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Professional Profile

Ms. Murphy, a registered dietitian with over 20 years of experience as a consultant in the areas of dietary intake assessments, evaluation of the safety and efficacy of food ingredients and dietary supplements, and critical reviews of nutrition science information. She analyzes national dietary data to identify food consumption patterns, assess nutrient intake adequacy and diet quality, examine relationships between food and nutrient intakes and health measures, and model the nutritional impact of various fortification scenarios or other potential modifications to the diet.

Ms. Murphy has designed and completed numerous dietary exposure assessments using nationwide food consumption data from the United States such as the National Health and Nutrition Examination Survey (NHANES) data as well as other nationally representative datasets including data for the United Kingdom, Brazil, and China; for some analyses Ms. Murphy has developed custom databases of food constituents. Findings from these analyses have been published in the peer-reviewed literature and have been used to support product development efforts, marketing initiatives, product registration, and proposed changes in food labeling and dietary guidance.

Ms. Murphy also has extensive experience in evaluating the safety and efficacy of novel ingredients added to foods, medical foods, infant formula, and dietary supplements. Ms. Murphy has developed GRAS dossiers and other safety assessments for food additives such as prebiotics, phytonutrients, fatty acids, and proteins, and has convened Expert Review panels. Ms. Murphy has developed claims substantiation dossiers for structure-function claims on foods and dietary supplements. Ms. Murphy also has conducted numerous critical reviews on a variety of nutrition topics, including systematic reviews and meta-analyses; these reviews have been summarized as white papers, peer-reviewed papers, and components of regulatory submissions.

Academic Credentials & Professional Honors

M.S., Nutrition, University of Minnesota, 1997

B.A., Physics, College of St. Benedict, 1989

Professional Affiliations

Academy of Nutrition and Dietetics (member)

Institute of Food Technologists (professional member)

American Society for Nutrition (member)

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Publications

Scrafford CG, Bi X, Multani JK, Murphy MM, Schmier JK, Barraj LM. Health Care Costs and Savings Associated with Increased Dairy Consumption among Adults in the United States. Nutrients 2020, 12(1), 233; https://doi.org/10.3390/nu12010233.

Barraj LM, Bi X, Murphy MM, Scrafford CG, Tran NL. Comparisons of Nutrient Intakes and Diet Quality among Water-Based Beverage Consumers. Nutrients. 2019 Feb 1;11(2). pii: E314.

Scrafford CG, Bi X, Multani JK, Murphy MM, Schmier JK, Barraj LM. Health Economic Evaluation Modeling Shows Potential Health Care Cost Savings with Increased Conformance with Healthy Dietary Patterns among Adults in the United States. J Acad Nutr Diet. 2019 Apr;119(4):599-616.

Murphy MM, Barrett EC, Bresnahan KA, Barraj LM. 100 % Fruit juice and measures of glucose control and insulin sensitivity: a systematic review and meta-analysis of randomised controlled trials. J Nutr Sci. 2017 Dec 15;6:e59.

Barraj L, Murphy M, Tran N, Petersen B. Chemistry, manufacturing and exposure assessments to support generally recognized as safe (GRAS) determinations. Regul Toxicol Pharmacol. 2016 Aug;79 Suppl 2:S99-S104.

Murphy MM, Barraj LM, Toth LD, Harkness LS, Bolster DR. Daily intake of dairy products in Brazil and contributions to nutrient intakes: a cross-sectional study. Public Health Nutrition 2015; 19:1-8.

Duyff RL, Birch LL, Byrd-Bredbenner C, Johnson SL, Mattes RD, Murphy MM, Nicklas TA, Rollins BY, Wansink B. Candy consumption patterns, effects on health, and behavioral strategies to promote moderation: summary report of a roundtable discussion. Advances in Nutrition 2015; 6(1):139S-146S.

Murphy MM, Stettler N, Smith KM, Reiss R. Associations of consumption of fruits and vegetables during pregnancy with infant birth weight or small for gestational age births: a systematic review of the literature. International Journal of Women's Health 2014; 6:899-912.

Murphy MM, Barraj LM, Spungen JH, Herman DR, Randolph RK. Global assessment of select phytonutrient intakes by level of fruit and vegetable consumption. British Journal of Nutrition 2014; 112(6):1004-1018.

Murphy MM, Barraj LM, Rampersaud GC. Consumption of grapefruit is associated with higher nutrient intakes and diet quality among adults, and more favorable anthropometrics in women, NHANES 2003-2008. Food and Nutrition Research 2014; 58.

Dwyer JT, Woteki C, Bailey R, Britten P, Carriquiry A, Gaine PC, Miller D, Moshfegh A, Murphy MM, Smith Edge M. Fortification: new findings and implications. Nutrition Reviews 2014; 72(2):127-141.

Barraj LM, Murphy MM, Heshka S, Katz DL. Greater weight loss among men participating in a commercial weight loss program: a pooled analysis of 2 randomized controlled trials. Nutrition Research 2014; 34(2):174-177.

Murphy MM, Spungen JH, Barraj LM, Bailey RL, Dwyer JT. Revising the daily values may affect food fortification and in turn nutrient intake adequacy. Journal of Nutrition 2013; 143(12):1999-2006.

Stettler N, Murphy MM, Barraj LM, Smith KM, Ahima RS. Systematic review of clinical studies related to pork intake and metabolic syndrome or its components. Diabetes, Metabolic Syndrome, and Obesity: Targets and Therapy 2013; 6:347-357.

Murphy MM, Barraj LM, Bi X, Stettler N. Body weight status and cardiovascular risk factors in adults by frequency of candy consumption. Nutrition Journal 2013; 12:53.

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Murphy MM, Barraj LM, Herman D, Bi X, Cheatham R, Randolph RK. Phytonutrient intake by adults in the United States in relation to fruit and vegetable consumption. Journal of the Academy of Nutrition and Dietetics 2012; 112:222-229.

Murphy MM, Spungen JH, Bi X, Barraj LM. Fresh and fresh lean pork are substantial sources of key nutrients when these products are consumed by adults in the United States. Nutrition Research 2011; 31(10):776-783.

Tran NL, Barraj LM, Murphy MM, Bi X. Dietary acrylamide exposure and hemoglobin adducts--National Health and Nutrition Examination Survey (2003-04). Food and Chemical Toxicology 2010; 48(11):3098-3108.

Murphy MM, Douglass JS, Johnson RK, Spence LA. Drinking flavored or plain milk is positively associated with nutrient intake and is not associated with adverse effects on weight status in U.S. children and adolescents. Journal of the American Dietetic Association 2008; 108(4):631-639.

Murphy MM, Douglass JS, Birkett A. Resistant starch intakes in the United States. Journal of the American Dietetic Association 2008; 108(1):67-78.

Moore CE, Murphy MM, Holick MF. Vitamin D intakes by children and adults in the United States differ among ethnic groups. Journal of Nutrition 2005; 135(10):2478-2485.

Moore C, Murphy MM, Keast DR, Holick MF. Vitamin D intake in the United States. Journal of the American Dietetic Association 2004; 104(6):980-983.

Berner TO, Murphy MM, Slesinski R. Determining the safety of chromium tripicolinate for addition to foods as a nutrient supplement. Food and Chemical Toxicology 2004; 42(6):1029-1042.

Taylor S, Brock J, Kruger C, Berner T, Murphy M. Safety determination for the use of bovine milk-derived lactoferrin as a component of an antimicrobial beef carcass spray. Regulatory Toxicology and Pharmacology 2004; 39(1):12-24.

Kruger CL, Murphy M, DeFreitas Z, Pfannkuch F, Heimbach JT. An innovative approach to the determination of safety for a dietary ingredient derived from a new source: Case study using a crystalline lutein product. Food and Chemical Toxicology 2002; 40(11):1535-1549.

Amann MM, Kullen MJ, Martini MC, Busta FF, Brady LJ. Consumption of exogenous bifidobacteria does not alter fecal bifidobacteria and breath hydrogen excretion in humans. Journal of Nutrition 1998; 128(6):996-1002.

Kullen MJ, Amann MM, O'Shaughnessy MJ, O'Sullivan DJ, Busta FF, Brady LJ. Differentiation of ingested and endogenous bifidobacteria by DNA fingerprinting demonstrates the survival of an unmodified strain in the gastrointestinal tract of humans. Journal of Nutrition 1997; 127(1):89-94.

Presentations

Murphy MM. Development of a database of intrinsic, fortification, and enrichment nutrient levels in foods reported consumed in WWEIA, NHANES. 39th National Nutrient Database Conference, Alexandria, VA, May 16, 2016.

Murphy MM, Barraj LM. Consumption of Candy in the United States. National Confectioners Association Roundtable, San Diego, CA, April 25, 2014.

Murphy MM. Pork nutrition and trend watch. National Pork Board, Minneapolis, MN, October 16, 2012.

Murphy MM, Spungen J, Barraj L. Modeling project: How changes to the Daily Value would impact nutrient intake and adequacy. ILSI North America Workshop, Washington, DC, June 21, 2012.

Murphy MM. Think about your drink: an update on the science. New Jersey Dietetic Association 80th Annual Meeting, East Brunswick, NJ, May 4, 2012.

Murphy MM. Thinking about drinks for children and adolescents. Marywood University Conference for Nutrition and Dietetics Study, Scranton, PA, April 12, 2012.

Murphy MM. Nutritional contributions of fresh and fresh lean pork to the diets of adults. National Pork Board, Dallas, TX, February 9, 2012.

Murphy MM. Consumption-related data sources for exposure assessments. Center for Food Safety and Nutrition, U.S. Food and Drug Administration, College Park, MD, October 19, 2010.

Murphy MM. Sarcopenia and healthy aging. US Dairy Export Council and Dairy Management, Inc., Arlington, VA, January 28, 2010.

Murphy MM. The role of flavored milk in building healthy diets among children. American Dietetic Association Nutrition News Forecast 2008 Meeting, Sanibel, FL, May 17, 2008.

Murphy MM. Using USDA survey-related data to address food industry issues. Beltsville Human Nutrition Research Center, U.S. Department of Agriculture, Beltsville, MD, March 4, 2008.

Murphy MM. Functional foods and dietary supplement ingredients. 50th Annual FDLI and FDA Education Conference, Bethesda, MD, April 13, 2007.

Murphy MM. Nutrigenomics and population variability. American College of Toxicology Annual Meeting, Palm Springs, CA, November 8, 2006.

Murphy M. Trans Fat Labeling Requirements in the United States. American Chemical Society 231st Spring National Meeting, Atlanta, GA, March 28, 2006.

Yates AA, Murphy MM. National nutrition monitoring. USDA National Obesity Prevention Conference, Bethesda, MD, October 26, 2004.

Murphy MM. Estimating exposure to lactoferrin from dietary sources. Institute of Food Technologists Annual Meeting, Las Vegas, NV, July 15, 2004.

Douglass JS, Murphy MM. Assessment of exposure and risk related to dietary supplement use. Society for Risk Analysis Annual Meeting, Baltimore, MD, 2003.

Murphy MM. GRAS determinations for functional food ingredients. Worldnutra Annual Conference, San Diego, CA, November 18, 2002.

Book Chapters

Douglass JS, Amann MM. Chocolate consumption patterns. In: Health and Nutritional Properties of Cocoa and Chocolate. Knight I (ed), Blackwell Science Inc., 1999.

Murphy MM, Schmier JK. Cardiovascular Healthcare Cost Savings Associated with Increased Whole Grains Consumption among Adults in the United States. Nutrients. 2020 Aug 3;12(8):2323. doi: 10.3390/nu12082323.

Murphy MM, Barraj LM, Brisbois TD, Duncan AM. Frequency of fruit juice consumption and association with nutrient intakes among Canadians. Nutr Health. 2020 Dec;26(4):277-283. doi:

10.1177/0260106020944299.

Murphy MM, Higgins KA, Bi X, Barraj LM. Adequacy and Sources of Protein Intake among Pregnant Women in the United States, NHANES 2003-2012. Nutrients. 2021 Feb 28;13(3):795. doi: 10.3390/nu13030795.

Murphy MM, Scrafford CG, Barraj LM, Bi X, Higgins KA, Jaykus LA, Tran NL. Potassium chloride-based replacers: modeling effects on sodium and potassium intakes of the US population with cross-sectional data from NHANES 2015-2016 and 2009-2010. Am J Clin Nutr. 2021 Jul 1;114(1):220-230. doi: 10.1093/ajcn/nqab020.

Murphy MM, Barraj LM, Higgins KA. Healthy U.S.-style dietary patterns can be modified to provide increased energy from protein. Nutr J. 2022 Jun 18;21(1):39. doi: 10.1186/s12937-022-00794-w.

Higgins KA, Bi X, Davis BJ, Barraj LM, Scrafford CG, Murphy MM. Adequacy of total usual micronutrient intakes among pregnant women in the United States by level of dairy consumption, NHANES 2003-2016. Nutr Health. 2022 Dec;28(4):621-631. doi: 10.1177/02601060211072325.

Project Experience

Identified sources of fortification in foods reported consumed in NHANES and modeled the impact of proposed revisions to the Daily Values on adequacy of nutrient intake and the potential for excessive nutrient intake assuming that the percent of the Daily Value for select fortification nutrients remained constant across each of four scenarios. Results of this study were published in the peer-reviewed, scientific literature.

In two projects, developed estimates of phytonutrients in the United States and globally using available nutrient composition and food consumption data. Data generated in these projects were published in the peer-reviewed, scientific literature and findings were used in public relations campaigns to raise awareness of phytonutrient intakes.

Compared nutrient intakes and body measures among children and teenagers drinking flavored milk, exclusively plain milk, or no milk. This dietary intake assessment was completed with NHANES data and the results of the study were published in the peer-reviewed, scientific literature.

Developed a database of typical resistant starch concentrations in foods and in combination with food consumption data reported in NHANES, estimated ranges of resistant starch consumed in the U.S. by age and sex, and race/ethnicity. The relative proportions of resistant starch intakes from ten categories of foods were estimated for the total population and by race/ethnicity. Results of this study were published in the peer-reviewed, scientific literature.

Estimated nutrient intakes from beverages in the United States, and also compared intake of selected nutrients among subpopulations by patterns of beverage consumption. The analysis used data reported in NHANES and was limited to a sample population with plausible dietary recalls. A report was developed to accompany the research, and the results were used in a marketing campaign by a trade association.

Modeled the effects of various levels of nutrient fortification on nutrient intakes for several clients. One project involved assessment of nutrient intakes assuming different levels of whole grain substitution for refined grains in a variety of food categories.

Analyzed data detailing food and nutrient intakes by children to help identify patterns of consumption and potential nutrient inadequacies.

Developed exposure assessments for use in safety assessments related to food additives, potential

contamination, and Prop 65 issues.

Completed safety assessments, prepared GRAS dossiers, and facilitated Expert Panel reviews for the use prebiotics in food and infant formula; also developed GRAS dossiers for the use of nutritional substances such as carotenoids, fatty acids, and proteins in foods.

Developed gap assessments to identify data needs necessary to fill prior to development of a GRAS dossier.

Peer Reviews

The Journal of Nutrition

Journal of the Academy of Nutrition and Dietetics

Journal of the American Dietetic Association

British Journal of Nutrition

Public Health Nutrition

Journal of the American College of Nutrition

Journal of Nutrition in Gerontology and Geriatrics

United States Department of Agriculture, Agricultural Research Service, Food Surveys Research Group