



SOURCE OF OMEGA-3 FOR CARDIOVASCULAR HEALTH

“The nutritional patterns of Paleolithic humans influenced genetic evolution during a period of time when the defining characteristics of contemporary humans were selected. Our genome has changed little since the beginning of agriculture, so, genetically, humans remain Stone Agers – adapted for a Paleolithic dietary regimen.”¹

Until now, studies on Paleolithic humans and modern hunter-gatherer populations suggest that humans evolved on a diet that was very different from today’s typical Western diet. The diet of Paleolithic humans was low in total and saturated fat and rich in long chain omega-3 (ω -3) fatty acids. The level of ω -3 fatty acids in their diet was actually to the level of long chain ω -6 fatty acids, which is one of the most commonly consumed fatty acids in the Western world.^{2,3} The ω -3 fatty acids in the Paleolithic diet was provided from plants and the fat of wild game.³

Technological developments over the last 100 years have contributed to a shift in fat consumption patterns in the West. Specifically, the intakes of (1) trans fatty acids, found mainly in products made with hydrogenated vegetable oils, and (2) ω -6 fatty acids, found in vegetable oils and animal products derived from grain-fed livestock, have increased dramatically over the past century.⁴ The modern diet in the West is very high in saturated fat, ω -6 fatty acids, and low in ω -3 fatty acids.

This imbalance has led some nutrition experts to recommend increasing ω -3 fatty acid intake. ω -3 fatty acids are now known to be essential for infant growth and development and to protect against heart disease, thrombosis, hypertension and inflammatory and autoimmune disorders.³

Is There an Optimal Dietary Ratio of Omega-6 to Omega-3 Fatty Acids?

The current dietary ω -6/ ω -3 ratio ranges from about 10:1 to 25:1, indicating that typical Western diets are low in ω -3 fatty acids compared with the Paleolithic diet on which humans evolved.³ The ω -6/ ω -3 ratio of the Paleolithic diet was much lower at 1:1. At present, Health Canada recommends a ratio of 6:1, particularly for pregnant and lactating women and infants.^{4,5} The FAO/WHO joint committee recommends a ratio of 5:1 and advises individuals consuming diets with a higher ratio, to consume more foods containing ω -3 fatty acids such as green leafy vegetables, legumes and fish and other seafood.⁶ The U.S. Food and Nutrition Board has not specified a dietary recommendation for the ω -6/ ω -3 fatty acid ratio.⁴

What is the n-6/n-3 Fatty Acid Ratio of Salba™?

In Salba™, the ω -3 fatty acid content is 4 times higher than the ω -6 fatty acid content, such that the ω -6/ ω -3 ratio is 0.3:1. By comparison, the ω -6/ ω -3 ratio of corn oil is 82:1;

for soybean oil it is 7:1; and for canola oil it is 1:1. The very high level of α -linolenic ω -3 acid in Salba™ makes it an excellent source of ω -3 fatty acids for individuals in the West.

Is There an Optimal Intake of Omega-3 Fatty Acids in Human Diet?

Based on measurements of ω -3 fatty acids in plasma and erythrocyte lipids, to sustain optimal health, the intake of ω -3 fatty acids has been estimated to be a minimum of 800-1100 mg/d for children and adults. Although this amount seems to be sufficient to sustain living, it is not enough to improve human health. A growing body of evidence indicates that to achieve the health benefits associated with consuming an ω -3 fat, an adult must eat at least 2.2g/2000kcal/day.⁷ The same organization and other health authorities suggest that the ‘cardioprotective’ benefits are more likely to be optimal at an intake of at least 2g/day. It is estimated that the current daily consumption of ω -3 fatty acids in the West is less than this.

Cardio-protective Properties of Omega-3 in Health and Disease of Adults:

Coronary heart disease (CHD) is the most common cause of death in the Western world.⁸ Diet has been implicated in the pathogenesis of this disease.⁹ Of great interest is the role of ω -3 fatty acids in CHD. Numerous population studies have shown that in groups of people who consume high amounts of the ω -3 fatty acid α -linolenic acid (ALA), much fewer CHD events occur than in groups of people who consume low amounts of ω -3 fatty acids.¹⁰⁻¹² In addition, clinical studies have demonstrated that feeding men and women an ALA rich diet versus a typical Western diet reduces the incidence of CHD events by 50-70%.^{13,14} This is direct evidence of the importance of increasing ALA in the Western diet.

These ‘cardio-protective’ properties of ω -3 fatty acids seem to be related to a lower level of atherosclerosis and a reduction in cardiac arrhythmias.¹⁵

Do Infants Require Omega-3 Fatty Acids for Growth and Development?

DHA, which is a type of ω -3 fatty acid, is rapidly incorporated into the lipid of the brain and retina during the last trimester of pregnancy and the first year of life. Preterm infants fed formula rich in DHA, for example, develop visual acuity more rapidly than those fed standard infant formula low in ω -3 LCFAs.^{16,17}

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