COMMENTS AND RESPONSES

Monounsaturated Fat–Rich Diet Prevents Central Body Fat Distribution and Decreases Postprandial Adiponectin Expression Induced by a Carbohydrate-Rich Diet in Insulin-Resistant Subjects

Response to Paniagua et al.

We were interested in the demonstration by Paniagua et al. (1) that in obese insulin-resistant individuals, high-carbohydrate diets but not high-fat diets (either high monounsaturated [MUFA] or high saturated [SFA]) are associated with some redistribution of fat mass to abdominal rather than peripheral deposits. Their study confirms our earlier findings with high-carbohydrate and high-MUFA diets in people with type 2 diabetes (2,3). However, a similar change in fat distribution was not observed in nondiabetic women given hypocaloric diets (4), suggesting that the phenomenon may be pronounced only in insulin-resistant individuals and/or that, if it derives from increased de novo lipogenesis in the liver (1), it will only occur with a carbohydrate excess not present when calories are strictly limited.

In the study by Paniagua et al. (1), we would also have expected differences in fat deposition between the high-SFA and high-MUFA diets. Stable isotope studies in humans indicate greater oxidation of oleic acid (C18:1) than stearic acid (C18:0), and we have reported higher postprandial fat oxidation after a MUFA-rich rather than an SFA-rich meal. Moreover, in a randomized crossover study in overweight men (28 days in each arm), a high-MUFA, high-polyunsaturated fat (PUFA) diet led to significant fat loss from both trunk and limbs, whereas an isoenergenic high-SFA diet led to fat gain, mainly on the trunk (5). Total fat intake on each diet was equivalent (40% of total energy E). We have hypothesized that unsaturated fats (MUFA and/or PUFA), rather than SFA, are more effective in stimulating peroxisome proliferator–activated receptor-α leading to fat oxidation, with SFA being much more readily diverted to fat storage (5). Our studies and those of Paniagua et al. (1) indicate that further studies with well-controlled diets are needed to better elucidate the effects of both carbohydrates and different types of dietary fat on patterns of fat loss and storage.

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DOI: 10.2337/dc07-1315

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