For much of the last 25 years the focus of nutritional advice has been to reduce total fat intake and consume large amounts of carbohydrate. However, this advice was inconsistent with many lines of evidence indicating that unsaturated fats have beneficial metabolic effects and reduce risk of coronary heart disease. More recent evidence has also shown that the large majority of carbohydrates in current industrial diets, consisting of refined starches and sugar, have adverse metabolic effects and increase risks of obesity, heart disease and type 2 diabetes. Also, red meat consumption is associated with increased risks of diabetes, cardiovascular disease, some cancers, and total mortality, and replacement of red meat with nuts and legumes is strongly associated with lower risk of these outcomes. Thus, in an optimal diet, most calories would come from a balance of whole grains and plant oils, and proteins would be provided by a mix of nuts, beans, fish, eggs, and poultry. Higher intake of fruits and vegetables (not including potatoes) is associated with lower risks of cardiovascular disease, although the benefits for cancer prevention appear to be less than anticipated. A shift from the current US diet to a more optimal way of eating would have a profoundly beneficial effect on health and wellbeing of Americans.