

# Biography of Joanne R Lupton (1944–2020)

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Joanne Reed Lupton was born 28 September, 1944, at Langley Air Force Base in Virginia, and died on 17 June, 2020, in Conroe, Texas. At the time of her death, Joanne was an Emeritus Professor in the Nutrition and Food Science Department at Texas A&M University, College Station. Joanne was considered by everyone who knew her to be a brilliant scientist, a dedicated mentor, and a wonderful friend. She was decorous, had an impeccable character with no affectations, and exhibited unimpeachable rectitude, dignity, and a sense of what is right. Her dedication to her work led her to make significant contributions in the field of nutrition that continue today through the work of all those who benefited from her training and mentoring.

After growing up in Connecticut and on Long Island, Joanne attended Mt. Holyoke College, where she obtained a Bachelor of Arts degree in Philosophy. Upon graduation she worked in a Manhattan public relations firm and reached the position of vice-president before departing for California. She had an interest in nutrition and wanted to know more about the science behind cooking approaches in order to write a healthy option cookbook. To address that interest, she enrolled in California State University, Los Angeles, where she obtained a Master of Science degree in Nutrition. That experience served to ignite her interest in the science of nutrition, which led her to enroll at University of California, Davis, where she obtained a PhD in Nutrition working with Lucien Jacobs in the Gastroenterology Department. In the Jacobs lab, Joanne embarked on her lifelong quest to define the role of dietary fiber in chronic disease prevention. She followed that with a postdoctoral position at the University of California, Davis Medical School before taking her first faculty position.

She joined Texas A&M University as an Assistant Professor of Nutrition in the Animal Science Department in 1984. There she worked tirelessly to develop the Nutrition program and was a leader in the effort to establish a graduate Nutrition degree there. She was the founding chair of the Graduate Faculty of Nutrition established in 1990. The faculty brought together scientists with an interest in training students in nutrition from the colleges of Agriculture and Life Sciences; Education and Human Development; Liberal Arts; Science; Veterinary Medicine; and Medicine.

In 1995, she was appointed as the first William W Allen Endowed Chair in Human Nutrition in recognition of her research into the role of dietary fiber in colon physiology and the prevention of colon carcinogenesis. She was also named a



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Regents Professor and University Faculty Fellow, followed by the recognition of excellence in all aspects of her career with promotion to Distinguished Professor. After retirement in 2014, she was recognized as an Emeritus Faculty member as well.

Joanne's early research career focused on the impact of dietary fiber on the luminal environment and colon cell proliferation (1–3). She started a collaboration with Robert Chapkin soon after he arrived at Texas A&M University that would continue throughout her career, in which they determined the combined impact of type of dietary fiber and dietary lipids on colon carcinogenesis. Their work together explored many mechanisms underlying the changes in colon physiology caused by combinations of dietary fiber and lipids, including changes in metabolism (4), as well as influencing signal transduction pathways and gene expression regulation (5–7). Much of the work done by them and their collaborator Nancy Turner, in the late 1990s and early 2000s, addressed the important effects of dietary inputs on apoptosis regulation (8–11). This work culminated in the discovery that n–3 PUFAs and highly fermentable fiber attenuate mitochondrial antioxidant defenses and promote colonocyte mitochondrial Ca<sup>2+</sup>- and glutathione peroxidase 4 (Gpx4)-dependent ferroptosis, a form of intrinsic programmed cell death (12–17). She extended this work to explore the role of diet on influencing colonocyte responses to DNA damage and altering epigenetic states as mechanisms whereby targeted apoptosis reduced transformation of cells and eventual tumor formation (18–21). The results of these studies helped to translate the current mechanistic knowledge from preclinical animal models to humans in order to inform approaches for colorectal cancer prevention.

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One nontraditional collaboration for Joanne included work done with biostatistician Raymond J Carroll. His research into biostatistical approaches exploring the relation of diet with health outcomes, especially cancer, complemented her research interests. Her research projects were a rich source of data that supported his research goals and allowed him to develop new techniques to deal with measurement error problems encountered in nutritional research, and the interaction of genes and diet. Together, they produced >25 articles in both biological and statistical journals (e.g., 22, 23), which enhanced not only the quality of those publications but also the knowledge in both fields. Importantly, Joanne served as a mentor for postdoctoral biostatisticians being trained in the importance of nutrition in cancer. Those trainees were part of an National Cancer Institute-R25T training grant directed by Raymond Carroll for >15 years. The program was the first one in the nation to pair statisticians with nutritionists so that the trainees could learn some of the basic mechanisms underpinning carcinogenesis, and the role of diet in those processes. Those trainees were instrumental in developing new data analysis approaches, which led them to successful faculty careers at leading academic institutions around the nation.

Joanne was also interested in the translation of research into public policy so as to have a direct impact on people's lives. She chaired the panel that developed a definition for dietary fiber (24, 25), chaired the Macronutrient Panel of the DRI committee in 2000–2003, and was a member of the Dietary Guidelines Committee that developed the 2005 recommendations. She was also chosen to serve as a visiting scholar with the FDA where she was on the Commissioner's Task Force for Better Nutrition. She developed an interest in health claims and how the nutrient information presented on food labels could be best described and displayed for consumers (26, 27). She served as a nutrition advisor for NASA, as well as being selected to serve as the program leader for the Nutrition, Physical Fitness and Rehabilitation core of the NASA/National Space Biomedical Research Institute from 2000 to 2008. These activities led her and Nancy Turner to develop a training program that prepared PhD students pursuing degrees in Nutrition, Kinesiology, Radiation Biology, Genetics, Biomedical Engineering, or Medical Sciences with an interest in space life sciences for careers in that field. Because students received cross-training they were highly qualified to do so and have positions in academic institutions, companies, and with NASA where they work to improve our ability to live and work in space.

The notable influence she had in the nutrition community led to her being invited to give >140 national and international presentations, being appointed to multiple board and institute positions, and elected to serve in several positions for the ASN. The positions included appointment to the Board of Trustees of the International Life Sciences Institute (2004), the Food Advisory Committee of the FDA (2005–2009), the Board of Directors of the Federation of American Societies for Experimental Biology (2007–2009), the National Academies panel on Integrative and Translational Research for Human Systems and the Decadal Survey on Biological and Physical Sciences in Space (2009–2010), the Institute of Medicine, Food and Nutrition Board (2011–2014), and the American Heart Association's Council on Nutrition, Physical Activity and Metabolism, Nutrition Committee (2012–2014). As President-Elect of the American Society for Nutritional Sciences, she served on the transition executive board to form ASN in 2005–2006, and then served ASN as President-Elect (2006–2007),

President (2007–2008), and Past-President (2008–2009), and also served on the ASN Strategic Oversight Committee (2010–2013). She served on multiple NIH review panels, NIH site review panels, a USDA National Needs panel, several USDA review panels, and a NASA international flight project review panel. Her service to the ASN also included time served on the Editorial Board for *The Journal of Nutrition* followed by her service for 2 terms as an Associate Editor for the journal. In addition, she served on the editorial board for *Current Nutrition Reviews* and was an Associate Editor for *Nutrition and Cancer*.

Joanne received many awards and accolades for her research and teaching contributions. She was an excellent instructor and student mentor, which led to her receiving the USDA National Award for Teaching in the Southern Region in 1996 and the American Society for Nutritional Sciences/Dannon Institute Mentorship Award in 2004. She received the Vice Chancellor's Award for Research from Texas A&M University in 1998. Her work was recognized with her appointment as a Lifetime Associate of the National Academy of Sciences in 2002, which was followed by receipt of the FDA Commissioner's Special Citation and Medal for her contributions to the development of an evidence-based system for health claims in 2004. Further recognitions included her being elected to the International Astronautical Congress in 2006, the Institute of Medicine in the National Academies in 2009, and as a Fellow of ASN also in 2009. In 2010, she received the General Mills Bell Institute of Health and Nutrition Innovation Award and the Vahouny Medal for contributions in the field of dietary fiber science. Finally, she received an Honorary Doctor of Science from her alma mater, Mt. Holyoke College, in 2013.

After retiring in 2014, Joanne and her husband Don Clark moved to Lake Conroe, Texas, where they enjoyed activities on the lake and spending time with family and friends. Joanne was not able to bring herself to completely retire, because she took up the challenge of writing a novel. Unfortunately, she did not have time to complete the book because she died after battling an aggressive glioblastoma that was diagnosed earlier in 2020. Fortunately, Joanne's legacy will live on through her many publications (170 in total, 91 with Chapkin and 50 with Turner) and the 56 graduate and postdoctoral students she trained to follow in her footsteps and make a positive impact on nutrition and other fields.

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