

In Balance

THE UNIVERSITY OF TEXAS
MD Anderson
Cancer Center
Making Cancer History®

February 2019

The Center for Energy Balance in Cancer Prevention and Survivorship, of the Duncan Family Institute, facilitates and conducts state-of-the-science research to understand the relationship between activity, nutrition, obesity and cancer, and uses this knowledge to optimize interventions to decrease cancer risk and improve cancer outcomes. The Center sponsors collaborative research, transdisciplinary educational opportunities and seminars to create, produce and disseminate innovative and practice-changing research results.

Center for Energy Balance in Cancer Prevention & Survivorship Energy Balance Special Seminar:



Date: Thursday, February 21, 2019

Title: Sugar and Breast Cancer: What We Have Learned

Location: ACB5. 1281 ab

Time: Noon – 1:00 PM

Presenter: **Peiying Yang, MS, PhD** – Associate Professor in Palliative, Rehabilitation & Integrative Medicine At the University of Texas MD Anderson Cancer Center

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Getting to Know Peiying Yang, MS, PhD

Since joining M.D. Anderson in 1998, Dr. Peiying Yang has been involved in research utilizing her specialized knowledge of traditional Chinese medicine, nutrition and biochemistry. Currently Associate Professor, Department of Palliative, Rehabilitation and Integrative Medicine, she has carved a unique path from her home country of China to Houston and beyond.

Dr. Yang earned her BS and MS in Traditional Chinese Medicine from Beijing University of Traditional Chinese Medicine. Since research opportunities in China were somewhat limited and she wanted to pursue better work opportunities and learn more about nutrition, she emigrated to the United States and earned her doctorate in Nutritional Biochemistry at the University of Maine (Orono). She completed her Postdoctoral Fellowship at M.D. Anderson, and began her professional career as an instructor in the Department of Experimental Therapeutics, where she helped develop new therapies for cancer treatment. She continued to move on to a faculty position in the Departments of Behavioral Science, General Oncology and Cancer Biology, and to get more involved in research has become involved in the University of Texas Graduate School of Biomedical Science, here in Houston. She has served as a Director of R&D and Formulation for a nutritional company in Ogden, Utah, and was a Senior Project Manager of the Pharmaceutical Development Center at M.D. Anderson. Over the years she has served as a consultant to various biotech and medical companies, a board member of Society of Integrative Oncology and American Botanical Council, and has been highly published and recognized for her work and research. While she was working in Experimental Therapeutics with her mentor, Dr. Robert Newman, she began collaborating with Lorenzo Cohen's Integrative Medicine team in early 2000.

While Dr. Yang's lab primarily focuses on the translational research of traditional Chinese medicine and natural products in cancer treatment and prevention, her lab has recently also engaged in studying how sugar impacts tumor development, as "we don't really know the impact of sugar on cancer, and I always wanted to conduct research on how overconsumption of sugar influences human health, such as cancer," she explains. She chose to study sugar and breast cancer, a continuing public health priority. Dr. Yang's team has since investigated the impact of dietary sugar on mammary gland tumor development in multiple mouse models, along with the mechanisms that may be involved. "We found that sucrose intake in mice comparable with levels of Western diets led to increased inflammation, tumor growth and metastasis, when compared with a no-sugar starch diet. Four dietary intervention studies were performed, each indicating both shortened onset on mammary tumors and increased proliferation of mammary carcinoma cells. It also notably increased the lung metastatic potential of mammary carcinoma. Interestingly, sucrose had no effect on body weight, even after seven months of treatment. We also found that in addition to the sucrose-enhanced diet, a fructose-enriched diet and a fructose plus glucose diet also led to larger tumors and greater lung metastasis compared to control diets."

"The molecular mechanisms of the effects of sugar/carbohydrate-enriched diets on breast cancer are still incompletely understood. But this current work provides a promising outcome that for the first time directly links dietary sugar (sucrose/fructose) to breast cancer development and metastasis, which is worthy of further investigation."

Dr. Yang, who is married and has one son, is reflective about the many investigations she has conducted over the years. "I came to the states 28 years ago, and have been fortunate to secure my place in the research community I hoped to find," she admits. Indeed, her work is fortunate for the enormous cancer prevention community, as well.