

Symposium 2: Nutrition and Chronic Disease – Part B

Novel treatments for obesity

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Background - Excessive fat consumption is commonly believed to cause obesity and, for this reason, conventional approaches to weight loss have focused on decreasing dietary fat. However, the relationship between dietary fat and adiposity has been questioned for several reasons: 1) weight loss on low-fat diets is characteristically modest in nature; 2) prospective epidemiological studies have not consistently found that individuals eating the most fat are heavier than those eating the least fat; and 3) obesity prevalence has risen markedly since the 1970s in the US despite a significant decrease in fat consumption as a percent of total energy. As dietary fat has decreased, carbohydrate consumption has increased in a compensatory fashion, and most of this increase has been in the form of refined starchy food and concentrated sugar that are high in glycemic index (GI) and/or glycemic load (GL).

Review - Physiological studies demonstrate that consumption of high GI/GL meals induce a sequence of hormonal changes that limit availability of metabolic fuels in the post-prandial period and cause overeating. Short-term feeding studies consistently show less satiety or greater voluntary energy intake after consumption of high compared to low GI meals. Several intermediate-term clinical trials found greater weight loss among overweight individuals on low compared to low GI diets. A recent study from our group found significantly greater weight and fat mass decrease among obese adolescents consuming a reduced GL compared to a reduced fat diet for 12 months. Animal studies support a role for GI in body weight regulation. Moreover, GI and GL appear to affect risk for diabetes and heart disease after controlling for body weight.

Conclusions - Reduction in GI/GL comprises a novel and exciting approach to the prevention and treatment of obesity and related complications. A low GI/GL diet may be an ideal compromise between low fat diets at one end of the spectrum, and very low carbohydrate diets at the other. Long-term, large-scale studies of such diets should assume a high public health priority.

References

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