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Federal Dietary Guidelines Lack a Consistent and Scientific Approach to Caffeine

by Richard L. Frank

The *Dietary Guidelines for Americans* are the federal government's official advice on healthy eating and provide a blueprint for federal nutrition programs. The U.S. Department of Agriculture (USDA) and the Department of Health and Human Services (HHS) issue the *Dietary Guidelines* every five years, based on a report prepared by a federal advisory group whose members the two agencies appoint. This group, the Dietary Guidelines Advisory Committee (DGAC), met throughout 2014 and issued its report on February 23, 2015.

The 2015 DGAC report includes recommendations in areas such as sustainability, physical activity, and regulatory policy that fall outside the mission of a body charged with "nutritional and dietary information and guidelines."[1] In addition, the DGAC report appears to have detoured from evidence-based advice in its review of ingredient safety. Whereas prior *Dietary Guidelines* advisory committees have addressed practical food-safety topics germane to the mitigation of high-risk, high-impact public-health issues (*e.g.*, food-borne illness and safe food handling), the 2015 Committee chose to evaluate the safety of non-nutritive ingredients like caffeine.

Caffeine is a topic the *Dietary Guidelines* had never previously addressed—and for good reason. Whether found in a food, dietary supplement, or drug, the Food and Drug Administration (FDA) already regulates it. The oversight of ingredient safety falls under FDA's purview, and while it reports to HHS, the subject-matter expertise and regulatory levers rightly belong to FDA.

While dietary sources of caffeine have proliferated over the past decade, and 85% of Americans consume caffeine every day, caffeine consumption trends show that average caffeine intake over the past 10 years has remained steady.[2] This steadiness persists in spite of new products in the marketplace, which suggests Americans know how to manage their caffeine. Caffeine is also one of the most researched ingredients in the food supply with a long history of safe use over hundreds of years.

The methods and evidence the DGAC uses in reviewing non-nutritive ingredients are inconsistently applied. For example, the DGAC defers to the European Food Safety Authority's (EFSA) 2013 review of aspartame; however, when it comes to caffeine, the DGAC does not consider the extensive review work commissioned by EFSA in the past

[1] Section 301(a)(1) of the National Nutrition Monitoring and Related Research Act of 1990 (7 U.S.C. § 5341a(a)(1)). Section 301(b)(3) of the Act provides that the term "dietary guidance does *not include any rule or regulation* issued by a federal agency" (emphasis added). The regulatory recommendations inappropriately contained in the 2015 DGAC report include the listing of added sugar in both grams and teaspoons on the Nutrition Facts panel; mandated limits on the sodium content of foods; limiting access to certain foods in public buildings; and taxation of "unhealthy" foods such as sugar-sweetened beverages.

[2] Ahluwalia, *Caffeine intake in children in the United States and 10 year trends: 2001-2010*, Am. J. of Clin. Nutr. DOI: 10.3945/ajcn.113.082172 (2014); Branum, Rossen, and Schoendorf, *Trends in caffeine intake among U.S. children and adolescents*, Pediatrics, 386-393 DOI: 10.1542/peds.2013-2877 (2014); Fulgoni, *Various Aspects of Caffeine Intake in America: An Analysis of NHANES*, Presented at the Inst. of Med. Workshop on Potential Health Hazards Assoc'd with Consumption of Caffeine in Food and Dietary Supplements. Aug. 5, 2013, available at http://www.iom.edu/~/media/Files/Activity%20Files/Nutrition/PotentialEffectsofCaffeine/Victor%20L%20Fulgoni%20III.pdf.

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15 years.[3] EFSA takes a holistic view of caffeine when considering daily intake guidance, and it affirms moderate daily caffeine intake of up to 400mg from all sources as generally safe for healthy adults.

The 2015 DGAC assessment of caffeine safety likewise confirms that moderate consumption of up to 400 mg of caffeine per day for adults[4]—which the DGAC quantifies as 3-5 cups of coffee per day—is not associated with increased risk of any major chronic diseases, and in fact may reduce the risk of type-2 diabetes, cardiovascular disease, and liver and endometrial cancer. The report finds moderate evidence that caffeine may reduce the risk of Parkinson's disease as well as limited evidence that it modestly lowers the risk of cognitive impairment and Alzheimer's disease.

However, the DGAC report then jumps inexplicably from neutral-to-positive benefit statements regarding caffeine intake from coffee to suggest that consumers should avoid caffeine in energy drinks. The DGAC report describes energy drinks as varying greatly in caffeine content, ranging from 50 to 505 mg of caffeine per can or bottle. However, the DGAC report ignores data which confirms that the vast majority of energy drinks sold in the U.S. (by volume) contain approximately 80 mg of caffeine per 8.4 fluid ounce container—commensurate with the same-sized cup of home-brewed coffee. Only a few (low sales volume) energy drinks are sold in the higher ranges.[5]

The DGAC report acknowledges that the main sources of caffeine for all age groups are coffee, tea, and carbonated soft drinks—not energy drinks. In fact, many coffeehouses serve beverages with far higher concentrations of caffeine than leading energy drink brands, a fact not mentioned in the report. For example, one leading coffeehouse chain serves coffee with 260 mg of caffeine per small cup, 330 mg per medium, and 415 mg per large.

Energy drinks contribute approximately 2% of caffeine to the American diet with coffee contributing 64%, soda 17%, and tea 17%.[6] Even among children, teens, and young adults, energy drinks contribute less than 6% of total caffeine intake in 2009-2010, the most recent years for which we have data. Hence, the DGAC's surprising identification of energy drinks as *the* source of "high caffeine" intake (which it does not define) lacks scientific support.

Moreover, FDA has concluded that the chemical structure of caffeine is the same whether naturally occurring or manufactured and that its effects on the human body are the same.[7] Yet the DGAC report lumps all energy drinks together as "high-dose caffeine" and concludes that they are responsible for excessive caffeine consumption and potential adverse health effects. But there is no scientific or medical basis to distinguish the caffeine in coffee, tea, or cola from caffeine in energy drinks.[8] The DGAC should have followed EFSA's holistic approach to caffeine.

USDA and HHS should carefully scrutinize the DGAC report, its inconsistent methods, and the scant evidence supporting its conclusions on caffeine safety. Without consideration of the most up-to-date and relevant scientific evidence pertaining to caffeine, its conclusions inexplicably discriminate against a single product category. No public health gain can be attained from the DGAC report's bifurcated approach. To the contrary, if USDA and HHS adopt the report's current approach, they risk losing the main nutritional message of the *Dietary Guidelines* in the politicized debate that has begun to overtake commonsense dietary and nutritional recommendations.

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[3] EFSA released a draft Scientific Opinion on the Safety of Caffeine on January 15, 2015, which has now been adopted and confirmed with minimal amendment. http://www.efsa.europa.eu/en/consultationsclosed/call/150115.pdf. Adopted version expected end of May 2015.

[4] Other health authorities, including Health Canada, also accept 400mg per day of caffeine for healthy adults.

[5] Somogyi, *Caffeine Intake by the U.S. Population*, Prepared for the U.S. FDA and Oakridge National Laboratory. Subcontract Number: 70000073494 (2010); Mitchell, Knight, Hockenberry, Teplansky, and Hartman, *infra* note 6.

[6] Mitchell, Knight, Hockenberry, Teplansky, and Hartman, *Beverage caffeine intakes in the U.S.*, 63 Food Chem. Tox. 136-142 (2014).

[7] http://www.fda.gov/newsevents/speeches/ucm363925.htm.

[8] The DGAC's effort to support a distinction based on the mixing of alcohol and energy drinks likewise fails for two reasons—first, the Committee acknowledges the evidence of a link to be "weak," requiring more research; second, the Committee raises no similar concerns about mixing beverage alcohol with caffeinated beverages like cola.

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