

SERUM FATTY ACID COMPOSITION OF LIPID FRACTIONS IN A FEEDING STUDY WITH NUTS: IDENTIFYING A BIOMARKER. P. Jambazian, T. Myint, S. Rajaram, J. Sabate.

Metabolic feeding studies are necessary to investigate the effect of foods and nutrients in physiological systems. Dietary compliance in feeding studies and biological markers by which to assess compliance are needed to assure valid results. The serum concentration of fatty acids in lipid fractions (phospholipids, cholesterol esters, and triglycerides) may aid in the determination of dietary compliance and biological markers of fatty food and oils. Pecans are high in fat with 66% MUFA, 26% PUFA, 8% SFA and a PUFA/SFA ratio of 1.1. This study investigated the effects of a pecan rich diet on serum lipids and lipoproteins in 22 healthy volunteers. The subjects received a NCEP Step 1 diet and a pecan diet for four weeks each, in crossover design. Serum concentrations of fatty acids in lipid fractions were determined at the end of each diet period.

Fatty acids*	NCEP Step 1	Pecan	Difference	p value
C16:0	342.6±77.2	316.8±64.3	-28.3	0.02
C18:1 n-9	109.9±74.0	101.0±23.0	-10.5	0.51
C18:2 n-6	281.4±47.1	286.3±47.8	4.3	0.63
C18:3 n-3	3.1±2.1	2.0±0.7	-1.1	0.01
C16:0/C18:1	3.1±1.0	3.1±2.8	-0.39	0.03
C18:2 / C18:1	2.56±0.6	2.8±2.1	-0.02	0.90
SFA/PUFA	1.8±0.4	1.7±0.2	-0.09	0.27

* mg/dl, Mean ± SD

There was a significant decline in SFA, -linolenic acid and ratio of SFA/MUFA in serum phospholipids during the pecan diet compared to the Step 1 diet. Assessment of the fatty acid composition of cholesterol ester and triglyceride fractions are in progress and may be useful to assess compliance and to serve as biological markers for intake of fatty foods such as nuts.

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