



Alzheimer's & Dementia

**A New Cardiovascular
Prospective—Introducing
The Next Generation in
EFA Technology**

**by
Prof. Brian Scott Peskin**

Alzheimer's – A New Cardiovascular Prospective

About Professor Brian Peskin*

Professor Brian Scott Peskin is an internationally renowned medical research scientist specializing in lipids-based pharmacognosy, in particular, the body's 100 TRILLION cell physiologic lipid bilayer membrane. **Canadian specialist Paul Beatty makes clear: the "brain" of the cell is its membrane.** Expertise in theoretical lipid physiology, e.g., EFAs and eicosanoids, are crucial to understanding the root cause of Alzheimer's.

Instead of blocking / impeding and "managing" the illness's progression, the **focus should be on the root cause of the underlying disease/disorder.** Therefore, the focus is on the modulation of the 2 physiologically targeted essential fatty acids termed EFAs and specific long-chain metabolites, in particular, the physiologic optimization of Parent Omega-6 / Parent Omega-3 / GLA.

We are delighted to introduce a new generation of EFA technology.

Prof. Peskin is the formulator of the new state-of-the-art Medical Food, **EZtrek®** – specifically designed to help minimize / prevent inflammation in diverse patient populations by helping to nutritionally compensate for impairment in the delta-6 desaturase metabolic pathway. **This impairment is now known to be a key component of inflammatory-based diseases, including Alzheimer's.** This impairment leads to decreased production of the body's naturally produced anti-inflammatory PGE₁. **Once inflammation is reduced, healing accelerates naturally.** Peskin is at the forefront of this groundbreaking science.

*Professor Peskin earned his Bachelor of Science degree in Electrical Engineering from the Massachusetts Institute of Technology (M.I.T.). 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."** Professor Peskin founded the field of *Life-Systems* Engineering Science. This field is defined as The New Science of Maximizing Desired Results by Working Cooperatively with the Natural Processes of Living Systems.

Alzheimer's – A New Cardiovascular Prospective & New Hope

EZTREK®

The new state-of-the-art Medical Food
helps nutritionally compensate
for an impaired D6D metabolic pathway –
that leads to decreased anti-inflammatory PGE₁.

Once inflammation is reduced, healing accelerates naturally.
Impairment in this critical D6D pathway is known to occur
in at least 9 diseases, including Alzheimer's.

**PGE₁'s positive effects on the cardiovascular system
are known to be profound.**

**We must first address confusion about
plant-based Essential EFA oils.**

PROCESSED plant-based seed oils are harmful.
Not differentiating "*processed*" Parent omega-6 oils
from "*unprocessed*" / fully functional
Parent omega-6 plant-based oils will cause great harm.

When the Omegas-6 plant-seed oils are
organic / unprocessed – as Nature intended –
they are ESSENTIAL & REQUIRED for optimal health.

**** The American Heart Association stated (2009): ****

“Omega-6 PUFAs [oils] also have powerful anti-inflammatory properties that counteract any pro-inflammatory activity. It’s incorrect to view the omega-6 fatty acids as “pro-inflammatory. That reflects a rather naïve understanding of the biochemistry.”¹

Cardiologists know that the **capillaries in the brain** are essential for nutrient transfer. **If nutrient transfer is impeded, then cognitive function suffers.**

There are at least **40 million capillaries in the brain**, approx. **400 miles of capillary tissue**, and it is estimated that **every neuron has its own capillary** (making the estimated number substantially greater).² These endothelial capillaries are **extremely small** – comprised of a **single layer** of rolled-up epithelial tissue (**Parent omega-6**)³ – **and if nutrient transfer and/or oxygen transfer is impeded because of decreased functionality, we would expect brain impairment, e.g., memory impairment and mental deterioration.** This area of transfer is termed the *microvascular*.⁴ There are also mitochondria in these **endothelium-based** (all Parent omega-6) structures.⁵

¹ **American Heart Association** 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.

² Cipolla, Marilyn, *Integrative Physiology—From Molecule to Function: “The Cerebral Circulation,”* Morgan & Claypool Life Sciences, 2010.

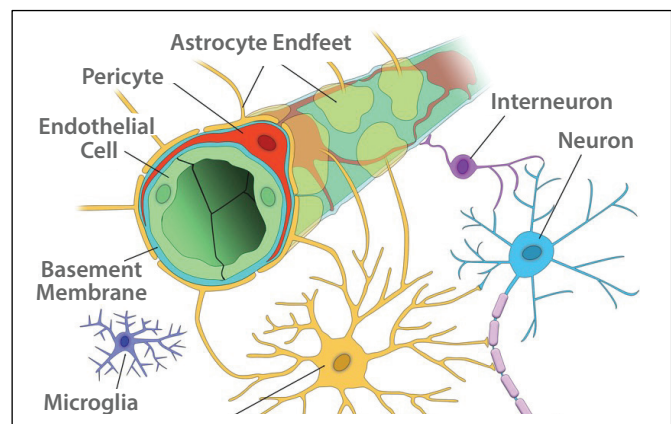
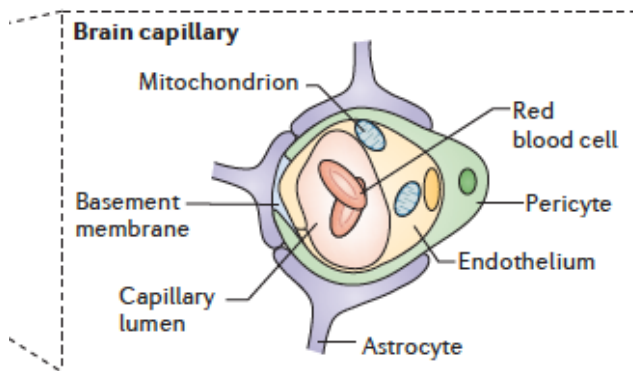
³ <http://faculty.stcc.edu/AandP/AP/AP2pages/Units18to20/vessels/capillar.htm>.

⁴ Drewes, Lester, “**Molecular architecture of the brain microvascular,**” *Journal of Molecular Neuroscience*, Volume 16, 2001, pages 93-99.

⁵ http://www.helsinki.fi/~tjrinne/artikkeleita_neuroI/Zlokovic_Alzheimer_nrn_2011.pdf (Zlokovic, B., “**Neurovascular pathways to neurodegeneration in Alzheimer’s disease and other disorders,**” *Nature Reviews: Neuroscience*, Vol. 12, December 2011, pages 723-738).

**As the American Heart Association makes clear above:
Fully Functional / Unprocessed Parent omega-6 from
plant-based seed oils, "come to the rescue.**

Don't leave Parent omega-3 out because as this medical journal makes clear, Parent Omega-3 is significantly lower (depleted) in patients with dementia.⁶



EZtrek® is specifically designed to nutritionally support an impaired D6D metabolic pathway (incurred in all inflammatory-based diseases). Anti-inflammatory PGE₁ is increased, naturally. The formulation also inherently **optimizes** the epithelial / endothelium tissue, **increases** blood flow, **minimizes** hypoxic (low oxygen) environments, and helps **maximize** mitochondrial (cellular energy producers) functionality.

⁶ Low Plasma N-3 Fatty Acids and Dementia in Older Persons: The InCHIANTI Study, J Gerontol A Biol Sci Med Sci. 2007 October; 62(10): 1120–1126.

Although many researchers and pharmaceutical companies consider Alzheimer's a neurologic condition with beta-amyloid plaque, it is now compellingly clear (See additional important scientific support below) that focusing on cerebral circulation, both macro- and microcirculation, will lead to remarkable insight into Alzheimer's.

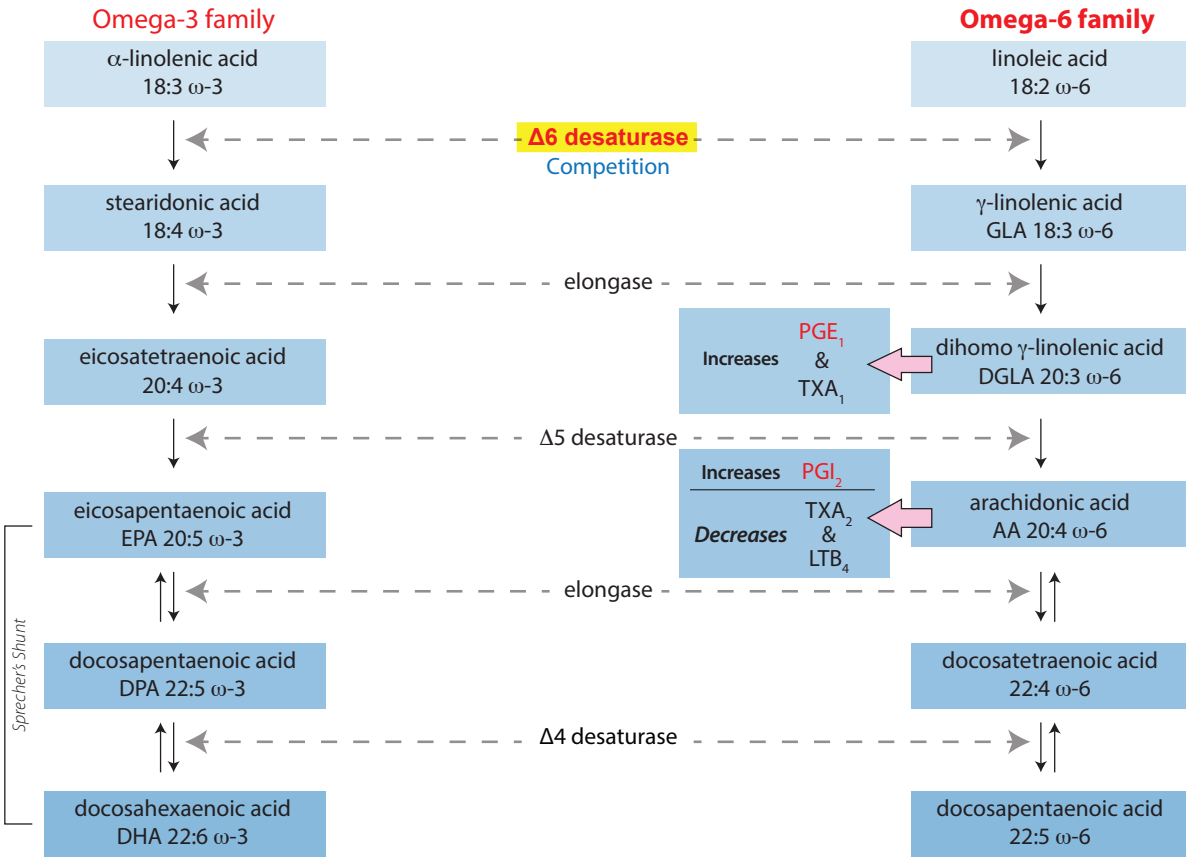
Alzheimer's is now known as a **cardiovascular disease** caused by cellular (inflammatory) impairment in the (at least 40 million) capillaries in the brain (comprised exclusively of Parent omega-6). The following extraordinary medical journal article published in 1990 "hits the nail on the head":⁷

"The findings strongly indicate abnormalities in Δ -6 desaturation. Alteration in PUFA desaturation / elongation processes and resultant membrane abnormalities may play a key role in the pathogenesis of Alzheimer's disease. Membrane phospholipids are not only actual membrane constituents but also **determine membrane function.** ...[T]he **findings strongly indicate abnormalities of Δ -6 desaturase in Alzheimer's disease.** The decrease in 22:6 (n -3) further supports altered Δ -6 desaturase activities. Abnormalities in the destruction / elongation process [**initiating with Δ -6 desaturase**] of PUFA (polyunsaturated fatty acid) and resultant membrane dysfunction **may play a key role** in the pathogenesis of Alzheimer's disease." How right they were.

⁷ Nakada, T, et al., "Membrane fatty acid composition shows a Δ -6 desaturase abnormality in Alzheimer's disease, *NeuroReport* 1, 153-155 (1990).

Eicosanoid Optimization

pg = prostaglandin tx = thromboxane
lt = leukotriene



Lipids are the #1 (Modifiable) Variable in Tissue Composition^{1,2}

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; W. E. M. Lands, et al., "Quantitative effects of dietary polyunsaturated fats on the composition of fatty acids in rat tissues," *Lipids*, vol. 25, no. 9, pp. 505-516, 1990.

2. 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.

Furthermore, as the 2011 *Nature Reviews: Neuroscience* article makes clear:⁵

"Vascular pathology. Patients with Alzheimer's disease or other dementia-causing diseases frequently show focal changes in brain microcirculation."

"...In summary, the evidence clearly indicates that vascular dysfunction is tightly linked to neuronal dysfunction."

There was early support (2000) for the notion that a vascular disease precedes Alzheimer's, but the medical community didn't embrace it.⁸

⁸ de la Torre, J.C. and Stefano, G.B., "Evidence that Alzheimer's disease is a microvascular disorder: the role of constitutive nitric oxide," *Brain Research Reviews*, Vol. 34, Issue 3, 2000, pages 119-136.

“Evidence is fast accumulating which indicates that **Alzheimer’s disease is a vascular disorder with neurodegenerative consequences** rather than a neurodegenerative disorder with vascular consequences.

It TRULY is Cardiovascular-Based

“In a series of **300 autopsy cases** of AD, Kalaria and Ballard reported 98% CAA [cerebral amyloid angiopathy], **100% microvascular degeneration**....

[Note: We propose the amyloid deposition is from the cell membrane degenerating and the amyloid protein spilling out.]

“**Microvascular changes** in the aged brain and in Alzheimer’s Disease induce impairment of cerebral perfusion... **changes in capillaries and basement membranes**, due to deposition of $A\beta$, with breakdown of the BBB [blood brain barrier] and impairment of amyloid clearance.

“The role of vascular pathology as a factor contributing to Alzheimer’s Disease is a topic of current interest. With a wide overlap between both disorders.”

Decreasing inflammation plays a very significant role in optimizing vascular physiology. We are delighted to offer this new underpublicized insight. Now, you can implement appropriate action.