

Pecans Protect Against Unhealthy Oxidation

Loma Linda, CA — New research from Loma Linda University (LLU) shows that adding just a handful of pecans to your diet each day may inhibit unwanted oxidation of blood lipids, thus helping reduce the risk of heart disease. Researchers suggest that this positive effect was in part due to the pecan's significant content of vitamin E.

"Plant foods, including pecans, are rich sources of phytochemicals that can have a unique effect on the body," says LLU researcher Ella Haddad, DrPH, associate professor, department of nutrition, School of Public Health.

Pecans contain different forms of vitamin E — known as tocopherols — which protects fats from oxidation. Pecans are especially rich in one form of vitamin E — gamma tocopherol.

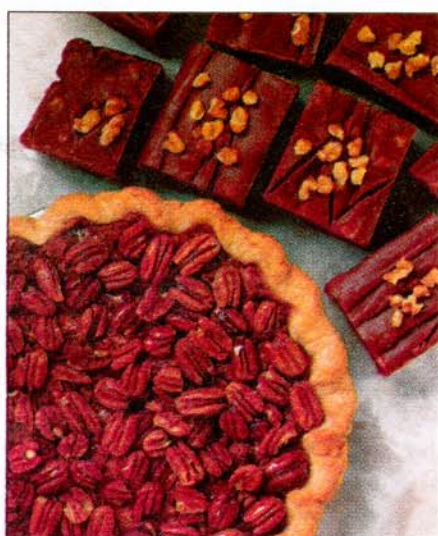
"We found that eating pecans increased levels of gamma tocopherol concentrations in the blood and subsequently reduced a marker of lipid oxidation," adds Dr. Haddad.

Oxidation of fats in the blood — a process akin to rusting — is detrimental to health. When the "bad" cholesterol becomes oxidized, it is more likely to build up and result in arteriosclerosis.

These latest research findings on pecan's healthfulness were published in the recently released August issue of Nutrition Research. They are from the second phase of a research project designed to evaluate the health benefits of pecans, according to Dr. Haddad. She analyzed blood samples from study participants (a total of 23 men and women between the ages of 25 and 55) who ate two diets: one that contained pecans and one that did not.

Participants were randomly placed on either the American Heart Association's Step I diet or a pecan-enriched version of the Step I diet. (The pecan-enriched diet was similar to the Step I diet but replaced 20 percent of calories with pecans). After four weeks on one diet, they then switched to the other diet.

In the laboratory analysis of blood samples from the research subjects, Dr. Haddad's team found that the pecan-enriched diets significantly reduced lipid oxidation (by 7.4 percent) versus the Step I diet. Oxidation levels were evaluated using the TBARS test, which measures oxidation products. The researchers also found that blood levels of tocopherols were higher after participants were on the pecan diet. Cholesterol-adjusted plasma gamma-tocopherol in the study participants' blood samples increased by 10.1 percent ($P < .001$) after eating the pecan diet. The researchers concluded that these data provide some evidence for



potential protective effects of pecan consumption in healthy individuals.

Another key research finding, beyond the reduced level of blood lipid oxidation, was that the various phytochemicals found in pecans seem to be protective of the pecan's high levels of unsaturated fat. All unsaturated fats in foods can be prone to oxidation themselves (which some may describe in foods as rancidity).

So, did eating pecans lead to an increased risk of oxidation? No, according to this analysis, which found that pecans, while high in unsaturated fat, are "self-protective" due to their vitamin E content (tocopherols) and relatively high content of complex phytonutrients, some of which have been identified as proanthocyanidins, or condensed tannins, which are recognized for their ability to slow the oxidation process.

"We concluded that even though the pecan diet was high in unsaturated fats, which one may think would increase blood oxidation, that did not happen. We found the opposite result: the pecan diet showed reduced oxidation of blood lipids," states Dr. Haddad.

The dramatic initial research findings from this research project were published earlier in The Journal of Nutrition by LLU's Joan Sabate, MD, DrPH, professor and chair, department of nutrition, School of Public Health. He found that the pecan-enriched diet lowered levels of LDL cholesterol by 16.5 percent — more than twice as much as the Step I diet. Similarly, the pecan-enriched diet lowered total cholesterol levels by 11.3 percent (also twice as much as the Step I diet).

Loma Linda University is a health-sciences university with more than 3,000 students in seven schools — Allied Health, Dentistry, Medicine, Nursing, Pharmacy, Public Health and Science and Technology. The university also includes a Faculty of Graduate Studies and a Faculty of Religion. The campus is located about 60 miles east of Los Angeles.

