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CAMBRIDGE INTERNATIONAL INSTITUTE FOR MEDICAL SCIENCE

Stephen Cavallino, M.D. - Founder & Chairman (Italy) • Amid Habib, M.D. • David Sim, M.D. • Robert Nemer, D.O.

THE PHYSICIAN'S CONCISE GUIDE TO:

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**PEO & PEO Derivatives
Actually in the Body**



There is simply no one better in the 21st century at developing practical health-related solutions based on the world's leading medical and nutritional science. **"Science - Not opinion" is Brian's trademark.** When Brian is through explaining a topic it is "case closed!" When he says it, you "can take the information to the bank!"

Unlike most of his peers' recommendations, Brian's health and nutritional recommendations have stood the test of time. **Brian has never had to reverse or significantly alter any of his medical reports – reports that have tackled everything from the dangers of soy, to the wrongly popularized need for fiber in the diet, to his warning about the potential harm of supplementing with copious amounts of omega-3.** In 1995 he published the report "Fiber Fiction" and finally, eleven years later, others in research are acknowledging the silliness of recommending fiber in the diet of a human being. Brian's latest crusade is to warn of the dangers of excess omega-3 (in particular, fish oil) and how it will lead to increased cases of skin cancer. The list goes on and on...

Brian 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 his discoveries: "...His nutritional discoveries and practical applications through *Life-Systems Engineering* are unprecedented."** Brian earned his Bachelor of Science degree in Electrical Engineering from Massachusetts Institute of Technology (MIT) in 1979. Brian founded the field of *Life-Systems Engineering Science* in 1995. This field is defined as *The New Science of Maximizing Desired Results by Working Cooperatively with the Natural Processes of Living Systems*. To many, Brian is THE MOST TRUSTED AUTHORITY ON HEALTH AND NUTRITION IN THE WORLD.

Brian continues to be a featured guest on hundreds of radio and television shows both nationally and internationally. His sheer number of accomplishments during the last decade of the 20th century and into the 21st century are unprecedented and uniquely designate him as the #1 authority in the world of what really works and why. Forget listening to the popular press or most popular so-called health magazines. Their editors simply don't understand the complicated science that they write about - they merely "parrot" what everyone else says without independent scientific verification. Their recommendations often have no basis in reality of how the body works, based on its physiology.

Brian has dedicated his life to provide the truth - which is almost always opposite to what everyone says. Here's why Brian is the #1 man in America to listen to when it comes to your health.

PEO and PEO Derivatives Actually in the Body

In the field of EFA research, misinformation is rampant. Nearly a day goes by without a request for me to refute published information that is counter to my recommendations. Therefore, I am providing this chart showing the enormous significance of parent omega-6 compared to parent omega-3 both in tissue and in the bloodstream. I always have recommendations based on state-of-the-art physiology and biochemistry. *Real-life* results MUST BE consistent with these and that is why other recommendations are so very, very wrong. I guarantee that you will be amazed at this information.

Surprising Tissue Requirements of Parent Omega-6 Versus Parent Omega-3

Many physicians and health care professionals and advisors are unknowingly overdosing their patients on parent omega-3 from flax oil or omega-3 derivatives from fish oil. Tissue analysis clearly shows how much more parent omega-6 the body contains than parent omega-3.^{1,2,3,4,5}

| Ratio of Tissue Composition | | |
|---------------------------------|-------------|-------------|
| Tissue | Omega-6 PEO | Omega-3 PEO |
| Brain/Nervous System | 100 | 1 |
| Skin | 1000 | 1 |
| Organs and Other Tissues | 4 | 1 |
| Adipose Tissue (bodyfat) | 22 | 1 |
| Muscles | 6.5 | 1 |

1. Spector AA. Plasma free fatty acid and lipoproteins as sources of polyunsaturated fatty acid for the brain. *J Mol Neurosci* 2001;16:159-65; discussion 215-221.
2. 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.
3. Andersson A, Sjodin 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* Bunting S, Moncada S, Vane JR. The prostacyclin—thromboxane A2 Balance: Pathophysiological and therapeutic implications. *BMJ* 1983;39:271-276.
4. Markides, M., et al., “Fatty acid composition of brain, retina, and erythrocytes in breast- and formula-fed infants,” *The American Journal of Clinical Nutrition*, 1994;60:189-94 and Agneta Anderson, et. al., *American Journal of Endocrinological Metabolism*, 279: E744-E751.
5. Bunting S, Moncada S, Vane JR. The prostacyclin—thromboxane A2 Balance: Pathophysiological and therapeutic implications. *BMJ* 1983;39:271-276.

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There is virtually NO omega-3 in skin tissue.

We see significantly more parent omega-6 than parent omega-3 in tissue, especially in the brain and nervous system, adipose tissue, skin, and muscle.

Next, we will review parent omega-6 (LA) and parent omega-3 (ALA) in the blood, phospholipids (the method of lipid transport tied to a protein), and cholesterol esters (the method that lipids tie to cholesterol for transport by the protein).

It is necessary to know the PEFA (parent essential fatty acids) content of plasma lipids (lipoproteins, triglycerides, and esterified cholesterol) to determine how much parent omega-6, parent omega-3, and omega derivatives we should be taking.

With all the focus on omega-3 series fatty acids today, it is significant to note that the free fatty acids in human plasma ordinarily are composed of about 15% LA (linoleic acid, parent omega-6) and **just 1%** ALA (alpha linolenic acid, **parent omega-3**) with **just 2%** DHA (docosahexaenoic acid).⁶

| Percentages of Linoleic Acid (LA) & Alpha Linoleic Acid (ALA) in Plasma, Various Tissues, & Classes of Lipids ⁶ | | | | |
|--|-------------------------|------------------------|------------------------|-----------------------------|
| 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 |

6. Spector A. Plasma free fatty acid and lipoproteins as sources of polyunsaturated fatty acid for the brain. *J Mol Neurosci* 2001;16:159-165.

From a detailed analysis of EFA-derivatives, such as arachidonic acid (AA), eicosapentaenoic acid (EPA), and DHA, it is calculated that the plasma **parent omega-6** content in esterified cholesterol is approximately 50%, with **parent omega-3** comprising a mere 0.5%, and the ratio of **esterified parent omega-6/-3 is about 100:1!** It will be also noted that **DHA is the most abundant ALA-series derivative in the phospholipids**, but even in this class of lipids, **DHA comprises only 2.2%** of the fatty acids with **parent omega-6 being a factor 10 times greater.**⁷

In sharp contrast to the high amounts of n-6 series PUFAs (parent and derivative omega-6), n-3 series PUFA (parent and derivative omega-3) account for only 1.8% of the fatty acids in triglycerides, 3.5% in the phospholipids, and only 1.7% (ALA is 0.5%) in cholesterol esters. This high preponderance of parent omega-6 (LA) is pervasive throughout: the LA/ALA ratio in triglycerides is 23:1; n-3 PUFA makes up only 1-2% of fatty acids in plasma.⁶ **Even in the brain, LA/ALA uptake is 100 times greater.**⁸

Furthermore, there is not a significant bodily storage mechanism for ALA. Even significantly raising ALA intake does not cause a significant change in adipose tissue LA/ALA storage ratios.⁷

Wrong About Heart Disease, Too

No one wants a heart attack. Unfortunately, there is little scientifically-based information on how to avoid it. You need to know that there is no parent or derivative omega-3 in your arterial wall where the blood flows. The whole problem is in processed oils:

We know that the intima (**inner arterial wall**) consists of a single layer of endothelial cells containing **significant parent omega-6 (LA)**, but **no parent omega-3 (ALA)**.^{2,3} Consumed, processed LA deposited in arterial intimal cell membranes leads to abnormal oxidation at the vascular injury site, thus causing injurious inflammation, and ultimately leading to a thrombosis.

I hope this information will really get you thinking about what you hear on the television or read in the newspapers and magazines and how instead of helping you, their *misinformation* may be harming you.

7. Spector A. Plasma free fatty acid and lipoproteins as sources of polyunsaturated fatty acid for the brain. *J Mol Neurosci* 2001;16:159-165.

8. Watkins, PA, Hamilton JA, Leaf A, et al. Brain uptake and utilization of fatty acids: Applications to peroxisomal biogenesis diseases. *J Mol Neurosci* 2001;16:87-92.