Simin Liu, MD, PhD.

Dr. Liu's work unites molecular genetics, nutrition, physiology and clinical medicine. His research focus include: 1) investigation of genetic, nutritional, and environmental influences and their interactions as potential determinants for health and chronic diseases; 2) critical and systematic assessment of relative mediating effects of these potential determinants for cardiometabolic disorders and their distributions in diverse populations; 3) application of knowledge to improve understanding of health and diseases for individuals and populations. Currently, Dr. Liu is Professor of Epidemiology at Brown School of Public Health and Professor of Medicine at the Alpert School of Medicine, director for both the laboratory of Molecular Epidemiology and Nutrition and Brown Center for Global Cardiometabolic Health. Dr. Liu has served on committees/study sections for the NIH, the CDC, the WHO and FAO of the United Nations addressing policy issues related to public health and nutrition.

Nutritional strategies to modifying glycemic response for diabetes and cardiovascular risk prevention

Few randomized trials have examined the possible beneficial effects of Magnesium during pregnancy, a unique high-risk period of metabolic derangements for both mother and fetus. To determine metabolic and clinical effects of Magnesium supplementation vs. placebo vs. dietary counseling on overweight and obese (OW/OB) pregnant women, 28 OW/OB pregnant women were randomized into one of three groups: a 300 mg magnesium citrate supplement, an identical appearing placebo, or nutritional counseling on how to increase magnesium intake. Hemoglobin A1C levels at the 2nd trimester (adjusting for the baseline value) were statistically significantly different among groups with lowest HgbA1C levels observed in the dietary counseling group (p=0.03). Subjects enrolled in the dietary counseling arm had a statistically significant increased Magnesium intake (p=0.04). Dietary counseling could be a cost effective way to improve blood sugar levels for these women. However, validation for these findings requires a larger scale trial.

Learning objectives:

1. To reduce the burden of this diabetes and cardiovascular disease, prevention programs must target not only the affected individuals but also families, workplaces, schools, and communities.
2. By incorporating GI values of foods into dietary assessment of GL, significant insights can be gained beyond simply investigating the relation of carbohydrates (compared with fats) with diabetes risk prevention.
3. Despite the growing awareness of the deleterious long-term effects of overweight and obesity and the recognition that optimal nutrition is required for proper weight management to prevent increased cardiovascular risk during pregnancy, little data are currently available on the effects of magnesium-rich low glycemic index food.