral syndromes)
- Fatty Liver Disease, Including NAFLD
- Multiple Sclerosis (MS)
- Dementia / Alzheimer's
- Cancer

Request Fully Referenced Paper:
prof-peskin@peskinpharma.com

Respiratory Diseases With Chronic Inflammation

- Mesothelioma
- Idiopathic Pulmonary Fibrosis (IPF)
- Chronic Obstructive Pulmonary Disease (COPD)

Inflammatory Markers:

• **C-reactive protein #1 (cancer patient)** – 12/06/2021
"…3 high-sensitivity *CRP tests* conducted since June [2021]. June value was 1.4, mid-September was 1.8, and late November was 0.7. The 0.7 value [***61%** decrease*] represents approximately 3 ½ weeks of **EZtrek®** use."

• **C-reactive protein #2 (CHF patient)** – 03/09/2022
"History of CHF, likely induced from Lyme, etc. Contributing is MTHFR. High-sensitivity CPR test went from 1.5 to 1.1. The 1.1 value [***27%** decrease*] represents 4 weeks of **EZtrek®** use."

• **Homocysteine** – 03/09/2022 (CHF patient #2 above) – 03/09/2022
"Homocysteine decreased from 13 to 9 [***31%** decrease*] after 4 weeks of **EZtrek®** use.

Pulmonology:

"Pulmonologist was guarded on any improvement, stating, **'Your case is grim.'** She has labored breathing and **required 24-hour oxygen**. On Feb 28, 2022, she saw Pulmonologist and had a **CT and PFT evaluation of lungs that showed obvious positive changes.** (She has only been on **EZtrek®** for one month.) Her *pulmonologist was pleasantly surprised*."

"She no longer requires oxygen and can now speak and move about without being winded. *Nothing else changed other than adding Plant-based seed oil* Medical Food **EZtrek®**."

Hypertensives / 1st Reported SIGNIFICANT CAC REVERSAL

a) 03-20-2023: "20-yr hypertensive; Norvac and Hydrochlorothiazide. BP reduced to **138/90**. When **EZtrek®** was added, **after 3 months BP reduced to 126/75**."

b) 03-29-2022 "Blood pressure consistently raising until approx. 178/93. Low salt diet stabilized BP @ **160/85. Patient still concerned**.

Within **30 days of EZtrek® BP lowered near 126/69**, which is consistently measured. **Patient is delighted**."

❑ **(Unprecedented -- 2022) Coronary Artery Calcified hard plaque reduction (CAC)**

"Baseline non-contrast CT Agatston Score of 727 on 4/30/2021: Score reduced to 666 on 6/30/2022 [7 months taking **EZtrek®** This translates to an **annualized calcified plaque reduction of 14.3%."**
[NEVER > 5% CAC reduction.]

Inflammation NOW known to be at FOREFRONT of Diseases

Cancer

2007: Inflammation FUELS Cancer*

"Re-writing of the textbook …"

- Cancer researcher Robert Weinberg of MIT states [coined "oncogene."]: "The connection between **inflammation and cancer** has **moved to center stage** in the research arena." The article continues…
- "…**inflammation is the fuel** that feeds it [the malignant cancer].

- "In this **rewriting of the textbook**… This new view implies that rooting out every last cancer cell in the body might not be necessary. **Anti-inflammatory cancer therapy instead** would **prevent pre-malignant cells from turning fully cancerous** or would **impede an existing tumor from spreading** to distant sites in the body. Cancer victims might then be able to survive."

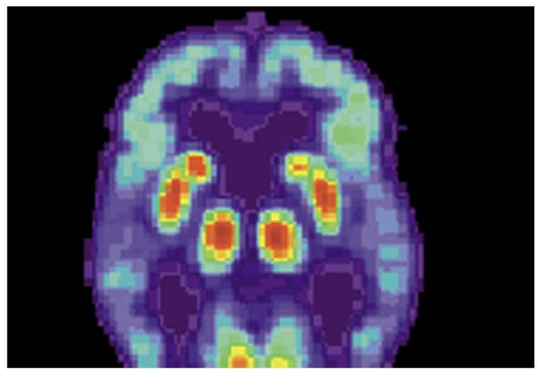
Inflammation:

Dementia / Alzheimer's Example

Medical Xpress

New leads on treating dementia and Alzheimer's

May 2 2018, by Robyn Mills



PET scan of a human brain with Alzheimer's disease. Credit: public domain

A new study by scientists in Australia and the US provides an explanation for why clinical trials of drugs targeting proteins in the brain that were thought to cause dementia and Alzheimer's have failed. The

1/4

2018:

"Inflammation is a MAJOR CAUSE, not just a consequence….but only now is it identified as THE CAUSE."

"The new work turns previous thinking around."

Robert I Richards, Sarah A Robertson, Daniel L Kastner, **"Neurodegenerative diseases have genetic hallmarks of autoinflammatory disease,"** *Human Molecular Genetics*, Volume 27, Issue R2, 01 August 2018, Pages R108–R118.

Theoretical Lipid PHYSIOLOGY

a) **Membrane = Brick & Mortar**

b) **Eicosanoids = Cellular Messengers**

➢ **Clinical Physiology 1st**

- Biochemistry 2nd
- Epigenetic Solution Pathway Modulation / Cellular Terrain

Optimize YOUR Protocols

PEO: Parent Essential Oils

(Essential Fatty Acids)

- **Parent Essential Oils are Parent Omega-6 & -3 EFAs. IF processed / adulterated then poisonous.**

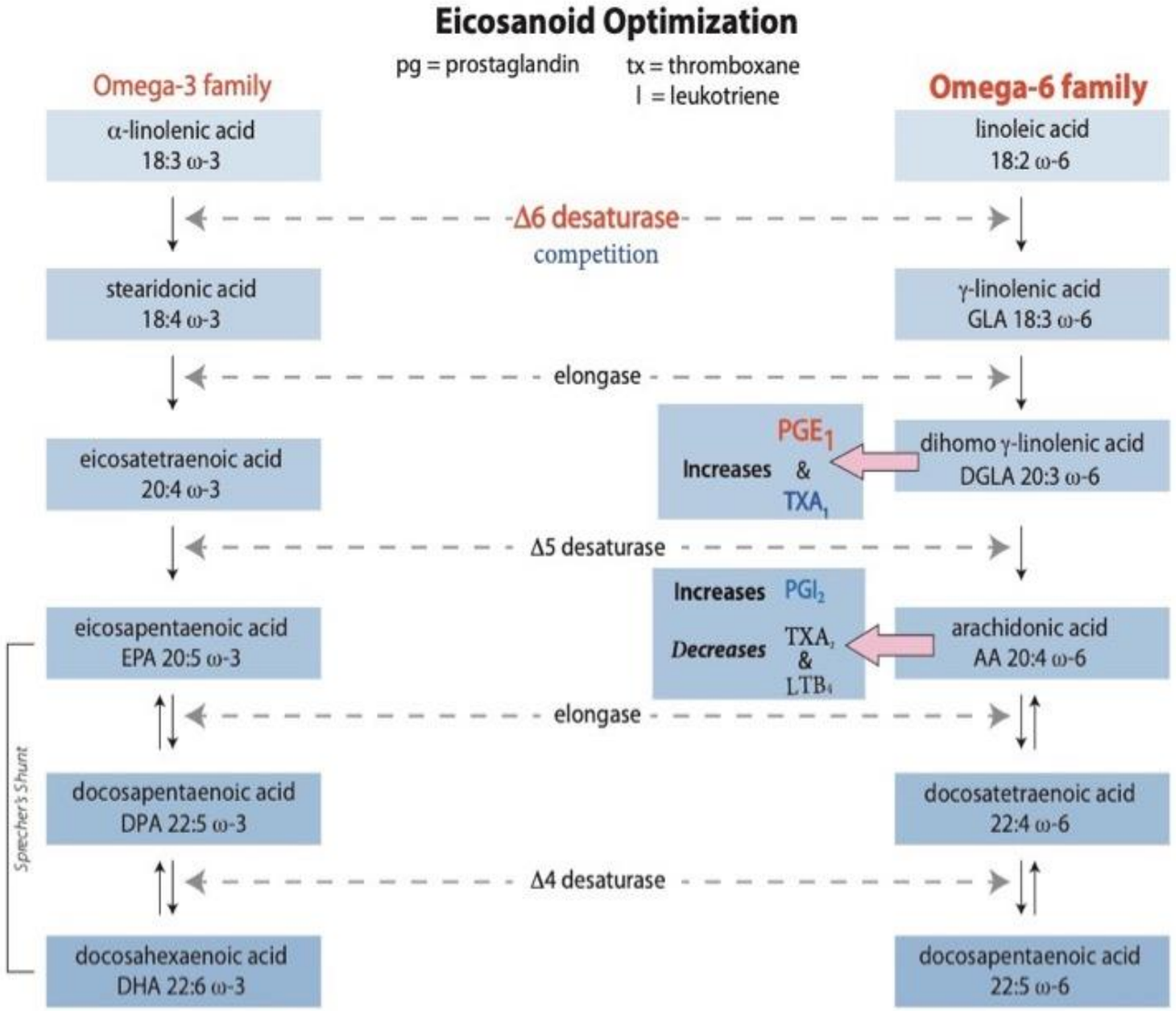
- **I coined this term to clearly delineate between Parent & Derivative EFAs.**
- **Parent EFAs are Essential.**

- **Derivative EFAs: EPA, DHA, AA, etc., are NOT EFAs because the body makes the derivatives (longer chain) from the 2 ESSENTIAL Parent Oils.**

Food processors never use omega-3 fats, as these fats are far too oxygen-reactive. Most Parent omega-3 in foods is not adulterated.

The problem lies *exclusively* in the processed, adulterated Parent omega-6 oils. This KEY issue is never properly addressed: "**Processed vs Organic / Unprocessed.**"

Lipids are the #1 Modifiable Variable in Tissue Composition[1,2]



LONGEVITY
RADIANT HEALTH

Better Outcomes

1. Felton, CV, et al., "Relation of Plaque Lipid Composition and Morphology to the Stability of Human Aortic Plaques," *Arteriosclerosis, Thrombosis, and Vascular Biology*," vol. 17, no 7, 1997, pp. 1337-1345.
2. Wainwright, E, et al., "The Effects of Dietary n-3/n-6 Ratio on Brain Development in the Mouse: A Dose Response Study with Long-Chain n-3 Fatty Acids," *Lipids*, vol. 27, no. 2, pp. 98-103, 1992; Lands, WEM, et al., "Quantitative effects of dietary polyunsaturated fats on the composition of fatty acids in rat tissues," *Lipids*, vol. 25, no. 9, 1990, pp. 505-516.

Key FACT About Anti-inflammatory Δ-6 Desaturase (D6D)

Can an impaired **Δ-6 Desaturase (D6D)** metabolic pathway be cured? **NO.**

Once you are diagnosed with an inflammatory-based disease, your most powerful anti-inflammatory metabolic **pathway** *— Δ-6 Desaturase (D6D) —* **is permanently damaged,** *to a greater or lesser degree.* **Production of the body's most anti-inflammatory — PGE_1 — will never be maximized.**

Minimizing consumption of processed / adulterated plant seed-based oils will certainly help but will be insufficient for most patients. Medical Food EZtrek® is designed to help nutritionally compensate for impaired D6D pathways ON A DAILY BASIS.

The Superiority of Plant-Based Seed Oils…

- 100 TRILLION cells… Cell membrane is **half protein / half lipid. Of every cell's lipid portion, 25% - 33% are PEOs.**[1]
- **Mitochondrion (cellular energy production) contain them —100s-1,000s in each cell (*cardiolipin* is 100% Parent omega-6) — too.**[1]

- **KEY Insight: "…[S]ecretory cells [virtually all cells] are hypersensitive to changes of their membrane lipids induced by the diet [Cells sense adulterated omega-6 oils and respond with stress and chronic inflammation]."**[2] D6D metabolic pathway becomes highly impaired.

Today, all patients suffer CHRONIC INFLAMMATION from consuming PROCESSED / ADULTERATED Parent omega-6 cooking oils.

1. Alberts, B., et al., Molecular Biology of the Cell (3rd edition), Garland Science,1994, p 428; Murray, Robert K, et al., Harper's Illustrated Biochemistry (26th edition), McGraw-Hill, New York, **2003**: p 97; Guyton, Arthur C & Hall, John E, Textbook of Medical Physiology (9th ed.), W.B. Saunders Co. 1996: 16, pp 861–862.
2. Halbleib, K., et al., "Activation of the Unfolded Protein Response **by Lipid Bilayer Stress**," Molecular Cell, Vol. 67, Issue 4, pp 673-684.e8, August 17, **2017**.

LA and ALA are the only 2 essential (body can't synthesize) fats.

- DHA from fish oil is NOT an EFA – NOT essential – body makes AS NEEDED
- EPA from fish oil is NOT an EFA – NOT essential – body makes AS NEEDED

21st Century Newsflash: < 1% (approx. 0.1%) of all PEOs are Converted into Derivatives[1,2,3]

Contrary to popular belief, your body makes the derivatives AS NEEDED, such as DHA and EPA, with at least 99% staying in parent form.

1. Salem N, Lin Y, Brenna JT, Pawlosky RJ. Alpha-linolenic acid conversion revisited. **PUFA Newsletter**, December **2003**.
2. Pawlosky RJ, Hibbeln JR, Novotny JA, Salem N Jr." **Physiological compartmental analysis** of alpha-linolenic acid metabolism in adult humans." ***J Lipid Res*** **2001**;42:1257-65.
3. Goyens PL, Spilker ME, Zock PL, Katan MB, Mensink RP. "**Conversion** of alpha-linolenic acid in humans is influenced by the absolute amounts of alpha-linolenic acid and linoleic acid in the diet and not by their ratio." *Am J Clin Nutr* **2006**;84:44-53.

HEART DISEASE- #1 Killer

1) **LDL-C is the TRANSPORTER of the Parent Omega Oils (esterified).**

2) **Lowering LDL-C was a good 1st cut, but the correct answer is to increase UNprocessed Parent omega-6 because 85% of an arterial clog is from CONSUMING PROCESSED /Adultrated Omega-6 (already adulterated / oxidized from food processing – NOT going "bad" in the body).**[1]

3) **There is no SATURATED fat in an occluded (clogged) artery.**[1]

1 *Felton, CV, et al., "Dietary polyunsaturated fatty acids and compositions of human aortic plaque,"* Lancet*; "Identification and quantification of unique fatty acid and oxidative products in human atherosclerotic plaque using high-performance lipid chromatography,"* Annals of Biochemistry*;* "Structure elucidation of oxygenated lipids in human atherosclerotic lesions," Eicosanoids.

Major **Newsflash 2009: American Heart Association**[1]
Champions Omega-6 PUFAs to Counter Popular Nutrition Advice

A great deal of discussion in the world of nutrition has **given omega-6 fatty acids a bad reputation, which, according to the American Heart Association, is unfounded**. The debate came about because one of the components of omega-6 fatty acids, called *arachidonic acid*, is a "building block" for some inflammation-related molecules. This has led to concern that omega-6 consumption would lead to a greater risk of heart disease. This has been completely disproven.

"'***That reflects a rather naive understanding of the biochemistry***,' says William S. Harris, Director of the Metabolism and Nutrition Research Center of the University of South Dakota Sanford School of Medicine and the nutritionist who led the science advisory committee that issued the report in Circulation."

"'***[O]mega-6 PUFAs [Derivatives] also have powerful anti-inflammatory properties*** that ***counteract any proinflammatory activity***,' say the advisory authors. '***It's incorrect to view the omega-6 fatty acids as "proinflammatory***.'"

1. AHA Heartwire **2009**, © **2009** Medscape, January 28, 2009 (Dallas, Texas), based on ***Journal of the American Heart Association***. Ref.: **AHA Science Advisory**, Harris WS, et al., "**Omega-6 fatty acids and risk for cardiovascular disease**: a **science advisory** from the **American Heart Association** Nutrition Subcommittee of the Council on Nutrition, Physical Activity, and Metabolism; Council on Cardiovascular Nursing; and Council on Epidemiology and Prevention" downloaded from circ. ahajournals.org on January 29, **2009**. Published in ***Circulation***. 2009;119:902-907.

2017 Confirmation of Omega-6 Series: Serum Fatty Acid Analysis Gives the Truth
Parent and Derivative Omega-6 is Beneficial, NOT HARMFUL / NOT Inflammatory

This newly reported analysis CONFIRMS OTHER STUDIES showing that both Parent omega-6 (LA) and arachidonic acid (AA) are not inflammatory—**as measured by C-reactive protein (CRP)**, a strong, key marker of inflammation.

"**Conclusions**: Serum n-6 PUFAs [AA, etc.] were not associated with increased inflammation in men. In contrast, the main n-6 PUFA linoleic acid [**Parent omega-6**] had a strong inverse association with the key inflammation marker CRP.

"Omega-6 fatty acids do not promote low-grade inflammation.

"The higher the serum linoleic acid [Parent omega-6] level, the lower the CRP."

* Virtanen, JK, et al., "The associations of serum n-6 polyunsaturated fatty acids with serum C-reactive protein in men: the Kuopio Ischaemic Heart Disease Risk Factor Study," **European Journal of Clinical Nutrition**, online accessed November 18, 2017, https://doi.org/10.1038/s41430-017-0.

Parent Omega-6 Newsflash[1]

- "(18:2) CL_4 [Parent omega-6] **rescues** [fixes the damage] the major remodeling in the cardiolipin lipidome **induced by long-term intake of DHA.** [Cardiolipin is in the inner mitochondrial membrane. Mitochondria are the cellular ENERGY SOURCES. Deficiency causes Chronic EXHAUSTION – the #1 complaint of Americans.]

- "…[I]t is **not the loss of linoleic acid alone** that drives the impairment in enzyme function since the Western diet alone did not impair enzyme activities. Instead, **it was the replacement of linoleic acid with DHA that promoted the reduction in activities**."

CONCLUSION: **2018**: **DHA** [Omega-3 DERIVATIVE]
RUINS HUMAN Cardiac **Mitochondria**
= Heart Failure Due to LACK of CELLULAR ENERGY:[1]

1. Sullivan, E. Madison, et al., "Docosahexaenoic acid lowers cardiac mitochondrial enzyme activity by replacing linoleic acid in the phospholipidome," ***Journal of Biological Chemistry***, **2018**, 293: 466-2018 Jan 12;293(2):466-483.

When these precious PEOs become oxidized (from food processing), *oxygen transfer stops, and cardiovascular disease starts.*

Outdated Medical Textbooks state the intima consists of a single layer (it is actually 15-20 layers), increasing potential for atherosclerosis – Prof. Subbotin) of endothelial cells containing significant LA, but no ALA.[1,2] Consumed, ***processed (nonfunctional) LA*** deposited in arterial intimal cell membranes leads to ***abnormal oxidation at the vascular injury site***, thus causing injurious inflammation. (Note: In this case, abnormal oxidation involves formation of a hydroperoxide from LA.)

•• The culprit in our food supply is ubiquitous "processed foods." Masquerading as harmless, ***processed / adulterated oils — exclusively in Parent omega-6 oil — are the villains***. ••

1. Chapkin RS, Ziboh VA, Marcelo CL, Voorhees JJ. Metabolism of essential fatty acids by human epidermal enzyme preparations: evidence of chain elongation. *J Lipid Res* 1986; 27:945-954.
2. Andersson A, Sjödin A, Hedman A, Olsson R, Vessby B. Fatty acid profile of skeletal muscle phospholipids in trained and untrained young men. *Am J Physiol Endocrinol Metab* **2000**;279:E744-E751.

Lipids are the Variable in Tissue Composition
We Make Great Use of This Medical Fact

A. Tissue lipid composition is often LINEAR (proportional) **to lipid intake percentages** (as are plasma, liver, and RBCs).[1]

B. The percentage of adulterated LA (Parent omega-6) in the tissue is in proportion to the adulterated amount consumed.[2]

C. [As much as] **85% of arterial plaque occlusions are adulterated LA** / oxidized derivatives are toxic (and inflammatory) to arterial cells[3].

1. E. Wainwright, Y. S. Huang, et al., "The effects of dietary n-3/n-6 ratio on brain development in the mouse: a dose response study with long-chain n-3 fatty acids," Lipids, vol. 27, no. 2, pp. 98–103, 1992..
2. Lands, WE, et al., "Quantitative Effects of Dietary Polyunsaturated Fats [EFAs] on the Composition of Fatty Acids in Rat Tissues," Lipids, Vol. 25, No. 9, 1990, pages, 505-516.
3. C.V. Felton, et al., "Relation of Plaque Lipid Composition and Morphology to the **Stability** of Human **Aortic Plaques**," ***Arteriosclerosis, Thrombosis, and Vascular Biology***," Vol. 17, No. 7, 1997, pp. 1337-1345; C. V. Felton, D. Crook, M. J. Davies and M. F. Oliver, "Dietary Polyunsaturated Fatty Acids and **Composition** of **Human Aortic Plaques**," The Lancet, Vol. 344, No. 8931, 1994, pp. 1195-1196; H. Kühn, J. et al., "**Structure Elucidation of Oxygenated Lipids** in Human **Atherosclerotic Lesions**," Eicosanoids, Vol. 5, 1992, pp. 17-22; Peskin, B., "Why Fish Oil Fails to Prevent or Improve CVD: A 21st Century Analysis," Food and Nutrition Sciences, 2013, Vol. 4, No. 9A, 76-85.

Nature's Natural Statin: Omega-6 series

- **Prostacyclin (PGI_2):** Body's MOST potent natural blood thinner / platelet anticoagulant is made from arachidonic acid (AA).[1]

- **PGE_1**: Body's most potent anti-inflammatory – much stronger than Omega-3's PGE_3.[2]

Important Point: The intima (endothelial inner lining of arterial wall) EFA structure is entirely Parent omega-6 — with no Parent omega-3. Epithelial tissue and the skin contain no omega-3, either; regarding EFA content, it is exclusively Parent omega-6.

1. Bunting, S., Moncada, S., and Vane, J.R., "Prostaglandin–Thromboxane A2 Balance: Pathophysiological and Therapeutic Implications," *British Medical Journal*, (1993) Vol. 39, No. 3, pp 271-276.
2. Schmidt, M.A., *Smart Fats: How Dietary Fats and Oils Affect Mental, Physical and Emotional Intelligence*, 1997, pp 27-30.

Nobel Prize-winner Otto Warburg, MD/PhD: **Seminal Cancer Discovery**
#1 Physiologist of the 20th Century

Otto Warburg, "On the Origin of Cancer Cells," *Science*, February 1956, Volume 123, Number 3191.

- **The Oxygen/Cancer Connection**: **Cancer is always caused** by long-term *deprivation of oxygen (intermittent 35%) from chronic inflammation.* This is the *prime* cause of cancer.* Heart disease (CVD) is caused by oxygen deprivation, too.
- All *secondary* causes of cancer, like asbestos, smoking, or other carcinogens, MUST lead back directly to the *prime* cause.
- Back then, Dr. Warburg didn't have the most efficient method to get vital oxygen to the cell… **Fortunately, today, we do with Organic / fully functional Omega-6 based seed oils coming to the rescue.**

Deficient Parent Omega-6 Causes Cancer Throughout the Body[1]

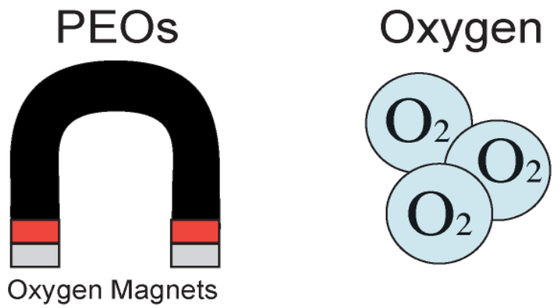
A. "…[R]estoration of a **normal fatty acid composition** should **enhance the supply of oxygen to the tissues** and improve the general health of the patients…

B. "…**Interference with the movement of oxygen could then occur at any cell membrane** so that there could be a general reduction in the supply of cellular oxygen throughout the body…" [**This is precisely why Cancer / Heart Disease may occur anywhere this condition occurs**.]

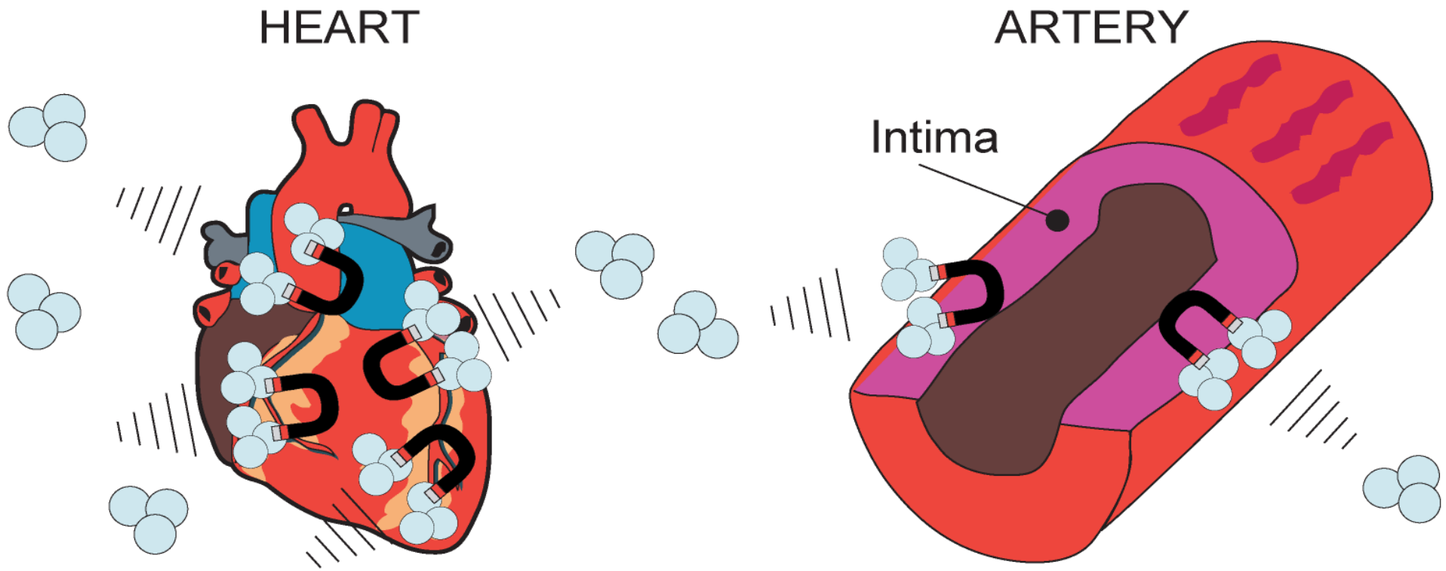
C. "…[M]any of their symptoms may result from essential fatty acid **(Linoleic / LA) deficiency, leading to the decrease in the availability** of cellular oxygen for respiration [***mitochondria's cardiolipin***—ALL Parent omega-6]…."

1. Campbell, IM, et al., "**Abnormal fatty acid composition and impaired oxygen supply in cystic fibrosis patients**, *Pediatrics*, 57:480-486, 1976.

OXYGEN MAGNETS!



PEOs work like tiny “magnets” drawing oxygen into all cells, tissues, and vital organs.



Confirmation of the O_2 / Cancer Connection - ALWAYS in every case

A. **Published in 1993 and 1999**, the cancer medical journal Radiotherapy and Oncology makes Dr. Warburg's seminal discovery clear. **Intratumoral pO_2 predicts survival in advanced cancer** of the uterine cervix.[1]

B. Also, in **1999**, the same cancer journal made Dr. Warburg's seminal fact clear again in the article titled, "**Oxygenation of head and neck cancer**: changes during radiotherapy and **impact on treatment outcome**."[2]

C. "**Tumor oxygenation affects the prognosis** of head and neck cancer **independently of other known prognosis variables**."

D. "**Tumor oxygenation predicts** the likelihood of distant metastases [cancer spreading] in human soft tissue **sarcoma (connective tissue-based cancer)**."[3]

E. "**Tumor hypoxia** [too little oxygen in the cell] **adversely affects the prognosis** of **carcinoma** of the head and neck."[4]

1. Knoop, Hockel, et al., "Intratumoral pO2 predicts survival in advanced cancer of the uterine cervix," Radiotherapy and Oncology 1993, Jan;26(1):45-50.
2. Brizel, D.M. et al., Radiotherapy and Oncology, 53, (1999): 113-117.
3. Brizel, D.M., et al., Cancer Research 1996:56-941-43.
4. Brizel, D.M., et al., Int. J. Radiat. Oncol. Biol. Phys. 1997;38:285-290.

2007: Inflammation Fuels Cancer[1]

"Re-writing of the textbook…"

- Cancer researcher Robert Weinberg of MIT states: "The connection between **inflammation and cancer** has **moved to center stage** in the research arena." The article continues…
- "…**inflammation is the fuel** that feeds it [the malignant cancer].
- "In this **rewriting of the textbook**… This new view implies that rooting out every last cancer cell in the body might not be necessary. **Anti-inflammatory cancer therapy instead** would **prevent pre-malignant cells from turning** fully cancerous or would **impede an existing tumor from spreading** to distant sites in the body. Cancer victims might then be able to survive."

1. Balkwill, F., et al., *"Smoldering and Polarized Inflammation in the Initiation and Promotion of Malignant Disease,"* ***Cancer Cell,*** Vol. 7, No. 3, pages 211-217, March **2005**; "Distinct Role of Macrophages in Different Tumor Microenvironments," Lewis, C. and Pollard, *J.,* ***Cancer Research,*** Vol. 66, No. 2, pages 605-612; January 15, **2006**; "Paradoxical Roles of the Immune System during Cancer Development," Visser, K., et al., ***Nature Reviews Cancer,*** Vol. 6, No.1, pages 24-37; January **2006; *One Renegade Cell: How Cancer Begins***, Robert A. Weinberg, Basic Books, New York, 1998, p. 146.

In The News: 2009

Nearly a Century Later, New Findings Support Warburg Theory of Cancer[1] (Note: Appropriately, this work was supported by the ***National Cancer Institute*** and the **National Institute on Aging**).

• "**Major abnormalities in CL [cardiolipin] content or composition** were ***found in all tumors*****.** Hence, our findings in mouse brain tumors provide evidence linking **abnormal CL to irreversible respiratory injury**."

L.S.E. Analysis: What is cardiolipin (CL)? It is a **fat-based** complex phospholipid **found in all mitochondrial membranes – intimately involved in maintaining mitochondrial functionality and membrane integrity**. It is used for ATP synthesis and consists roughly of 20% lipids.[2] In mammals, **the main substrate in CL is Parent omega-6** with virtually no Parent omega-3 or its derivatives.[3]

1. Science Daily (January 14, 2009) and Kiebish MA, Han X, Cheng H, Chuang JH, Seyfried TN. Cardiolipin and electron transport chain abnormalities in mouse brain tumor mitochondria: lipidomic evidence supporting the Warburg theory of cancer. ***J Lipid Res*** **2008**;49:2545-66.
2. Krebs JJ, Hauser H, Carafoli E. Asymmetric distribution of phospholipids in the inner membrane of beef heart mitochondria. *J Biol Chem* 1979;254:5308-16.
3. Scottish Crop Research Institute (**MRS Lipid Analysis Unit**, Invergowrie, Dundee DD2 5DA, Scotland). Cardiolipin (diphosphatidylglycerol). Structure, occurrence, biology and analysis. Retrieved January 20, **2009** from: http://www.lipidlibrary. co.uk/Lipids/dpg/index.htm.

Pharmaceutical Overdose:

Based on Physiology, Fish Oil Can't & Doesn't Work

Fish oil is (typically) ***exclusively omega-3 derivatives*** with enormous supra-physiologic overdose factors of plasma EPA and DHA. Therefore, prophylactic use has no basis in human physiology whatsoever. **Just one (1) typical 1,000 mg capsule of fish / marine oil contains 100Xs the daily requirement of DHA. No success for CVD, Cancer, Vision, Alzheimer's, etc. –**

Cochrane Reports --- the world leader in evaluating studies gave marine oils a dismal failure rating….

Fish / Marine Oil FAILURES: Extremely LITTLE IS NEEDED

New 21st Century Analysis: NIH researchers determined the amount of **DHA utilized in human brain tissue to be *a mere 3.8 mg ± 1.7 mg / day***. Therefore, brain tissue in 95% of all subjects, allowing for variation in brain size, would **consume or naturally produce *a mere 0.4 mg – 7.2 mg of DHA per day*.* [Nearly nothing.]**

•• COMPARE this amount with the doses of fish oil recommended and prescribed.••

• Fish oil contains almost no Parent Oils — often **20-500-times DAILY overdose of** omega-3 derivatives EPA/DHA [**pharmacologic, physiologic, DAILY OVERDOSE].**

* J. C. Umhau, W. Zhou, R. E. Carson, S. I. Rapoport, A. Polozova, J. Demar, et al., "**Imaging Incorporation of Circulating Docosahexaenoic Acid [DHA] into the Human Brain** Using Positron Emission Tomography," ***Journal of Lipid Research***, Vol. 50, No. 7, **2009**, pp. 1259–1268.

21st Century (2008) MAJOR NEWSFLASH: CONFIRMED—EFA Derivatives Made "As Needed"[1]

"…**[W]*hich shows the effectiveness of ALA conversion* [into DHA and EPA]** and accretion into erythrocytes. **The amounts of ALA [Parent omega-3] required to obtain these effects are amounts that are *easily achieved* in the general population** by dietary modification [ADD Parent omega-3]."

There is independent confirmation of conversion amounts, if anyone would care to look…[2]

•• Important Note: 2,600:1 times more ALA (Parent omega-3) than DHA (derivative of Parent omega-3) in the human body ••

1. "Flaxseed oil and fish-oil capsule consumption alters human red blood cell n–3 fatty acid composition: a multiple-dosing trial comparing 2 sources of n–3 fatty acid," *American Journal of Clinical Nutrition*, Vol. 88, No. 3, pp 801-809, September 2008.
2. Hussein, Nahed, et al., "Long-chain conversion of linoleic acid and alpha-linolenic acid in response to marked changes in their dietary intake in men," ***Journal of Lipid Research***, Volume 46, 2005, pp 269-280.

Fish oil accelerates aging

Fish oil increases oxidative stress and decreases lifespan.

- **"Conclusion: These findings suggest that intake of fish oil increases oxidative stress, decreases cellular function, and causes organ dysfunction."***

- "Docosahexaenoic acid (22:6) -- **DHA** , which has six double bonds and consequently five bis-allylic hydrogens per chain, is **320 times more susceptible** to attack than the common mono-unsaturated oleic acid (18:1) -- like olive oil -- which has ''no'' bis-allylic hydrogens in its chain…. Membrane lipid peroxidation should not be perceived solely as a 'damage to membranes' scenario but also as a significant endogenous source of damage to other cellular macromolecules, such as proteins and DNA (including mutations)."**

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• Tsuduki, K., et al., Long-term intake of fish oil increases oxidative stress and decreases lifespan in senescence-accelerated mice," Nutrition 27, (**2011**), pages 334–337.
** Hulbert, A.J., "Metabolism and Longevity: Is There a Role for Membrane Fatty Acids?" Integrative and Comparative Biology, Volume 50, Number 5, 808–817, **2010**.

Fish oil increases oxidative stress

"Ten (10) grams of fish oil (18% EPA & 12% DHA) daily over 3 or 6 months increased **TBA** [a prime and significant **measure of lipid rancidity] from 6 to 18.5**… [**3-fold increase**].

"…**omega-3 PUFAs [derivatives], which are *relatively unstable* compared with omega-6** fatty acids…

"Following **3 months of fish oil** supplementation, there was a **pronounced rise** in the total **ω-3 fatty acid content of unirradiated skin. 'We *confirmed* the reported incorporation ω-3 PUFAs [derivatives] into *epidermal membrane* lipids after dietary fish oil supplementation**.'"

* Rhodes, Lesley, E., et al., "Dietary Fish–Oil Supplementation in Humans Reduces UVB-Erythemal [an abnormal red condition of the skin, resulting from capillary congestion] Sensitivity but Increases Epidermal Lipid Peroxidation," **The Journal of Investigative Dermatology**, 103:151–154, 1994.

Is Cod Liver Oil Better? NO.
Cod Liver Oil Significantly Increases Risk of Melanoma[1]

"**A significant risk was found in women who used cod liver oil supplement.** [W]e found **a strong increased risk for the women using cod liver oil, a supplement rich in omega-3 fatty acids (EPA and DHA)**." [There was approximately a **3xs greater incidence of melanoma (the most dangerous type of skin cancer) in the cod liver oil users**.]

"***The increase is considered to be real and not due to chance***."

"Mean time of **follow-up was 12.4 years**…." [Note: Sufficient time for an excellent analysis.] "The **strengths of the study** are the high number of participants selected in an **unbiased manner**, the **high participation** and response rate, the prospective design with ***dietary data collected prior to onset of cancer,*** and a **complete follow-up** with regard to incidence of cancer, deaths, and emigration. The complete follow-up is secured by the procedure established by the **Cancer Registry**, ensuring that all physicians, hospital departments, and histopathology laboratories in Norway are **obliged to report malignant diseases to the Registry: as many as 98% of the cases were histologically [microscopic tissue analysis] verified**." [Note: This guarantees superb tracking and confirmation of cancer cases.]

1. Veirorod, MB, et al., "Diet and Risk of Cutaneous Malignant Melanoma: A Prospective Study of 50,757 Norwegian Men and Woman," ***Int, J. Cancer;*** 71,900-604 (1997).

Fish Oil Has
NO DIRECT Anti-Inflammation Benefits – Lowers Immune System
Most notably, mimicking the immune-suppression properties of a steroid

- **FAILURE 2000**: Fish Oil **decreases immune response***
  - "…[S]tudies indicate that at the levels used, fish oil [omega-3 derivatives] **decrease** **a wide range of immune cell responses** (natural killer cell, cytotoxic T lymphocyte activities, lymphocyte proliferation and production of IL-2 and IFN-y (1,2))….
  - **"…Recent studies have indicated that relatively low levels of the long-chain omega-3 fatty acids (EPA or DHA)…are sufficient to bring about some of the suppressive effects…"**

— WARNING: DHA & EPA, even in low doses, cause these immune-suppressive effects. —

* Calder, P., "Omega-3 Polyunsaturated Fatty Acids, Inflammation and Immunity," Institute of Human Nutrition, University of Southampton, Bassett Crescent End, Southampton, UK. Presented at: The International Society for the Study of Fatty Acids and Lipids (ISSFAL) 4th Congress, which met on June 4-9, 2000, in Tsukuba, Japan.

Patient CVD Screening to Detect STIFF ARTERIES

The World's Most Advanced Cardiovascular Measurement System in Under 60 Seconds

Has this happened to you or your loved ones?

… My cholesterol is perfect, but I had a Heart Attack.

… My blood pressure is perfect, but I had a Heart Attack.

… My labs are perfect, but I had a Heart Attack.

… I had no symptoms, but I had a Heart Attack. (30% of 1st Heart Attacks result in death)

Lipids in the Bloodstream

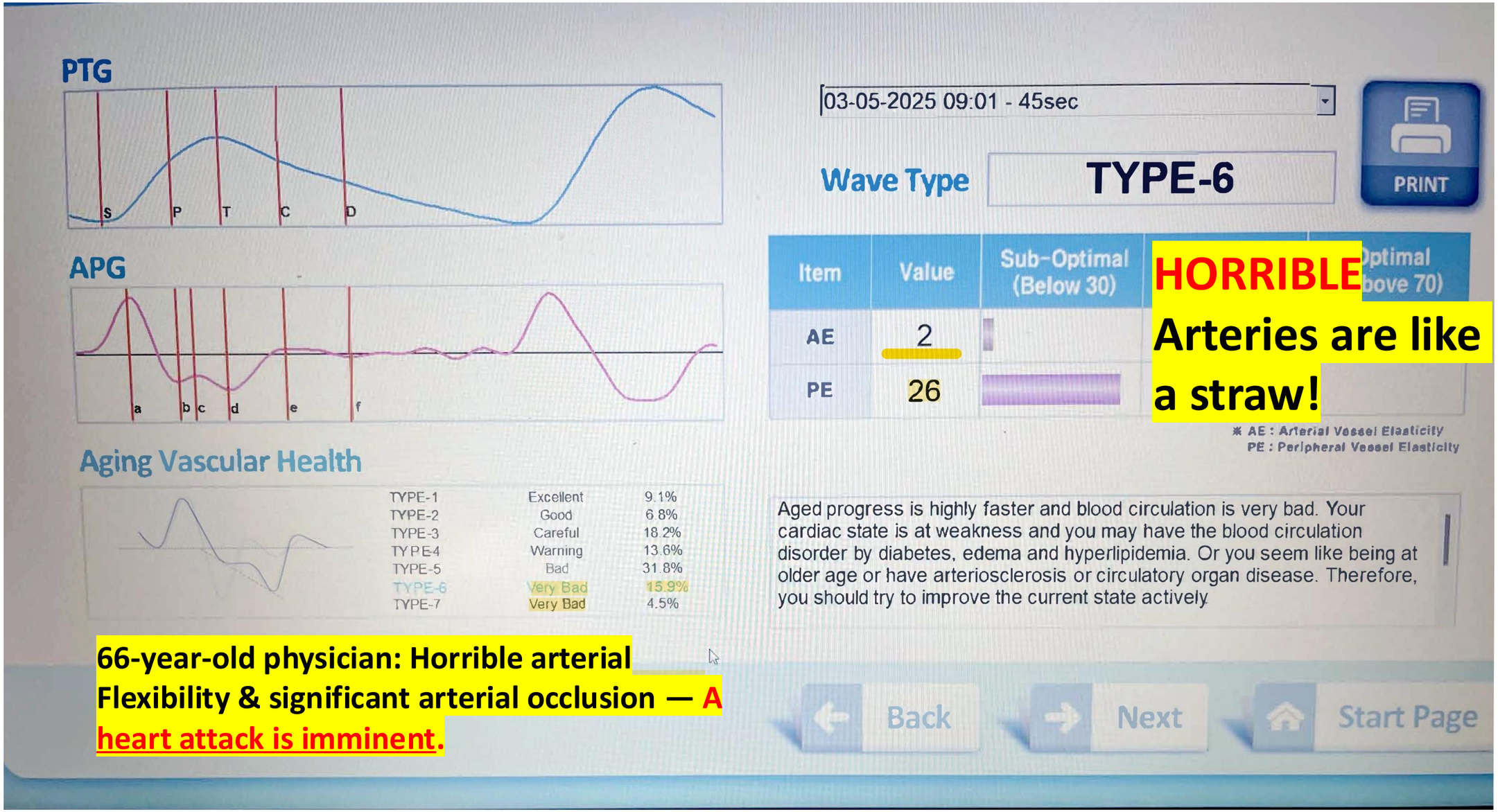
Percentages of Linoleic Acid (LA) & Alpha Linolenic Acid (ALA) in Plasma and Classes of Lipids				
Fatty Acid	**Plasma % (Unesterified)**	**Plasma % Triglycerides**	**Plasma % Phospholipids**	**Plasma % Cholesterol Esters**
LA (parent omega-6)	17	19.5	23	50
ALA (parent omega-3)	2	1.1	0.2	0.5
Parent omega-6: Parent omega-3 Ratio	**8.5:1**	**17.5:1**	**115:1**	**100:1**

• Approximately ***70% of the cholesterol in the lipoproteins*** of the plasma is in the form of cholesterol ***esters*** attached to ApoB.[1]

• Of dietary cholesterol absorbed, ***80%–90% is esterified*** with long-chain fatty acids in the intestinal mucosa.[2] The ***majority*** (about 55%-85%) of the ***cholesteryl ester*** component is LA ***(Parent omega-6)***.[3]

- **85% of the material clogging an artery is adulterated / nonfunctional / oxidized Parent omega-6 by FOOD PROCESSING (*See* slides 17 & 22).**

1. Guyton A, Hall J. *Textbook of Medical Physiology*, 9th ed. Philadelphia, Pa:WB Saunders; 1996:872-873.
2. Bothem KM, Mayes PA. Cholesterol synthesis, transport, and excretion. In: Murray PK, Granner DK, Mayes PA, Rodwell VW, eds. *Harper's Illustrated Biochemistry* 27th ed. New York, N.Y.: McGraw-Hill; **2003**; 235.
3. Sinclair HM. Essential fatty acids in perspective.1984;38C:245-260.



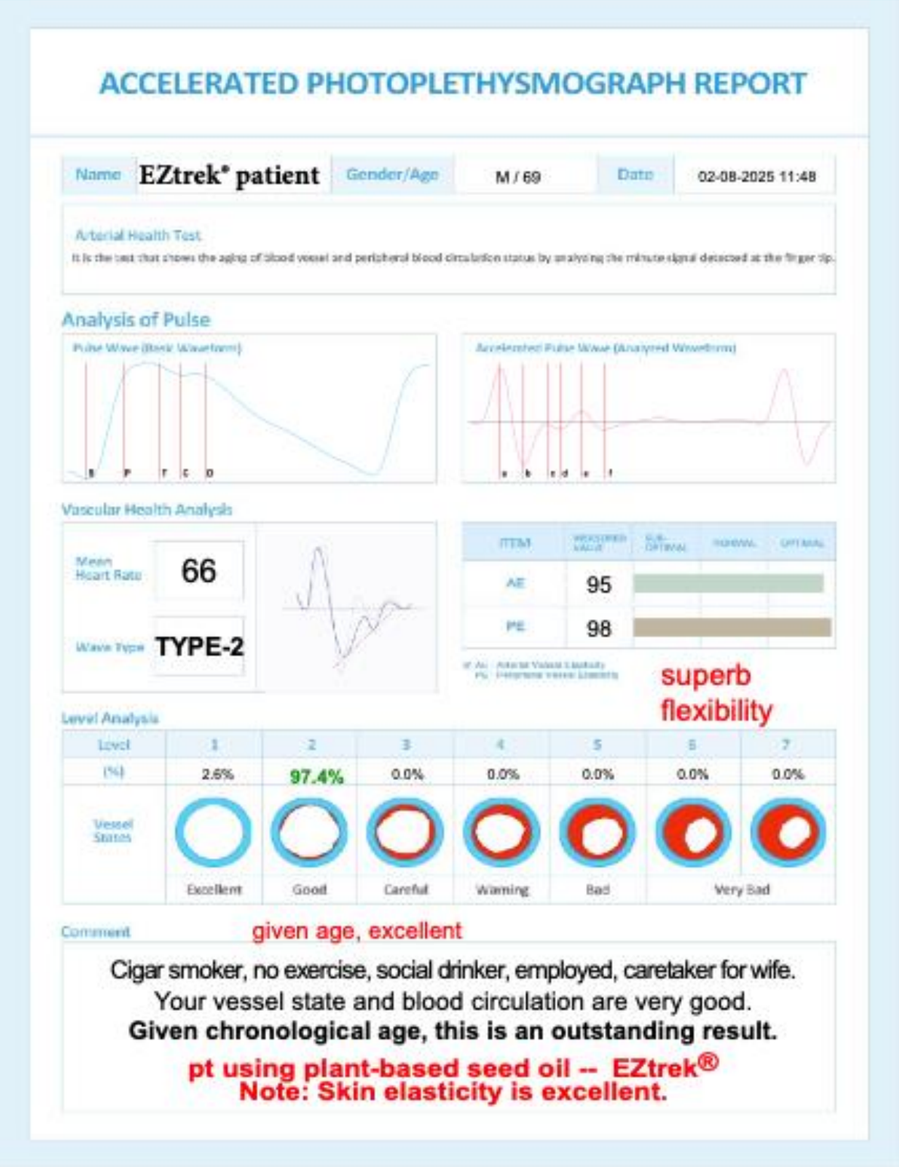
HORRIBLE

Arteries are like a straw!

66-year-old physician: Horrible arterial Flexibility & significant arterial occlusion — A heart attack is imminent.

Info: 69-year-old male Cigar smoker, no exercise, social drinker, employed, caretaker for wife.

Results: Vessel state and blood circulation are excellent -- At LEAST 25 years biologically younger than chronological age.



Given age (69) & cigar smoker, this is outstanding.

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