Dietary Composition and Obesity: Do We Need to Look beyond Dietary Fat?\textsuperscript{1,2}

Susan B. Roberts\textsuperscript{3} and Melvin B. Heyman\textsuperscript{*}

The Jean Mayer U.S. Department of Agriculture Human Nutrition Research Center on Aging at Tufts University, Boston, MA 02111 and *Department of Pediatrics, University of California, San Francisco, CA 94143

The prevalence of obesity is increasing nationally (Kuczmarski et al. 1994) and worldwide (Popkin 1994), but the causes of this problem remain uncertain. At the level of energy intake and energy expenditure, it is clearly the result of a trend toward excess intake relative to expenditure, but the relative roles of overeating and underexpending remain unclear. Concerning energy intake, the dietary factors promoting overeating are the subject of continuing controversy and were examined in the symposium summarized in the following five papers.

As documented by Hill (2000), dietary fat has long been considered the primary dietary determinant of obesity and a logical nutrient to examine for its role in the rising prevalence of obesity for the following reasons: fat is highly calorically dense, extremely palatable and may also be readily stored by the body when consumed in relative excess. However, the reported percentage of dietary energy derived from fat has fallen in recent years as the prevalence of obesity has continued to increase (Willett 1998), suggesting at the least that fat may be only one of several important determinants of overeating. Rolls (2000) emphasized the potential importance of energy density in overeating. High energy density is, of course, one of the important reasons why high fat foods can be consumed in excess, however, many low fat commercial food products now exist that derive a low percentage of energy from fat but are highly calorically dense because of high carbohydrate and low water contents.

Dietary factors that are less frequently examined for their potential role in obesity include fiber, glycemic index and dietary variety. Burton-Freeman (2000) discussed the potential importance of dietary fiber for its effects in mediating satiety and satiation. Ludwig (2000) took on the challenging task of examining glycemic index. Although several popular weight-loss diets are based on the concept that consumption of foods with a low glycemic index prevents hunger, the significance of the role played by the glycemic index in energy regulation remains controversial. Finally, McCrory and Roberts (2000) discussed potential behavioral factors influencing food consumption, including dietary variety within food groups, diet palatability and eating out.

No consensus can yet be reached on the relative importance of these different factors in determining overeating and the rising prevalence of obesity because further research is required. However, it is already clear that overeating can be precipitated by multiple dietary factors, only one of which is fat. The challenge facing research scientists in this area is to determine which dietary factors are quantitatively important, and then develop practical guidelines for incorporating this new knowledge into healthy eating plans for different population groups.

\textbf{LITERATURE CITED}


\textsuperscript{1} Presented at the symposium entitled “Dietary Composition and Obesity: Do We Need to Look Beyond Dietary Fat?” as part of the Experimental Biology 99 meeting held April 17–21 in Washington, DC. This symposium was sponsored by the American Society for Nutritional Sciences and was supported in part by an educational grant from the ILSI Research Foundation. The proceedings of this symposium are published as a supplement to J. Nutr. 130: 267S, 2000.

\textsuperscript{2} Supported in part by National Institutes of Health grants AG12829, DK46124, T32, HD07397, and MH58069, and U.S. Department of Agriculture contracts 53–3K06–5-10.

\textsuperscript{3} To whom correspondence and reprint requests should be addressed.