Reference:

Fish Oil Fatty Acids Improve Postprandial Vascular Reactivity in Healthy Men

Armah et al., Clinical Science (published ahead of print), December (2007)

Hugh Sinclair Unit of Human Nutrition, Department of Food Sciences, University of Reading, Reading, UK.

Summary:

Vascular reactivity refers to the changes in the blood vessels upon stimulation and is associated with activation of the sympathetic nervous system. A decrease of vascular reactivity associated with 'stiffening' of the vessels or vascular dysfunctioning has been found to be predictive of future and serious cardiovascular events.

In the present study, the authors measured vascular functioning of the forearm of 25 male subjects via ultrasound (Doppler imaging) at time zero and after 4 hours after consuming a high-fat meal. Using a single-blinded crossover design, the subjects either consumed a placebo oil (no DHA/EPA present) or fish oil (providing a total amount of DHA/EPA amounting to 5.4 grams-3.24 grams DHA plus 2.16 grams EPA) with the test meal.

Compared to the time zero (baseline) measures, there was a significant increase in the postprandial vascular reactivity (endothelium-independent) in response to stimulation at 4 hours after the test-meal (postprandial) whereas this improvement was not seen in the placebo (control) group. These effects were not expained by any differences in blood triglyceride levels between the two treatments.
The authors also found that blood plasma nitrite levels were elevated in the fish oil group. They suggested that such elevations reflect a greater generation of NO (nitric oxide) in the blood vessels which mediates the improvement in blood vessel functioning in healthy men.

Dr. Holub's Comments:

This study further supports mounting evidence that higher intakes of DHA/EPA from fish/fish oil sources can potentially offer benefit to the risk of serious cardiovascular disease events via mechanisms that are independent of blood lipid-lowering (such as effects that are mediated via the blood vessel wall).

The single intake of DHA/EPA in the present study (5.4 grams) is the equivalent of approximately 3 servings of a fatty fish such as mackerel at a single meal (assuming one serving to be 3.5 oz. or 100 gms.). Thus, future studies will be of interest to see if much lower intakes of DHA/EPA daily over an extended time period may provide similar benefits to stress-induced vascular functioning.