

A New Pathway to Increase Arterial Flexibility: Investigating Oils With Respect To Arterial Flexibility Using Photoplethysmography (The IOWA Study)

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OBJECTIVE: The precursor (PSK002) to an investigational new drug (PSK003) was used in a screening experiment (IOWA) to test the ability of a new botanical lipids-based medicament to reduce arterial stiffness utilizing photoplethysmography. Effects were tested following long-term (48 months, N=34) or short-term (8 months, N=16) exposure and in volunteers previously using fish oil who were converted to the medicament short-term (6 months, N=15).

HYPOTHESIS: Supplementation with the essential fatty acids (EFAs) linoleic acid (LA) and alpha-linolenic acid (ALA) and the LA metabolite gamma-linolenic acid (GLA) will reduce arterial stiffness.

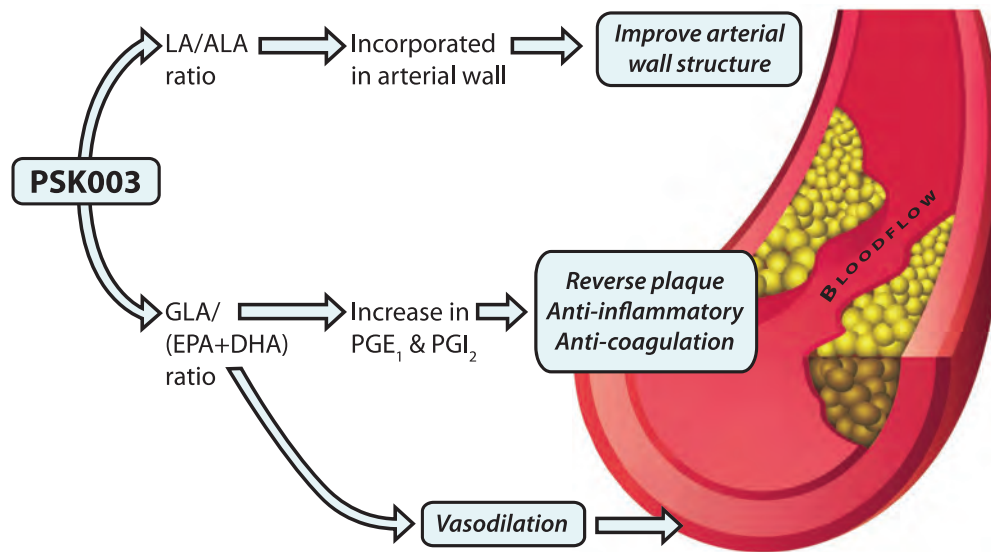


Figure 1. Primary metabolic pathways increasing arterial flexibility

METHODS: Daily dosage was 2,900 mg/day of the PSK002. The effect of treatment on the arterial pressure waveform was measured with photoplethysmography (PPG) with a Meridian® Digital Pulse Analyzer (DPA) focusing on “biological age” derived by the device as a measure of arterial wall stiffness. Error of the mean in “biological age” is stated as ± 5 years. Measurements were taken at a local health store in Des Moines, Iowa.

RESULTS: Change in biological age (mean ± SD) was -7.2±10.2 years (p=0.01) for short-term, -8.8±14.8 years (P=0.0015) for long-term and -11.1±8.4 years (P=0.006) for volunteers who were converted from fish oil.

CONCLUSIONS: The data support the hypothesis that supplementation with the EFAs (LA, ALA) and the LA metabolite (GLA) reduces arterial “biological age.” A randomized, double-blind, placebo-controlled clinical trial utilizing PSK003 and more direct measures of arterial stiffness is warranted.