



## Comments from the American Cancer Society and American Cancer Society Cancer Action Network on Topics and Scientific Questions for the 2020-2025 Dietary Guidelines for Americans

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These comments are being submitted on behalf of the American Cancer Society (ACS) and the American Cancer Society Cancer Action Network (ACS CAN). The American Cancer Society is the nation's largest voluntary health organization, dedicated to eliminating cancer as a major health outcome through research, education, and service. ACS CAN is the non-profit, non-partisan advocacy affiliate of the society. ACS CAN advocates for legislative, regulatory, and policy solutions that will make cancer a national priority.

ACS and ACS CAN are pleased to provide comments for the first time for the topics and scientific questions under consideration for the 2020-2025 Dietary Guidelines for Americans (DGA). We are particularly pleased to see cancer included in the scientific questions regarding adults. Given the large volume of existing literature linking excess body weight, alcohol consumption, diet, and physical inactivity with risk of many different types of cancer, we would strongly encourage HHS and USDA to utilize reviews from the International Agency for Research on Cancer (IARC) and/or the World Cancer Research Fund (WCRF)/American Institute for Cancer Research (AICR) for cancers in which there is sufficient, convincing or probable evidence for causing cancer in humans by these four exposures. As such, our recommendations below address factors that would reduce cancer cases and deaths.

### ***Background: Body Weight, Alcohol Consumption, Diet, Physical Inactivity and Cancer***

Cancer is the second leading cause of death in the United States.<sup>1</sup> After tobacco use, excess body weight, alcohol consumption, poor nutrition and physical inactivity are major risk factors for cancer and together these four factors account for approximately 18% of all cancer cases in the United States.<sup>2</sup> Excess body fatness is associated with increased risk for cancers at 13 sites, including esophageal adenocarcinoma, gastric cardia, colon and rectum, liver, gallbladder, pancreas, breast cancer (postmenopausal), endometrial, ovarian, kidney (renal cell), meningioma, thyroid and multiple myeloma.<sup>3</sup> Like the federal government, ACS publishes nutrition and physical activity guidelines

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<sup>1</sup> Siegel RL, Miller KD, Jemal A. Cancer Statistics, 2018. *CA Cancer J Clin* 2018; 68:7-30.

<sup>2</sup> Islami F, Sauer AG, Miller KD, Siegel RL, et al. Proportion and Number of Cancer Cases and Deaths Attributable to Potentially Modifiable Risk Factors in the United States. *CA Cancer J Clin* 2018; 68: 31-54.

<sup>3</sup> Lauby-Secretan B, Scoccianti C, Loomis D, et al. Body Fatness and Cancer — Viewpoint of the IARC Working Group. *N Engl J Med* 2016; 375:794-798.

approximately every five years; the most recent guidelines for both cancer prevention<sup>4</sup> and cancer survivorship<sup>5</sup> were published in 2012 (currently undergoing revision). Also, similar to the U.S. Dietary Guidelines, the ACS guidelines include recommendations for both individuals and communities. With respect to individuals, the ACS cancer prevention guidelines recommend that people:

- Achieve and maintain a healthy weight throughout life;
- Adopt a physically active lifestyle;
- Consume a healthy diet, with an emphasis on plant foods; and
- Limit consumption of alcoholic beverages.

With respect to the diet-related recommendations, the ACS guidelines more specifically recommend:

- Choosing foods and beverages in amounts that help to achieve and maintain a healthy weight;
- Limiting consumption of processed meat and red meat;
- Eating at least 2.5 cups of vegetables and fruits each day; and
- Choosing whole grains instead of refined grain products.

Research has shown that people who follow the majority of the diet, physical activity, weight, and alcohol recommendations in the ACS Guidelines are less likely to develop or die of cancer,<sup>6, 7</sup> cardiovascular disease, or any cause compared with people who follow very few, if any, of the ACS Guidelines.<sup>8</sup>

Recognizing the important role the environment plays in influencing people's food, beverage, and other lifestyle choices, the ACS guidelines – like the current U.S. Dietary Guidelines – include recommendations for communities to facilitate and promote healthy individual behaviors. The ACS guidelines recommend that:

Public, private, and community organizations should work collaboratively at national, state, and local levels to implement policy and environmental changes that:

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<sup>4</sup> Kushi LH, Doyle C, McCullough M, et al. American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention: Reducing the Risk of Cancer with Healthy Food Choices and Physical Activity. *CA Cancer J Clin* 2012; 62: 30-67.

<sup>5</sup> Rock CL, Doyle C, Demark-Wahnefried W, et al. Nutrition and Physical Activity Guidelines for Cancer Survivors. *CA Cancer J Clin* 2012; 62: 242-274.

<sup>6</sup> Thomson CA, McCullough ML, Wertheim BC, et al. Nutrition and Physical Activity Cancer Prevention Guidelines, Cancer Risk, and Mortality in the Women's Health Initiative. *Cancer Prev Res (Phila)*. 2014; 7(1):42-53.

<sup>7</sup> Kabat GC, Matthews CE, Kamensky V, et al. Adherence to cancer prevention guidelines and cancer incidence, cancer mortality, and total mortality: a prospective cohort study. *Am J Clin Nutr*, 2015;101(3):558-569.

<sup>8</sup> McCullough ML, Patel AV, Kushi LH, et al. Following cancer prevention guidelines reduces risk of cancer, cardiovascular disease, and all-cause mortality. *Cancer Epidemiol Biomarkers Prev*. 2011;20(6):1089-1097.

- Increase access to affordable, healthy foods in communities, worksites, and schools, and decrease access to and marketing of foods and beverages of low nutritional value, particularly to youth; and
- Provide safe, enjoyable, and accessible environments for physical activity in schools and worksites, and for transportation and recreation in communities.

It is essential that the Dietary Guidelines continue to include recommendations for communities and policy and environmental changes that support people in meeting the individual recommendations.

### **Recommendations**

The ACS and the ACS CAN strongly recommend that the following topics be considered in the evidence review of the Dietary Guidelines for Americans Advisory Group. Given that 70% of the US adult population is overweight or obese, and that the levels of childhood obesity continue to rise<sup>9</sup>, it is imperative that the Dietary Guidelines Advisory Committee address these issues in their review of the evidence. In addition, the evidence is convincing that red and processed meat<sup>10</sup>, as well as alcohol,<sup>11</sup> are causally associated with an increased risk of numerous cancer types, and therefore should also be examined specifically by the Advisory Committee.

### **Beverages: Impact on Body Weight in Children, Adolescents, and Adults**

The issue of adverse effects on growth, size, and body composition of beverages in children's and adolescent's diets, as well as on body weight/weight gain/obesity in adults meets HHS/USDA's criteria for inclusion as a topic for the 2020-2025 DGA. Sugar-sweetened beverages, including soda, fruit drinks, energy drinks, sports drinks, and sweet teas, are the largest single source of calories in Americans' diets.<sup>12</sup> Although consumption has slowly been declining,<sup>13</sup> Americans are still consuming far more sugary drinks than is recommended. The National Health and Nutrition Examination Survey (NHANES) 2005–2008 found that about half the U.S. population consumes sugar-sweetened beverages on any given day. Males and females aged 12 to 19 consume an average of 273 and 171 total calories per day from sugar drinks, respectively.<sup>14</sup>

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<sup>9</sup> Skinner AC, Ravanbakht SN, Skelton JA, et al. Prevalence of Obesity and Severe Obesity in US Children, 1999–2016. *Pediatrics*. 2018;141(3):e20173459

<sup>10</sup> Bouvard V, Loomis D, Guyton KZ, et al. Carcinogenicity of Consumption of Red and Processed Meat. *Lancet Oncol*. 2015 Dec;16(16):1599-600.

<sup>11</sup> World Health Organization and International Agency for Research on Cancer. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Alcohol Consumption and Ethyl Carbamate*. Volume 96. 2010. Available at <http://monographs.iarc.fr/ENG/Monographs/vol96/mono96.pdf>.

<sup>12</sup> USDA and HHS. Table 2-2. Top 25 sources of calories among Americans ages 2 years and older, NHANES 2005–2006. *Dietary Guidelines for Americans, 2010. 7th Edition*, Washington, DC: U.S. Government Printing Office, 2011. Page 12.

<sup>13</sup> Beverage Digest. U.S. beverage results for 2012. 2012. Available at [http://beverage-digest.com/pdf/top-10\\_2012.pdf](http://beverage-digest.com/pdf/top-10_2012.pdf). Accessed November 1, 2013.

<sup>14</sup> Ogden CL, Kit BK, Carroll MD, and Park S. *Consumption of sugar drinks in the United States, 2005-2008*. Number 71. August 2011. Centers for Disease Control and Prevention, National Center for Health Statistics. Available at <http://www.cdc.gov/nchs/data/databriefs/db71.htm>.

Convincing evidence from randomized trials suggests that drinking sugar-sweetened beverages, the largest source of added sugars in Americans' diets, leads to weight gain in both children and adults.<sup>15 16</sup> Evidence from intervention studies shows that calories consumed in liquid form are less satiating than the same number of calories consumed from food.<sup>17 18</sup> That can lead people to overeat and eventually gain weight.

Sugar-sweetened beverages provide calories with few nutrients, which makes it difficult for consumers to meet nutritional needs and stay within calorie requirements. Given that sugar-sweetened beverages make a unique direct contribution to obesity and other chronic diseases, and that obesity is a strong and convincing risk factor for several cancers,<sup>19</sup> we strongly encourage HHS and USDA to include consideration of weight/weight gain/obesity when reviewing the science on the impact of beverages in the diets of children, adolescents, and adults.

### **Added Sugars: Impact on Body Weight in Children, Adolescents, and Adults**

The issue of adverse effects on growth, size, and body composition of added sugars in children's and adolescent's diets, as well as on body weight/weight gain/obesity in adults meets HHS/USDA's criteria for inclusion as a topic for the 2020-2025 DGA. There is strong scientific evidence underscoring concerns with added sugars in the diet – sugars added in preparation or processing, such as table sugar, honey, and corn syrup. With regard to high consumption of added sugars, the 2015 DGAC concluded that there was “strong evidence” for an increased risk of excess body weight, obesity, and type 2 diabetes and “moderate evidence” for an increased risk of hypertension, stroke, coronary heart disease, high blood pressure, serum triglycerides, and dental caries. After reviewing the evidence, the Committee found that “strong evidence supports reducing added sugars intake to reduce health risks” and that a limit on “added sugars to a maximum of 10 percent of total daily caloric intake” was supported by the food pattern modeling analysis and the scientific evidence review on added sugar and chronic disease risk.<sup>20</sup> By that 10 percent standard, an individual who consumes a 2,000-calorie diet could consume up to 200 calories' worth (50 grams, 12 teaspoons) of added sugars per day.<sup>21</sup> The 2015-2020 DGA accepted this evidence and included the standard in its final report. The DGA's specific guidance to consume no more

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<sup>15</sup> Te Morenga L, Mallard S, and Mann J. Dietary sugars and body weight: systematic review and meta-analyses of randomised controlled trials and cohort studies. *BMJ*, 2013; 346, e7492.

<sup>16</sup> De Ruyter JC, Olthof MR, Seidell JC, and Katan MB. A trial of sugar-free or sugar-sweetened beverages and body weight in children. *N Engl J Med*, 2012; 367 (15), 1397-1406.

<sup>17</sup> DiMeglio DP and Mattes RD. Liquid versus solid carbohydrate: effects on food intake and body weight. *International Journal of Obesity*, 2000; 24 (6), 794-800.

<sup>18</sup> Mourao DM, Bressan J, Campbell WW, and Mattes RD. Effects of food form on appetite and energy intake in lean and obese young adults. *International Journal of Obesity*, 2007; 31 (11), 1688-1695.

<sup>19</sup> Lauby-Secretan B. et al., 2016.

<sup>20</sup> USDA and HHS, 2015, Part D, Chapter 6, p. 20.

<sup>21</sup> World Health Organization. *Diet, nutrition and the prevention of chronic diseases*. 2003. WHO technical report series 916; 1-60. Available at [http://whqlibdoc.who.int/trs/who\\_trs\\_916.pdf](http://whqlibdoc.who.int/trs/who_trs_916.pdf).

than 10 percent of calories from added sugars aligns the Guidelines with similar evidence-based recommendations from the World Health Organization<sup>22</sup> and the American Heart Association.<sup>23</sup>

Convincing evidence from randomized trials suggests that drinking sugar-sweetened beverages, the largest source of added sugars in Americans' diets, leads to weight gain in both children and adults.<sup>24, 25</sup> Recent clinical studies have found that high intakes of fructose-containing sugars raise levels of triglycerides, visceral fat, liver fat, blood glucose, insulin, and small, dense LDL-cholesterol.<sup>26, 27, 28</sup> Moreover, the higher diets are in added sugars, the lower they are in a variety of vitamins and minerals.<sup>29</sup>

In 2003–2006, added sugars provided about 14 percent of total calories for the average American, and 25 percent or more of calories for over 36 million Americans.<sup>30</sup> Consuming foods high in added sugars makes it more difficult to meet nutrient needs and stay within calorie limits. In contrast, foods high in natural sugars, such as fruits and dairy products, are often rich in nutrients.

We strongly encourage HHS and USDA to include consideration of growth, size, and body composition when reviewing the science on the impact of added sugars in children's and adolescent's diets, as it has important implications for national programs and policies, including school meals, Smart Snacks in schools, and food labeling. In addition, we strongly encourage HHS and USDA to include consideration of body weight/weight gain/obesity when reviewing the science on the impact of added sugars in the diets of adults.

### **Red and Processed Meats: Impact on Cancer Risk in Adults**

The issue of red and processed meats in adult diets meets the HHS/USDA criteria for topics and the omission of this topic could be detrimental to the health and well-being of Americans. IARC concluded that processed meat (e.g., hot dogs, bacon, sausage, deli meats, etc.) is a Group 1 carcinogen and red meat a Group 2a (probable) carcinogen, on the basis of evidence related to colorectal cancer<sup>31</sup>. The

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<sup>22</sup> World Health Organization. Guideline: Sugars intake for adults and children. 2015. Available at [http://who.int/nutrition/publications/guidelines/sugars\\_intake/en/](http://who.int/nutrition/publications/guidelines/sugars_intake/en/).

<sup>23</sup> Johnson RK, Appel LJ, Brands M, et al. Dietary sugars intake and cardiovascular health a scientific statement from the American Heart Association. *Circulation*, 2009; 120 (11), 1011-1020.

<sup>24</sup> Te Morenga L. et al., 2013.

<sup>25</sup> De Ruyter JC. et al., 2012.

<sup>26</sup> Stanhope KL, Schwarz JM, Keim NL, et al. Consuming fructose-sweetened, not glucose-sweetened, beverages increases visceral adiposity and lipids and decreases insulin sensitivity in overweight/obese humans. *The Journal of Clinical Investigation*, 2009; 119 (5), 1322.

<sup>27</sup> Stanhope KL, Bremer AA, Medici V, et al. Consumption of fructose and high fructose corn syrup increase postprandial triglycerides, LDL-cholesterol, and apolipoprotein-B in young men and women. *The Journal of Clinical Endocrinology & Metabolism*, 2011; 96 (10), E1596-E1605.

<sup>28</sup> Maersk M, Belza A, Stødkilde-Jørgensen H, et al. Sucrose-sweetened beverages increase fat storage in the liver, muscle, and visceral fat depot: a 6-mo randomized intervention study. *The American Journal of Clinical Nutrition*, 2012; 95 (2): 283-289.

<sup>29</sup> Marriott BP, Olsho L, Hadden L, and Connor P. Intake of added sugars and selected nutrients in the United States, National Health and Nutrition Examination Survey (NHANES) 2003—2006. *Critical Reviews in Food Science and Nutrition*, 2010; 50 (3): 228-258.

<sup>30</sup> Marriott et al., 2010.

<sup>31</sup> Bouvard V, Loomis D, Guyton KZ, et al. Carcinogenicity of Consumption of Red and Processed Meat. *Lancet Oncol*. 2015 Dec;16(16):1599-600.

evidence that diets high in red meat (e.g., beef, pork, lamb) and processed meat are associated with increased risk of colorectal cancer is also considered probable and convincing, respectively, by WCRF/AICR, whose Continuous Update Project is the world's most comprehensive resource of scientific literature on food, nutrition, physical activity, and cancer.<sup>32 33</sup> Current evidence finds an approximately 12 to 16 percent higher risk of colorectal cancer for each 100 grams (g) of red meat or 50 g of processed meat consumed per day.<sup>34</sup> Positive associations with cancers of the stomach, pancreas and prostate were noted by IARC.<sup>35</sup> Potential mechanisms for these relationships involve pre-formed or endogenously formed N-nitroso-compounds (NOC), polycyclic aromatic hydrocarbons (PAH) and heterocyclic aromatic amines (HAA) formed during high-heat cooking (e.g. pan-frying, grilling or barbecuing), and also from heme iron, found in hemoglobin from red meat.<sup>36</sup> Therefore, intake of leaner cuts of red meat may still increase risk of these cancers.

ACS, in its own guidelines on nutrition and physical activity for cancer prevention and survival, recommends limiting consumption of both red meats and processed meats because the evidence indicates that increasing amounts of red and/or processed meat increases the risk of colorectal cancer.<sup>37</sup>

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It is imperative that HHS and USDA give clear, consistent, and actionable guidance for consumers regarding the types of protein foods that should and should not be a regular part of their diet. Given the strong association between red and processed meat consumption and cancer, it is not sufficient to review red and processed meats only in consideration of dietary patterns. We strongly encourage the 2020-2025 Guidelines Advisory Committee to thoroughly review the evidence specifically related to red and processed meat consumption and cancer risk for adults.

### **Alcohol: Impact on Cancer Risk in Adults**

The issue of alcohol intake in adult diets meets the HHS/USDA criteria for topics and the omission of this topic could be detrimental to the health and well-being of Americans. It is well established that alcoholic beverage consumption increases the risk of oral cavity, pharynx, larynx, esophagus, liver, colorectum, and female breast cancer.<sup>39, 40</sup> Breast cancer is the most commonly diagnosed cancer among women,<sup>41</sup> and there is evidence that consumption of alcohol at even less than one drink per day increases risk.<sup>42 43</sup>

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<sup>32</sup> World Cancer Research Fund (WCRF) and American Institute for Cancer Research (AICR). *Food, Nutrition, and the Prevention of Cancer: A Global Perspective*. Washington, DC: AICR, 2007.

<sup>33</sup> WCRF and AICR. Colorectal Cancer 2017 Continuous Update Project Report. 2017. Available at <https://www.wcrf.org/sites/default/files/Colorectal-Cancer-2017-Report.pdf>.

<sup>34</sup> WCRF/AICR, 2017.

<sup>35</sup> Bouvard, 2016

<sup>36</sup> Bouvard, 2016

<sup>37</sup> Kushi, 2012.

<sup>38</sup> Rock, 2012.

<sup>39</sup> WHO/IARC, 2010.

<sup>40</sup> WCRF/AICR report, 2007.

<sup>41</sup> ACS, 2015.

<sup>42</sup> Chen WY, Rosner B, Hankinson SE, et al. Moderate Alcohol Consumption During Adult Life, Drinking Patterns, and Breast Cancer Risk. *JAMA*, 2011; 306(17): 1884–1890.

<sup>43</sup> Allen N, et al. Moderate Alcohol Intake and Cancer Incidence in Women. *J Natl Cancer Inst* 2009;101:[296–305](#).

Moreover, the effects of alcohol consumption on cancer risk are known to increase with increasing amounts of intake. Because of the known increased risk of many cancers due to alcohol, we recommend that the Dietary Guidelines Advisory Committee include a review of the evidence specific to alcohol consumption and cancer risk, and we strongly encourage the 2020-2025 Guidelines to include a recommendation on alcohol intake for adults that is clear and actionable.

### **Policy and Environment Recommendations**

We strongly encourage HHS and USDA to consider a broad range of factors, including policy and environmental approaches, that influence people’s diet and weight-related behaviors. Sensible and science-based changes to the food environment and public policies support and facilitate Americans making healthier food and beverage choices across the lifespan.

Research has shown that food environments likely contribute to the increasing epidemic of obesity and chronic diseases, over and above individual factors such as knowledge, skills, and motivation.<sup>44</sup> Reversing current obesity trends and changing dietary patterns on a broad scale will require a comprehensive, coordinated, system-wide public health approach that engages all levels of the socio-ecological model.

This approach to improving diet, promoting health, and reducing diet-related chronic disease through changing the policies and environments where youth and adults spend the majority of their time has been promoted by numerous public health authorities, including the Centers for Disease Control and Prevention,<sup>45</sup> Community Preventive Services Task Force,<sup>46</sup> Institute of Medicine,<sup>47</sup> President’s Cancer Panel,<sup>48</sup> and now the 2015 DGAC.

We strongly recommend that the Dietary Guidelines Advisory Committee review evidence related to policies and community environment factors that support and promote healthy diets and lifestyles.

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<sup>44</sup> Story M, Kaphingst KM, Robinson-O’Brien R, Glanz K. Creating healthy food and eating environments: policy and environmental approaches. *Annu. Rev. Public Health*, 2008; 29: 253–72.

<sup>45</sup> CDC. Recommended Community Strategies and Measurements to Prevent Obesity in the United States. *MMWR* 2009; 58(7): 1-26.

<sup>46</sup> Community Preventive Services Task Force. Obesity Prevention and Control: Interventions in Community Settings. *The Guide to Community Preventive Services*. Available at <http://www.thecommunityguide.org/obesity/communitysettings.html>. Accessed March 11, 2015.

<sup>47</sup> IOM. *Local Government Actions to Prevent Childhood Obesity*. Washington, DC: National Academies Press, 2009.

<sup>48</sup> President’s Cancer Panel. Promoting Healthy Lifestyles: Policy, Program, and Personal Recommendations for Reducing Cancer Risk. August 2007. Available at <http://deainfo.nci.nih.gov/advisory/pcp/annualReports/pcp07rpt/pcp07rpt.pdf>. Accessed March 11, 2015.