Scientific Report of the 2015 Dietary Guidelines Advisory Committee

BEVERAGE RECOMMENDATIONS:
Sugar Sweetened Beverages & Water

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National Academies of Sciences, Engineering and Medicine, Washington DC, 21 June 2017
2015 Dietary Guidelines Advisory Committee

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Dietary Guidelines for Americans

**Purpose**
- Food-based recommendations
- **Ages 2 and older**
- Prevention *not treatment* of chronic disease
- Based on the preponderance of current scientific and medical knowledge

**Target Audience**
- Policymakers, nutrition educators, and health professionals

**Released**
- Every 5 years
- Jointly by the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA)
Approach to Examining the Evidence

- Original Systematic Reviews
- Review of Existing Reports
- Food Pattern Modeling
- Data Analyses
Childhood Obesity

- About one in five preschool children are overweight or obese.
- Growing evidence indicates that preschoolers who are overweight or obese experience negative physical consequences.
  - Including cardio-metabolic abnormalities making
- Need for effective efforts to prevent excessive weight gain for this age group.
Sugar-Sweetened Beverages-Definition

- SSBs are liquids that are sweetened with various forms of added sugars.
- SSBs include, but are not limited to, soda, fruitades, and sports drinks.
Sugar & Health Outcomes

• Higher consumption of sugar-sweetened foods and beverages as well as refined grains were identified as detrimental for health [across the life course] in almost all conclusion statements with moderate to strong evidence.

  – Obesity, dental caries, chronic diseases (CVD, type 2 diabetes)
Added Sugars & Body Weight

- Intake of added sugars from food and/or sugar sweetened beverages are associated with *excess body weight in children and adults*.
- Reduction of added sugars and sugar-sweetened beverages in the diet reduces *body mass index (BMI) in both children and adults*.
- Comparison groups with the highest versus the lowest intake of added sugars in cohort studies were compatible with a recommendation to *keep added sugars intake below 10 percent of total energy intake*.

DGAC Grade: Strong
Dental Caries

• DGAC concurs with the World Health Organization’s systematic review that there is a relationship between the amount of free sugars intake and the development of dental caries among children and adults.

• Dental caries are lower when free sugars intake is less than 10 percent of energy intake.

DGAC Grade: Moderate
Total Diet
Total Vegetables

Estimated percentage of persons below, at, or above recommendation

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age Group</th>
<th>% below recommendation</th>
<th>% at or above recommendation</th>
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<td>All</td>
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DGAC Report Figure D1.11                         What We Eat in America NHANES 2007-10
Whole Grains

Estimated percentage of persons below, at, or above recommendation

<table>
<thead>
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<th>Gender</th>
<th>Age Group</th>
<th>% Below Recommendation</th>
<th>% At or Above Recommendation</th>
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<td>M</td>
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<tr>
<td>All</td>
<td>1+</td>
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Intake below recommendation
Intake meeting recommendation
Intake above recommendation
Sodium:
Percent of age/sex group with usual intakes above the UL

DGAC Report Figure D1.3                       What We Eat in America, NHANES 2007-10
Empty Calories:*  
Estimated percentage of persons below, at, or above limits

*Empty calories are the total of calories from solid fats + added sugars
Total Diet – 2015 DGAC key finding

• **Dietary patterns** systematic reviews focused on children/youth suggest (*USDA NEL, Ambrosini et al. 2014*):
  – **dietary patterns** higher in energy-dense and low-fiber foods, such as sweets, refined grains, and processed meats, as well as **sugar-sweetened beverages**, whole milk, fried potatoes, certain fats and oils, and fast foods increase the risk of obesity later on in life.

DGAC Grade: Limited
### Cross-Cutting Topics of Public Health Importance

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Sodium</strong></td>
<td>The general population (2+ years) should consume no more than 2,300 mg of sodium/day (or</td>
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<td>age-appropriate DRI amount).</td>
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<td>For people with hypertension or prehypertension, 1,500 mg of sodium/day or a reduction of</td>
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<td></td>
<td>at least 1,000 mg/day is recommended.</td>
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<tr>
<td><strong>Saturated Fat</strong></td>
<td>Less than 10% of total calories should come from saturated fat per day.</td>
</tr>
<tr>
<td></td>
<td>Sources of saturated fat should be replaced with unsaturated fat, particularly sources of</td>
</tr>
<tr>
<td></td>
<td>polyunsaturated fats.</td>
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<tr>
<td><strong>Added Sugars</strong></td>
<td>Limit added sugars to no more than 10% of daily calories.</td>
</tr>
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<td></td>
<td>Added sugars should be replaced in the diet by selecting healthier options rather than</td>
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<td>replacing them with low calorie sweeteners.</td>
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</table>
• The DGAC recommends limiting added sugars to a maximum of 10% of total daily caloric intake.
• Supported by: 1) the **food pattern modeling** analysis conducted by the 2015 DGAC and 2) the **scientific evidence review** on added sugars and chronic disease risk conducted by the DGAC.
• Difficult to achieve a healthful food pattern when added sugars in foods and beverages exceed 3% to 9% of total calories.
Table D6.1. Added sugars available in the USDA Food Patterns (Healthy U.S.-Style, Healthy Mediterranean-Style, and Healthy Vegetarian Patterns) in calories, teaspoons, and percent of total calories per day*

<table>
<thead>
<tr>
<th>CALORIE LEVEL</th>
<th>1000</th>
<th>1200</th>
<th>1400</th>
<th>1600</th>
<th>1800</th>
<th>2000</th>
<th>2200</th>
<th>2400</th>
<th>2600</th>
<th>2800</th>
<th>3000</th>
<th>3200</th>
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<tbody>
<tr>
<td>Healthy U.S.-style</td>
<td>68</td>
<td>50</td>
<td>50</td>
<td>54</td>
<td>77</td>
<td>122</td>
<td>126</td>
<td>158</td>
<td>171</td>
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<tr>
<td>Healthy Med-style</td>
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<td>50</td>
<td>81</td>
<td>72</td>
<td>117</td>
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<td>135</td>
<td>149</td>
<td>158</td>
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<tr>
<td>Healthy Vegetarian</td>
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<td>77</td>
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<td>81</td>
<td>131</td>
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<td>158</td>
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<td>123</td>
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<td>10.3</td>
<td>12.3</td>
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Empty calorie limits available for added sugars (assuming 45% empty calories from added sugars and 55% from solid fat)

<table>
<thead>
<tr>
<th>CALORIE LEVEL</th>
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<th>1200</th>
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<tbody>
<tr>
<td>Healthy U.S.-style</td>
<td>7%</td>
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<td>9%</td>
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<tr>
<td>Healthy Med-style</td>
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<td>8%</td>
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<tr>
<td>Healthy Vegetarian</td>
<td>8%</td>
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<td>Average</td>
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<td>7%</td>
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* See Part D. Chapter 1: Food and Nutrient Intakes, and Health: Current Status and Trends and Appendix E-3.7 for a full discussion of the food pattern modeling.
• Recommendation to limit added sugars, especially sugar-sweetened beverages, is consistent with recommendations from national and international organizations
  • American Academy of Pediatrics, World Health Organization, American Heart Association, Centers for Disease Control and Prevention, and the American Diabetes Association
“the U.S. population should be encouraged and guided to consume dietary patterns that are rich in vegetables, fruit, whole grains, seafood, legumes, and nuts; moderate in low- and non-fat dairy products and alcohol (among adults); lower in red and processed meat; and low in sugar sweetened foods and beverages and refined grains.” (2015 DGAC)
Food sources of energy: Percent from major food categories

- **FRUITS and FRUIT JUICE**: 5%
- **VEGETABLES**: 8%
- **BEVERAGES (NOT MILK or 100% FRUIT JUICE)**: 12%
- **PROTEIN FOODS**: 11%
- **DAIRY**: 7%
- **GRAINS**: 11%
- **SNACKS and SWEETS**: 16%
- **MIXED DISHES**: 28%

Other categories:
- **CONDIMENTS, GRAVIES, SPREADS, SALAD DRESSINGS**: 2%
- **PIZZA**: 4%
- **BURGERS, and SANDWICHES**: 14%
- **MEAT, POULTRY, SEAFOOD DISHES**: 4%
- **RICE, PASTA, GRAIN DISHES**: 5%
- **SOUPS**: 1%

Source: DGAC Report Figure D1.33, What We Eat in America, NHANES 2009-10
• Mixed dishes, snacks and sweets, and **beverages** together contribute to more than half (56%) of energy intake in the U.S. population

*other than milk and 100% fruit juice (such as soft drinks, fruit drinks, coffee and tea, and alcoholic beverages).

Sugar-sweetened beverages contribute with 6.5 percent of energy intake.

• Beverages contribute 19% of total energy intake.
  • Major sources are **sugar-sweetened beverages (35%)**, milk and milk drinks (26%), and 100% fruit juices (10%).
Food sources of added sugars: Percent from major food categories

- **Beverages (not milk or 100% fruit juice)**: 47%
  - Soft drinks: 25%
  - Fruit drinks: 11%
  - Sport and energy drinks: 3%
- **Snacks and sweets**: 31%
- **Grains**: 8%
- **Mixed dishes**: 6%
- **Protein foods**: 0%
- **Dairy**: 4%
- **Vegetables**: 1%
- **Condiments, gravies, spreads, salad dressings**: 2%
- **Alcoholic beverages**: 1%
- **Coffee and tea**: 7%
- **Sugar sweetened beverages**: 39%
• “Dramatically reducing the intake of sugar-sweetened beverages and limiting sweets and desserts would help lower intakes the food component added sugars” (2015 DGAC)
Diet and Physical Activity, Health Promotion and Disease Prevention at Individual and Population Levels across the Lifespan

Conceptual Model
School Policies

• Implementing *school policies for nutrition standards* to improve the availability, accessibility, and consumption of healthy foods and beverages sold outside the school meal programs (competitive foods and beverages) and *(or)* reducing or eliminating unhealthy foods and beverages are associated with improved purchasing behavior and result in higher quality dietary intake by children while at school.

DGAC Grade: Strong
Empty calorie* density
Calories per 1000 kcal by where obtained

*Empty calories are calories from solid fats and added sugars
Policy Implementation
The **Nutrition Facts label** should include added sugars (in grams and teaspoons) and include a percent daily value, to **assist consumers in identifying the amount of added sugars in foods and beverages** and making informed dietary decisions.

- Consumers would benefit from a standardized, easily understood front-of-package (FOP) label on all food and beverage products to give clear guidance about a food’s healthfulness.
  - An example is the FOP label recommended by the IOM which included calories, and 0 to 3 “nutritional” points for added sugars, saturated fat, and sodium.
  - This would be integrated with the NFP, allowing consumers to quickly and easily identify nutrients of concern for over-consumption, in order to make healthier choices.
Schools & ECD settings

• Develop and expand programs that encourage healthy eating and physical activity habits in young children and adolescents within school and early care and other education settings.

• Establish and implement policies and programs that:
  • provide nutritious foods, limit sugar-sweetened beverages and other unhealthy foods
  • incorporate nutrition curricula and experiences and physical activity opportunities
  • increase provider and teacher skills to develop and promote these programs.
• Implement the comprehensive school meal guidelines (National School Lunch Program) from the USDA that increase intakes of vegetables (without added salt), fruits (without added sugars), and whole grains
• Limit sodium, **added sugars**, saturated fat, and trans fat
• Limit marketing unhealthy foods to children
• Make **drinking water freely available** to students throughout the day; ensure competitive foods meet the national nutrition standards
• Eliminate **sugar-sweetened beverages**
Support Plain Water Consumption

• **Water is the preferred beverage choice.** Strategies are needed to encourage the US population, especially children and adolescents, to drink water when they are thirsty.
  – Water provides a healthy, low-cost, zero-calorie beverage option.
  – Free, readily accessible, safe water should be available in public settings, as well as child care facilities, schools, worksites and other community places.
  – Water should be promoted in all settings where beverages are offered.
Federal Food Assistance Programs

• Policy changes within SNAP and WIC should considered encouraging purchase of healthier food options, including foods and beverages low in added sugars.
  – Pilot studies using incentives and restrictions should be tested and evaluated.
SSB’s Taxes & Price Incentives

• Implementing economic and pricing approaches to promote the purchase of healthy foods and beverages.
  – Taxation on higher sugar-and sodium-containing foods may encourage consumers to reduce consumption
  – Revenues generated could support health promotion efforts.

• Alternatively, price incentives on vegetables and fruits could be used to promote consumption and public health benefits.
Responsibile Marketing

- Implementing policies that limit exposure and marketing of foods and beverages high in added sugars and sodium to all age groups, particularly children and adolescents.

- Public education campaigns to increase the public’s awareness of the health effects of excess added sugars, sodium, saturated fat, and calories.
Responsible Food Marketing to Kids

In January 2015, national experts recommended comprehensive guidelines for more responsible food marketing to children to help close industry loopholes and better protect children’s health.

Marketing unhealthy foods and drinks to kids contributes to a poor diet and obesity.

Companies’ Expanded Reach
Companies target children across an evolving marketing landscape that is hard for parents to monitor.

Websites

More than 2 BILLION ADS for foods and drinks appeared on websites directed at kids in 2009, mostly for sugary cereals and fast food.

Companies pledging to market only healthier fare to kids placed

46+ MILLION ADS for sugary drinks on kids’ websites in 2013.

*Companies participating in the Children’s Food and Beverage Advertising Initiative.

Social Media & Mobile

Dollars spent to market foods and drinks to kids via online games, mobile apps, social network ads, and other digital media increased by 51% from 2006 to 2009.

Schools

Companies spent $149 million in 2009 to market soda, other drinks, and food in schools.

On average, drinks marketed to kids had 16+ grams of added sugar per serving.

- 18.6 grams for age 12–17
- 16.3 grams for age 11 and under

Companies spent $1.7 billion in 2009 on unhealthy food marketing to kids.

2009: $280 million

Healthy food marketing to kids

2009: $1.7 billion

Unhealthy food marketing to kids

4.65 tsp per serving

4 tsp per serving
Racial Disparities
Companies target kids at highest risk for obesity

Black and Latino kids are more likely to see marketing for unhealthy fare, fast-food ads, and ads promoting snacks instead of meals.

84% of foods and drinks advertised to kids on Spanish TV are unhealthy.

Black kids see more than 2X as many TV ads for sugary drinks as white kids do.

U.S. youths ages 2-19, 2011-12

<table>
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<tr>
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<th>Obesity Rate</th>
<th>Overweight Rate</th>
<th>Obese &amp; Overweight Rate</th>
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<tbody>
<tr>
<td>WHITE</td>
<td>14.3%</td>
<td>14.2%</td>
<td>28.5%</td>
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<tr>
<td>BLACK</td>
<td>20.2%</td>
<td>12.3%</td>
<td>32.5%</td>
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<tr>
<td>LATINO</td>
<td>22.4%</td>
<td>16.5%</td>
<td>38.9%</td>
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# HER-RWJF SSBs Recommendations (consistent with 2010 DGA’s)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Healthier Beverage Recommendations</th>
</tr>
</thead>
</table>
| **Preschool children**  | **Water**—With no added sweeteners or carbonation • Require access to free, safe drinking water wherever beverages are served and/or sold.  
**Milk**—Only unflavored, low-fat and nonfat milk, and soy beverages (calcium and vitamin D fortified) in no more than 8-ounce portions.  
**Juice**—0- to 4-ounce portions of 100% fruit or vegetable juice or fruit juice combined with water, no added sweeteners, and no more than 70 mg of sodium per portion.  
All beverages shall be free of synthetic food dyes, stimulants (e.g., caffeine), and other additives (e.g., electrolytes, artificial flavors). |
| **Children** (Ages 5 to 10) | **Water**—Including carbonated water, with no added sweeteners • Require access to free, safe drinking water wherever beverages are served and/or sold.  
**Milk**—Unflavored, low-fat and nonfat milk, and soy beverages (calcium and vitamin D fortified) in no more than 8-ounce portions*  
**Juice**—0- to 6-ounce portions of 100% fruit or vegetable juice or fruit juice combined with water, no added sweeteners, and no more than 100 mg of sodium per portion.  
All beverages shall be free of synthetic food dyes, stimulants (e.g., caffeine), and other additives (e.g., electrolytes, artificial flavors). |
Conclusions

• Foods and beverages with added sugars contribute to excessive caloric intake and increase the risk of poor health outcomes (strong evidence)

• The 2015 DGAC includes policy recommendations to reduce SSB’s and increase water consumption
  • Food labels, schools/ECE settings, food assistance programs, taxes/price incentives, marketing practices
  • Cost-effectiveness research needed

• Implementation policy research based on systems frameworks is needed
  — Food label legislation, SSB and junk food taxes, food product reformulation, Open Streets (Ciclovías Recreativas) (Perez-Escamilla et al. Obesity Reviews (In Press))