

DO NUTS REALLY LOWER CHOLESTEROL?

In a previous posting, I wrote about the value of nuts in improving cholesterol levels. We know that high cholesterol is one of the major risk factors for atherosclerosis. In the May 10th edition of *Archives of Internal Medicine* researchers found the eating nuts improves blood lipid levels, which may help stave off heart disease.

In a pooled analysis of 25 intervention trials, eating an average of 67 grams of nuts a day (2.4 ounces) reduced total cholesterol by 5.9% and LDL cholesterol by 7.4% ($P < 0.001$ for both), according to Joan Sabaté, MD, DrPH, of Loma Linda University in California, and colleagues.

In 2003, the FDA allowed a qualified health claim that evidence suggests -- but does not prove -- that eating 1.5 ounces (43 grams) of nuts per day as part of a diet low in saturated fat and cholesterol reduces coronary heart disease risk. The government allows the claim on dietary labeling for specific nuts, including almonds, hazelnuts, pecans, pistachios, walnuts, peanuts, and some pine nuts.

Walnuts and almonds have been most comprehensively studied. Epidemiological studies have linked nut consumption with a reduced risk of coronary heart disease, and many dietary intervention trials have studied the effects of nut consumption on blood lipid levels. Most clinical trials evaluating the impact of nuts on lipid profiles have been small scale (10-49 participants). LDL-C (the bad cholesterol) reduction has been consistently shown in these small-scale studies, typically in the range of 12-13%.

Though less consistent, triglyceride reduction was shown. However, HDL-C (the good cholesterol) generally remained unchanged. One must always remember that these studies are far too small to establish any guidelines and there certainly is not one ounce of level one outcome data regarding the effect on cardiovascular morbidity and mortality.

The American Dietetics Association evidence library concludes, "consumption of 50-113 grams (1/2 cup to 1 cup) of nuts daily with a diet low in saturated fat and cholesterol decreased total cholesterol by 4-21% and LDL-C by 6-29% when weight was not gained.

Although the decrease in LDL cholesterol in the current analysis is modest compared with that seen with statins, "the value of regular nut consumption for coronary heart disease prevention is unlikely due to the blood cholesterol-lowering effect alone," Sabaté and his colleagues wrote. The authors of the current study felt that, "nut consumption exerts beneficial effects by improving endothelial function, lowering oxidative stress, and reducing lipoprotein(a) level." I have previously written about lipoprotein (a). Aside from the fatty acid composition of nuts, other components such as arginine, plant sterols, and phenolic components may play a favorable role in the lowering of lipid levels for those who eat nuts as a regular part of their diet.

In the current study the researchers performed a pooled analysis of raw data from 25 intervention trials conducted in seven countries that included 583 men and women with normolipidemia or hypercholesterolemia. None of the participants was taking lipid-lowering medications. Sample size ranged from 10 to 49.

All of the dietary interventions were exclusively nuts -- mostly almonds and walnuts -- and ranged in duration from three to eight weeks.

Quantities ranged from 23 to 132 grams per day, with a mean of 67 grams.

The interventions resulted in the following mean reductions (with percentage changes), regardless of the type of nut used ($P < 0.001$ for all):

- Total cholesterol: 10.9 mg/dL (5.1%)
- LDL cholesterol: 10.2 mg/dL (7.4%)
- Ratio of LDL to HDL cholesterol: 0.22 (8.3%)
- Ratio of total to HDL cholesterol: 0.24 (5.6%)

Triglycerides were reduced only for individuals with hypertriglyceridemia (baseline level of at least 150 mg/dL). The mean reduction in this group was 20.6 mg/dL (10.2%).

HDL cholesterol concentration was not affected.

Nut consumption improved blood lipid levels in a dose-dependent fashion. For example, if 20% of dietary energy came from nuts, there were 4.5% and 6.5% reductions in total and LDL cholesterol, respectively.

If 10% of dietary energy came from nuts, the reductions were 2.8% and 4.2%, respectively.

At the amount included in the FDA-approved claim statement -- about 43 grams per day - - the reductions were 3.2% for total and 4.9% for LDL cholesterol.

The lipid-lowering effects of nuts were magnified among individuals with higher baseline LDL levels, those with a lower body mass index, and those consuming a Western diet high in total and saturated fat (versus a Mediterranean diet high in total fat but low in saturated fat).

Despite the value of nuts in lipid lowering, one must remember that a diet rich in nuts is a heavy caloric load and may lead to weight gain