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Abstracts Issue



WORLD HEART
FEDERATION*

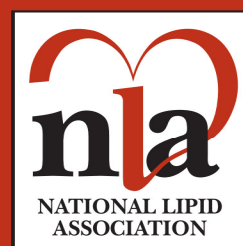


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HOW MUCH AND WHAT TYPE OF FAT IS OPTIMAL TO PREVENT CORONARY HEART DISEASE AND DIABETES*Frank M. Sacks. Harvard School of Public Health, Boston, MA, USA.*

Dietary approaches that use a low-fat, high-carbohydrate diet can be improved by replacing some of the carbohydrate with unsaturated fat and protein. Polyunsaturated fatty acids, especially omega-6, lower LDL cholesterol, and compared to carbohydrate raise HDL cholesterol. Monounsaturated fatty acids also raise HDL cholesterol. Several studies demonstrated that dietary approaches that emphasize unsaturated fat reduce blood pressure, and lower diurnal blood glucose and insulin responses. The DASH and OmniHeart trials demonstrate the substantial benefits to cardiovascular risk factors of healthy dietary approaches. The DASH diet, high in vegetables, nuts, fruits, and low-fat dairy products, and low in meats and sugar-containing beverages and desserts, reduces blood pressure and LDL cholesterol. Blood pressure responses are superior to drug regimens. However, the DASH diet has a low fat content, 27% and high carbohydrate content, 58%; and it lowers HDL cholesterol and does not reduce triglycerides. The OmniHeart study found that a lower carbohydrate version of the DASH diet that emphasized protein or unsaturated fat further reduced blood pressure and LDL cholesterol, and lowered triglycerides. Replacing carbohydrate with protein had a superior effect on triglycerides compared to unsaturated fat or carbohydrate, but protein reduced HDL cholesterol. Estimated risk reduction was 20% with the carbohydrate rich diet and 30% with the protein or unsaturated fat diet. Finally, in addition to benefits on risk factors for cardiovascular disease, several classic trials show that higher polyunsaturated fat diets, compared to traditional western diets, prevented cardiovascular events.

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CIGARETTE SMOKE AFFECTS PLASMA FATTY ACID LEVELS: AN IN VIVO STUDY*P. Risè, S. Ghezzi, S. Mattavelli, C. Manzoni, D. Baldassarre, D. Caruso, C. Galli. University of Milan, Milan, Italy.*

Cigarette smoke (CS) contains thousand of compounds, mainly free radicals, that affect polyunsaturated fatty acids (PUFA) levels. In vitro, in different cell lines, CS inhibits the conversion of n-3 and n-6 fatty acids (FA) to their longer and more unsaturated derivatives. In vivo studies on the effects of CS on PUFA metabolism are scarce.

Objective: to compare the FA profile in smoking (S) vs non smoking persons (NS). **Methods:** 12 S and 12 NS hyperlipidemic subjects were selected. FA in total lipids (TL), phospholipids (PL), triglycerides (TG) and cholesterol esters (CE) were analyzed by GC. **Results:** TG, LDL, HDL, glycemia, BMI and age are similar in the two groups. Although S show lower total cholesterol (TC) levels, their plasma oxysterols are higher (+53%) vs NS. In TL, S present higher levels of saturated (SFA) and monounsaturated FA (MUFA) vs NS. On the contrary PUFA are decreased: linoleic acid (LA, 18:2 n-3), arachidonic acid (AA, 20:4 n-6) and docosahexaenoic acid (DHA) are reduced in S than in NS. In addition, S present lower levels of PUFA in PL, TG and CE and higher levels of MUFA and SFA in PL and CE. The ANOVA linear regression shows, in TL, positive correlation between LA levels and TC, LDL only in NS. The correlation found in S is positive between 18:0 and TC, LDL, HDL; between SFA and TG; negative correlation between DHA and TC, EPA, DHA and TG. The relationship between FA levels and cigarette number or years of smoking were also investigated.

Conclusions: Cigarette smoke significantly affects FA composition in TL, PL, TG and CE; S show decreased levels of PUFA and increased levels of SFA in relation to the number of years of smoking, while no correlation was seen between FA levels and number of cigarettes per day.

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