

# Omega-6 PUFAs and risk of cardiovascular disease

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A new Science Advisory report from the American Heart Association recommends that omega-6 polyunsaturated fatty acids (PUFAs), as found in vegetable oils, nuts and seeds, are beneficial when part of a heart-healthy eating plan. Consumers should aim for at least 5-10% of energy (calories) from omega-6 PUFAs, and will derive most benefit when omega-6 PUFAs replace saturated or trans fats in the diet. Precise recommended daily servings will depend on physical activity level, age and gender, but range between 12 and 22 grams per day.

The AHA report also addresses the recent controversy that omega-6 fatty acids, via linoleic acid, which accounts for 85-90% of dietary omega-6, may actually increase inflammation and thereby increase rather than reduce cardiovascular risk. Any link between omega-6 and inflammation, says the AHA, comes from the fact that arachidonic acid, which can be formed from linoleic acid, is involved in the early stages of inflammation, but anti-inflammatory molecules are also formed; these suppress the production of adhesion molecules, chemokines and interleukins, all of which are key mediators of the atherosclerotic process. Thus, concludes the report, it is incorrect to view the omega-6 fatty acids as pro-inflammatory.

The report also reviewed epidemiological data and found that, in randomised controlled trials, those assigned to the higher omega-6 diets had less heart disease. A meta-analysis of several trials indicated that replacing saturated fats with PUFA lowered risk for heart disease events by 24%. Reducing omega-6 intakes, said the report, would be more likely to increase than to decrease the risk of CHD.

Professor Heinz Drexel from the VIVIT Research Institute at Feldkirch, Austria, speaking on behalf of the European Society of Cardiology, adds that the report not only recommends the consumption

of at least 5-10% of energy from omega-6 PUFAs but indicates that intakes higher than 10% of energy appear safe and may even be even beneficial. This latter statement, says Professor Drexel, "is somewhat discordant with earlier recommendations made by other authorities".

Commenting on the report, Professor Drexel adds: "This advisory is a resurrection of older recommendations on omega-6 PUFAs, in particular on linoleic acid. It is based on new ecological, case-control, prospective cohort and randomised controlled studies. Concerns raised in the past decade that omega-6 PUFAs may be pro-inflammatory are dispelled with evidence that omega-6 PUFAs have anti-inflammatory properties at the level of vascular endothelial cells. On balance, the advantages outweigh the disadvantages.

"However, the effects of Omega-6 PUFAs appear weak and require long-term interventions. Many studies in the past were not long enough for a nutritional intervention. Moreover, in the intervention studies other nutrients were changed along with the enrichment of omega-6 PUFAs."

Reference: Harris WS, Mozaffarian D, Rimm E, et al. Omega-6 fatty acids and risk for cardiovascular disease. *Circulation* 2009; DOI: 10.1161/CIRCULATIONAHA.108.191627.

Provided by European Society of Cardiology

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