Analysis of the Phospholipid Makeup of Study Participants as a Biomarker of the Intake of Bioactive Fatty Acids Derived from Whole-Milk Yogurt

Authors: Haq, H., Walsh, H., Kien, C.L., and Kraft, J.

Abstract

The primary objective of this double blind, randomized, crossover, human intervention study is to investigate the impact of the bioactive fatty acids in milk on insulin sensitivity and glucose tolerance, two factors associated with type 2 diabetes. Secondary objectives are to explore the effects of the bioactive fatty acids in milk on blood lipids, gut microbiota, and inflammation markers. We hypothesize that the certain bioactive components in whole milk, namely fatty acids with biological activities, will be beneficial. To test our hypotheses, participants are given a baseline diet and two experimental diets. The fatty acid profile of plasma total lipids and phospholipids will be determined. Total plasma lipids, which are mainly derived from triacylglycerols, reflect dietary intake and thus, compliance with the diets. The fatty acid profile of serum phospholipids is of interest because it reflects tissue levels. I hypothesized that the fatty acids from the diets will be incorporated into the phospholipid membranes of the research subjects and the fatty acid composition of the plasma total lipids and phospholipids after the baseline diet will differ from that of each of the experimental diets. The difference in the phospholipid makeup will support any claims about attributing various health markers to the bioactive fatty acids in the milk. The results of this project may change the way we view whole milk and high fat dairy products, which have been criticized for their relatively high content of saturated fatty acids.