FATTY ACID EXPERT ROUNDTABLE

Key statements about fatty acids

FATTY ACID EXPERT ROUNDTABLE OVERVIEW OF DISCUSSION AND KEY FINDINGS

A multidisciplinary panel of nutrition and clinical experts convened in late 2008 to review the science around possible trans fat replacement options and discuss the implications for food manufacturers as they discern which options will be superior for human health. Participants included:

- **George Blackburn, MD** – Associate Professor of Surgery and Nutrition, Associate Director of the Division of Nutrition, and first incumbent of the S. Daniel Abraham chair in Nutrition Medicine at Harvard Medical School
- **Margo Denke, MD** – formerly of University of Texas Southwestern Medical Center, Center for Human Nutrition; panel member on the National Cholesterol Education Program Expert Panel on Detection, Evaluation and Treatment of High Blood Cholesterol in Adults convened by the National Heart, Lung and Blood Institute
- **Richard Feinman, PhD** of the State University of New York Downstate; director of the Nutrition & Metabolism Society and co-editor in chief of the Open Access online journal, Nutrition & Metabolism
- **Christopher Gardner, PhD** – associate research professor in the Department of Medicine at Stanford University and faculty in the Stanford Prevention Research Center
- **KC Hayes, DVM, PhD** – professor of biology (nutrition) and director of Foster Biomedical Research Laboratory and Animal Resources at Brandeis University
- **Michael McBurney, PhD, FACN** – formerly from Texas A&M's department of nutrition and food science and Kellogg Company
- **Jeff Volek, PhD** – associate professor in the Department of Kinesiology with an adjunct appointment in the Nutritional Sciences at the University of Connecticut

BACKGROUND

Public health officials and policy makers are recommending that trans fatty acids to be eliminated from the American diet, because it is known to increase LDL cholesterol (the bad cholesterol) and decrease HDL (the good cholesterol). The problem is that food formulators don't know what the right option is. Efforts to reduce or eliminate trans fatty acids in baked goods forces manufacturers to make one of several changes in food manufacturing:

1. Substituting saturated fat such as palm oil for trans fat
2. Substituting interesterified fat for trans fat
3. Substituting carbohydrate for trans fat

While manufacturers work to retain certain product qualities, every fatty acid option adds a level of complexity to "improving" our manufactured food supply. Identifying a fat that has the desirable functionality, taste and shelf life similar to a hydrogenated fat and is healthier presents a challenge for food manufacturers. Where feasible it is recommended that a monounsaturated fat or polyunsaturated fat be used, but solid fats (saturated fatty acids) in many cases are more adaptable to baked food preparation. The overall public health goal in regard to trans fatty acids is to prevent adverse health effects associated with exposure to them.

Key Consensus Statements

- Where possible, the selection of oils or fats to replace trans fatty acids should favor polyunsaturated or monounsaturated fatty acids.
- Where a solid fat is required for product taste and functionality, the only saturated fatty options currently available to replace trans fatty acids are palm oil or interesterified stearic acid.
- Replacing trans fats with either palmitic acid or interesterified stearic acid is expected to reduce cardiovascular risk factors.
- How future changes, including the introduction of fats from genetically modified crops and the availability of interesterified diets richer in stearic acid, will alter fatty acid consumption of consumers, and hence, cardiovascular risk, remains unclear.
- Consumption of a variety of fats—including polyunsaturated (both omega-3 and omega-6), monounsaturated, and saturated fatty acids—is preferable to over-reliance on any one fatty acid.
- A one-to-one exchange of saturated fatty acids for trans fatty acids is expected to raise the former to a level consistent with reduced cardiovascular risk (assuming no other shift in macronutrient composition or total amount of fats in the average diet).
- Before any policies are made related to trans fatty acids and potential replacement fats, further interventional and observational studies should be completed to fully understand the tradeoffs inherent in the solution.