



A TALE OF TWO **PLATES**

Science, Policy, and the Fight
Over National Dietary Guidelines

BY EMILY GROOPMAN



You might think that going through the hot entree line or salad bar at your House Dining Hall is a relatively peaceful affair. However, there is a fierce battle being waged over what you should put on your plate. On one side is the United States Department of Agriculture (USDA), the leading government resource on all matters food-related.

In 2010, the USDA released the newest version of their Dietary Guidelines for Americans, termed “My Plate.” Required by law to be released every five years, the Guidelines aim to improve what America eats by providing specific yet accessible nutritional recommendations, serving as a resource on healthy eating. Yet, for some, including leading professors

at the Harvard School of Public Health (HSPH), My Plate was more like My Mistake. Claiming that the USDA had failed to “give people some of the basic nutrition advice they need to choose a healthy diet,” HSPH presented an alternative Healthy Eating Plate, allegedly based on the “best available science” (1). But what does science in fact say about the issues underlying our national food fight?

FROM PYRAMID TO PLATE: THE NEW USDA GUIDELINES

Having previously confused consumers with squares, wheels, and pyramids, the USDA chose to present the newest Dietary Guidelines using the “more familiar mealtime visual” of a place setting, consisting of a plate, fork, and glass (2, Fig. 1). The plate holds “Fruit,” “Vegetables,” “Grain,” and “Protein,” four of the USDA-designated Five Major Food Groups. Each of these four Food Groups occupies approximately a quarter of the plate, reflecting their recommended portions in a given meal (3, Fig. 1). The glass, filled with “Dairy,” reminds Americans to consume multiple servings of this fifth Major Food Group daily (3,4).

While My Plate tells individuals how to “healthily” structure their meals, much of the USDA’s “Key Messages for Consumers” are consigned to a supplementary information section. Explicit details, such as “Grains” being whole and “Dairy” being skim or low-fat, are unmentioned. Recommendations, including the novel advice to “Eat less,” are absent from the graphic itself as well; Americans interested in knowing how much they should eat must go to the USDA website for further guidance on appropriate intake (5).

THE HARVARD ALTERNATIVE: HSPH HEALTHY EATING PLATE

While designed to accommodate a range of palates, MyPlate proved wholly distasteful to the vocal and influential professors at HSPH. According to Nutrition Department chair Dr. Walter

Willett, the new USDA Dietary Guidelines mixed “science with the influence of powerful agricultural interests,” with recommendations shaped by policy concerns rather than empirical evidence (1). Citing MyPlate’s failure to provide a model of “healthy eating” amidst a “burgeoning obesity epidemic,” Willett and his colleagues presented the public with an alternative. Allegedly, the HSPH Healthy Eating Plate would not only educate individuals about how much of each Food Group should fill their plates, but, through more specific guidelines based on the “best available scientific evidence,” would also enable them to make healthy choices within each Group as well (1, 6).

Despite a similar design, HSPH’s Healthy Eating Plate differs significantly from its USDA peer. Though the two Plates feature a plate and glass, the

“We should not attempt to eat “perfectly,” for the definition of a “perfect” diet will change tomorrow; instead, we should aim to critically evaluate the available evidence, observe how it relates to our own needs, and act accordingly.

HSPH version also includes a glass bottle containing “Healthy Oils,” intended to remind Americans to “enjoy healthy fats,” defined as plant oils such as olive or canola, in their diets (7, Fig. 2). The identities of the Plates’ Five Major Food Groups also differ: while both plates contain similar proportions of Fruits, Vegetables, Grains, and Protein, the Healthy Eating Plate replaces Dairy with Healthy Oils. Consumers are instructed to instead fill their glasses with beverages such as “water, tea, or coffee,” and limit intake of milk, juice, and “sugary drinks” (7, Fig. 2). HSPH also provides more specific guidelines regarding Grains and Protein: by respectively titling these sections “Whole Grains” and “Healthy Protein,” HSPH intends to make consumers choose whole (unrefined) over refined

grains, and poultry, fish, or plant-based proteins over processed meats high in saturated fat (7, Fig. 2).

The Healthy Eating Plate, unlike MyPlate, offers further detail by placing specific guidelines for choices regarding each Food Group adjacent to its sector on the plate: “Vegetables,” for instance, are accompanied by the advice to consume them abundantly, as well as the reminder that “Potatoes and French fries don’t count” (7, 8, Fig. 2). Readers are also reminded to “Stay Active,” a message missing from the USDA Guidelines (8, Fig. 2). According to HSPH, these explicit instructions enable Americans to choose foods that “promote good health” as well as partake of them in the proper proportion, paying off in increased life quality and longevity (7).

MILK: DOES IT REALLY DO A BODY GOOD?

Though differing on many points, the two Plates most conspicuously conflict on a single Food Group: Dairy. The USDA Guidelines advise adults to consume 3 cups of Dairy, defined as 1 cup of milk or yogurt or 1.5-2 ounces of cheese, per day in order to maintain bone mass and prevent osteoporosis (9). Eating Dairy is said to not only promote “improved bone health,” but reduce risk of chronic diseases such as hypertension and type II diabetes as well (4, 10). Such messages unsurprisingly lead to promotion of Dairy consumption for all groups: the lactose-intolerant, for instance, are advised to consume “lactose-reduced or lactose-free” milk, yogurt, and cheese, and/or to take lactase pills (4).

While the USDA mentions non-dairy calcium sources, such as calcium-fortified beverages, soy products, and dark leafy greens, it warns consumers that they contain “variable” amounts of absorbable calcium, and lack the “other nutrients” found in dairy (4). The message is clear: though alternatives exist, Americans, as illustrated in the glass of milk prominently displayed on MyPlate, should be consuming Dairy with each meal.

For HSPH, however, dairy has many

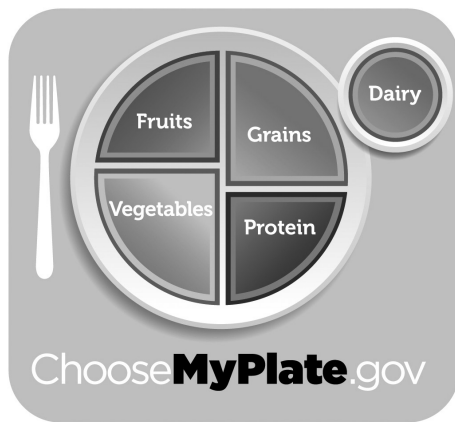
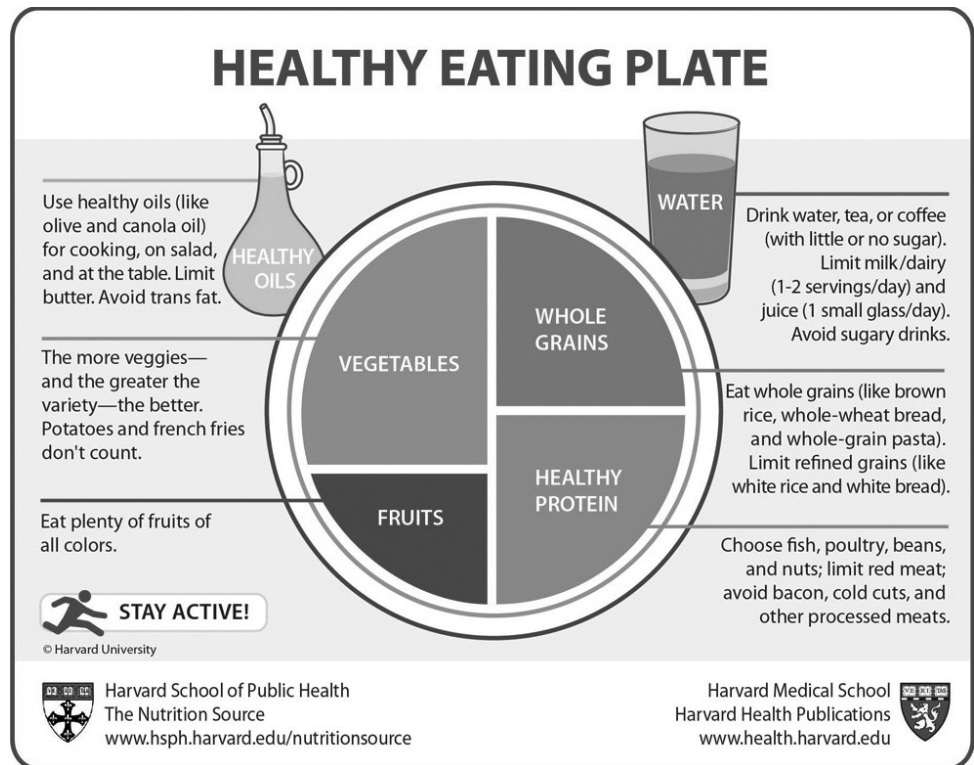


Figure 1: (Above) The USDA MyPlate. *Photo courtesy of Wikimedia Commons.* **Figure 2:** (Right) Copyright © 2011, Harvard University. For more information about The Healthy Eating Plate, please see The Nutrition Source, Department of Nutrition, Harvard School of Public Health, www.thenutritionsource.org, and Harvard Health Publications, health.harvard.edu.



drawbacks and few benefits. As noted previously, the Healthy Eating Plate advises individuals to favor water over milk as a beverage, and restrict their dairy consumption to 1-2 servings per day. Though HSPH acknowledges that milk and other dairy products are “convenient” calcium sources, it predominantly stresses their potential health risks. “Excessive” (3 or more daily servings) dairy consumption is claimed to be a “probable” risk factor for ovarian and prostate cancers (11). Additionally, Dairy is equated with high saturated fat consumption, justified by the conjecture that individuals who buy nonfat or low-fat dairy “often” buy high-fat dairy-containing products such as “premium ice cream, butter, and baked goods” (11). Stating its lack of confidence in the safety of the USDA-recommended “high milk intake,” HSPH advises consumers to choose alternative calcium sources, including dark leafy greens, calcium-fortified beverages, and/or calcium supplements (11).

Faced with such opposing claims from two seemingly credible sources, Americans may turn to science for resolution. Unfortunately, empirical research hardly provides a clear answer to the question

of dairy consumption. The USDA, along with national dairy organizations such as the National Dairy Promotion and Research Board, claims nonfat or low-fat dairy aids weight loss and maintenance and lowers risk of hypertension and cardiovascular disease (10, 12). Yet, the relevant research provides a far more ambiguous picture. While several randomized clinical trials have found consuming the USDA-recommended 3-4 daily servings of dairy to enhance weight loss in overweight or obese individuals, others noted no difference in weight loss, blood pressure, or blood cholesterol when total dietary calcium was held constant between groups (13, 14). Furthermore, critics note that the studies reporting strong links between weight loss and dairy intake also share small sample size and National Dairy Council funding, casting doubt on their veracity (15, 16).

However, HSPH’s opposing claim – that high dairy consumption promotes weight gain – is founded on similarly shaky scientific evidence. Though a 2005 longitudinal study, co-authored by HSPH Nutrition Department Chair Dr. Walter Willett, found that greater consumption of milk, even skim or low-

fat varieties, was significantly associated with increases in body mass index during childhood and adolescence (17). Yet, the study’s failure to ensure subjects followed isocaloric diets significantly compromises their findings. Since the children who drank more milk took in more calories overall, the relative contributions of dairy versus total energy intake to the observed weight gain cannot be determined. Given the dearth of methodologically strong and unbiased evidence, the link between dairy consumption and body mass outcomes remains unclear.

POLICY: DOES THE USDA HAVE CONSUMER’S BEST INTERESTS IN MIND?

Though supported by (some) scientific research, the USDA recommendations on dairy are not wholly founded in empirical data. As Dr. Marion Nestle, a professor at the New York University Department of Nutrition, Food Studies, and Public Health notes, the agency faces a fundamental conflict of interest due to its role in the federal government (18). Though legally required to create guidelines instructing Americans on how to eat healthily, the USDA must also

function as the national Department of Agriculture, supporting American food producers and their interests. With most Americans suffering from energetic excess, these responsibilities frequently conflict: advice to “eat less,” for instance, directly jeopardizes the survival and growth of the food industry (18).

Dairy consumption provides an archetypal case. Since the Great Depression, the USDA has subsidized the dairy industry, purchasing processed dairy products such as cheese in order to maintain the price of milk at a set level (19). Food assistance programs strongly promote dairy consumption; schools participating in the National School Lunch Program, for instance, are legally required to serve cow’s milk (19). Though nondairy alternatives can be offered, the school must finance them independently (19).

In addition being indirectly promoted through federal policy, dairy consumption is campaigned for through arms of the agency itself. The USDA contains a sub-division, Dairy Management, which works to increase Americans’ dairy intake. The results are decidedly incongruous with MyPlate’s Guidelines: rather than advertising skim milk or low-fat yogurt, Dairy Management has partnered with fast food outlets such as Domino’s Pizza, Taco Bell, and Burger King to increase the amount of cheese – along with calories, sodium, and saturated fat – in various menu items (16). While such endeavors may support the agency’s goal to create a nation of “cheese snacking fanatics,” they seem to be unlikely to help Americans make the “wise,” reduced fat choices MyPlate recommends (4).

THE BALANCE: CHOOSING THE PLATE THAT WORKS FOR YOU

Developing nutritional guidelines is far from a precise science. Humans vary in genetics and lifestyle, preventing exclusive definitions of “optimal” foods, eating patterns, or overall energy intake. Yet, as our continually rising obesity

rates indicate, Americans must change the way they eat – or face the numerous health consequences that result from caloric excess. Both the USDA and HSPH have attempted to facilitate this change through presenting meal templates, urging Americans to remake their meals to favor nutrient-dense foods such as fruits and vegetables. While emphasizing similar foods, in similar proportions, the USDA’s MyPlate and HSPH’s Healthy Eating Plate differ significantly – and each claim to be supported by the “best” available empirical evidence. As the two Plates’ conflict over dairy consumption reveals, however, the science behind either source’s claims is far from strong, and, most evidently for the USDA, is often complicated by demands of national policy.

Faced with disagreeing authorities and ambiguous science, consumers must keep in mind that guidelines are not made by gods, but rather by men. The flux present in scientific research, particularly that of the field of nutrition, exceeds individual capacities for cogitation. We should not attempt to eat “perfectly,” for the definition of a “perfect” diet will change tomorrow; instead, we should aim to critically evaluate the available evidence, observe how it relates to our own needs, and act accordingly.

Emily Groopman ’14 is a Human Evolutionary Biology Concentrator in Kirkland House.

References:

1. Datz, Todd. Harvard Researchers Launch Healthy Eating Plate. (Harvard School of Public Health, 2011).
2. First Lady, Agriculture Secretary Launch MyPlate Icon as a New Reminder to Help Consumers to Make Healthier Food Choices. (United States Department of Agriculture, 2011).
3. Dietary Guidelines Advisory Committee. Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010, to the Secretary of Agriculture and the Secretary of Health and Human Services. (U.S.

Department of Agriculture, 2010).

4. Got Your Dairy Today? (United States Department of Agriculture, 2011).
5. Getting Started With MyPlate. (United States Department of Agriculture, 2012).
6. Willet, W., Cheung, L., Stampfer, M., & Kalin, S. Comment on 2010 Dietary Guidelines for Americans. (Harvard School of Public Health, 2010).
7. Food Pyramids and Plates: What Should You Really Eat? (Harvard School of Public Health, 2012).
8. Healthy Eating Plate vs. USDA’s MyPlate. (Harvard School of Public Health, 2011).
9. Dairy: How Much Is Needed? (United States Department of Agriculture, 2011).
10. Dairy: Health Benefits. (United States Department of Agriculture, 2011).
11. Calcium and Milk: What’s Best for Your Bones and Health? (Harvard School of Public Health, 2012).
12. Agricultural Marketing Service. Report to Congress On the National Dairy Promotion and Research Program: 2009 Program Activities (United States Department of Agriculture, 2011).
13. M.B. Zemel, J. Richards, A. Milstead, P. Campbell, Effects of calcium and dairy on body composition and weight loss in African-American adults
14. Obesity Research 13, 1218-1225. (Jul, 2005).
15. J. Bowen, M. Noakes, P.M. Clifton, Effect of calcium and dairy foods in high protein, energy-restricted diets on weight loss and metabolic parameters in overweight adults. *International Journal of Obesity Research* 29, 957-965. (Aug, 2005).
16. USDA, Dairy Industry End Weight Loss Advertisements. (Physicians’ Committee for Responsible Medicine, 2007).
17. Moss, M. “While Warning About Fat, U.S. Pushes Cheese Sales.” *New York Times*: Nov 6, 2010.
18. Berkey CS, Rockett HH, Willett WC, Colditz GA, Milk, dairy fat, dietary calcium, and weight Gain: A longitudinal study of adolescents. *Archives of Pediatrics and Adolescent Medicine* 159, 543-550. (June, 2005).
19. Nestle, Marion, *Food Politics: How the Food Industry Influences Nutrition and Health*. (University of California Press, California, 2002).
20. Sumner, D.A. Balagtas, J.V. United States’ Agricultural Systems: An Overview of U.S. Dairy Policy. In: *Encyclopedia of Dairy Sciences*, H. Roginski, J. Fuquay, P. Fox, Eds. (Elsevier Science Ltd, 2002).