

# THE FORGOTTEN OMEGA 3

## KEY HEALTH IMPACT OF ALPHA-LINOLENIC ACID

What has been called the “Lyon Diet Heart Study” published in 1994 [1] has produced impressive results when comparing a “*Mediterranean alpha-linolenic acid-rich diet*” to the “*usual post-infarct prudent diet*” (diet low in saturated fats as control). With more than 600 patients randomly assigned to experimental group or to control group, a follow-up of 27 months has shown 16 cardiac deaths in the control group compared to only 3 in the experimental group [2]. The study initially scheduled for 5 years has been interrupted prematurely for ethical reasons. Strikingly, those great results have generally been related to the Mediterranean diet rather than to alpha-linolenic acid, despite the large confirmation brought by another study published in 2002 by *the Lancet*, called the “Indo-Mediterranean Diet Heart Study” similarly rich in alpha-linolenic acid [3].

However, the attitude towards alpha-linolenic acid has been changing progressively since, as illustrated by a review published on December 2002 in *Lipids*, examining an “*important and often underrated essential fatty acid, alpha-linolenic acid (ALA)*” and suggesting that “*diets containing ALA are associated with reductions in total deaths and sudden cardiac death*” [4]. Since, several studies have been published from 2003 to 2005 by the Boston University School of Medicine related to the “NHLBI Family Heart Study”, successively in the *American Journal of Clinical Nutrition* [5, 6], in *Hypertension* [7] and in *Circulation* [8]. They conclude that dietary ALA might decrease cardiovascular disease risk by a) reducing the plasma concentration in triglycerides [5]; b) decreasing the prevalence odds of carotid plaques [6] as well as calcified atherosclerotic plaques in the coronary arteries [8]; c) lowering systolic blood pressure as well as hypertension prevalence [7].

More recently, such favorable observations have been reproduced with flax seeds, the most concentrated source in ALA once milled and consumed as such or in the oil form [9]. A Japanese team has shown that dietary intake of ALA is inversely associated with serum C-reactive protein levels, a well-known risk factor cardiovascular disease [10]. ALA has even been successfully used to reduce ischemic brain damage in stroke [11]. A study examining cardiovascular risk markers such as LDL-cholesterol and apoB levels among healthy elderly subjects suggests that ALA has a better impact than EPA/DHA [12].

Walter WILLETT and his team from the Harvard School of Public Health concluded in *Circulation* on July 2008 that the “*consumption of vegetable oils rich in alpha-linolenic acid could confer important cardiovascular protection*”, a protective effect that not surprisingly is “*most evident among subjects with low intakes*” [13]. The optimal ALA dietary intake seems to be about 2 grams per day [14], which can be achieved either by a teaspoon of flaxseed oil, a dessertspoon of hempseed oil, a tablespoon of rapeseed oil or of walnut oil. Perilla oil, “Inca inchi” peanut oil and false flax oil represent alternative sources.

Still in 2008, a Polish team supervised by Walter WILLETT has inquired about substantial decrease of coronary heart disease (CHD) mortality occurring in some Eastern countries but not in others [15]. “*These changes were accompanied by major shifts in food consumption, including the type of vegetable oils used by the population. There are two major vegetable oils consumed in Eastern Europe (rapeseed and sunflower) that differ greatly in their content of n-3 fatty acids, specifically ALA*”. Their data have shown that countries which have gone through an increase in ALA consumption through the preference for rapeseed oil (sunflower being virtually void of ALA) have also experienced a substantial decrease in CHD mortality [15].

Our conclusion is inspired from an article published on 2008 entitled “*Update on alpha-linolenic acid*”, which states that “*for many years, the importance of the only member of the omega 3 family considered to be essential, alpha-linolenic acid (ALA), has been overlooked. Current research indicates that ALA, along with its longer chain metabolites, may play an important role in many physiological functions. Potential benefits of ALA include cardio-protective effects, modulation of the inflammatory response, and a positive impact on both central nervous system function and behaviour. Recommended levels for ALA intake have been set, yet the possible advantages of its consumption are just being revealed*” [16].

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