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The Honorable Sylvia Burwell
U.S. Department of Health and Human Services
Hubert H. Humphrey Building
200 Independence Avenue, SW, Room 120F
Washington, DC 20201

The Honorable Tom Vilsack
U.S. Department of Agriculture
Jamie L. Whitten Federal Building
1400 Independence Avenue, SW, Room 200-A
Washington, DC 20250

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The National Confectioners Association (NCA) appreciates this opportunity to comment on the development of the 2015 Dietary Guidelines for Americans (DGA).

The National Confectioners Association is the not-for-profit trade association of the confectionery industry. NCA represents more than 400 companies that manufacture chocolate, confectionery, gum and mints products in the United States and another 250 companies that supply those manufacturers. The majority of our members are small and medium-sized companies. NCA offers education and leadership in manufacturing, technical research, public relations, retailing practices, government relations and statistical analyses. The Association is committed to supporting science-based evidence and developing educational resources that convey the role of candy as a treat in a happy, balanced lifestyle.

Confectioners are dedicated to delivering little pieces of happiness in the form of treats. The confectionery industry has made a commitment to do so responsibly, by providing a variety of portion-controlled treat options and through voluntary commitments. Under the voluntary "Treat Right" program, manufacturers of confections have added icons declaring calories on the front of packages which will accompany and complement existing nutrition and ingredient declarations on the back of packages. Additionally, all leading confectionery companies have made commitments to not market candy to children under the age of 12 under the Better Business Bureau's Children's Food and Beverage Advertising Initiative (CFBAI).

Executive Summary

- 1. The Dietary Guidelines should include recommendations that offer realistic and constructive advice to Americans, including guidance on the role of small, occasional treats, like candy and chocolate. *NCA encourages HHS and USDA to include recommendations on moderate consumption of treats in the Dietary Guidelines.***
 - Candy's role is, and has always been, a treat. Americans understand this and expect to consume candy accordingly. In fact, recent consumption data shows that Americans typically incorporate candy into their diet as a small, occasional treat.
 - Promoting a restrictive approach to treats can have unintended negative consequences. Scientific evidence suggests that restrictive dietary approaches may be counterproductive to developing and maintaining healthy eating behaviors – both when parents use these tactics with children and when individuals self-impose them.
 - Consumption of candy at current intake levels is not linked to negative health outcomes. Cross-sectional and longitudinal studies show no link between candy intake and weight or other unfavorable markers of health in adults and children, when candy intake is evaluated independently.
 - There are a number of practical strategies HHS and USDA could promote to encourage moderate intake of treats like candy. For instance, portion sizes are an effective method to promote moderate intake. Additionally, NCA encourages HHS and USDA to recognize the well-researched and policy-based definition of moderate candy intake proposed by NCA – 50-100 calories per day for those who choose to eat candy – as a part of the 2015 Dietary Guidelines for Americans.

- 2. The highest quality of evidence should be used to develop the foundational conclusions established by the Dietary Guidelines Advisory Committee (DGAC). *USDA and HHS should only consider those recommendations for which the committee conducted their own thorough independent evaluation of the scientific evidence using the Nutrition Evidence Library (NEL).***
 - For certain research questions, such as those on sugars and body weight, diabetes, and dental caries, the committee did not conduct their own independent review of the evidence through the NEL, but rather relied on existing reviews.
 - Furthermore, the committee did not review evidence on the efficacy of the recommended policy initiatives they put forth to reduce the intake of added sugars.

- 3. NCA urges HHS and USDA to confirm that oral health is a public health priority and either conduct a scientific review or recognize USDA's assessment of the evidence on chewing sugar-free gum and oral health.**
 - NCA respectfully requests that HHS and USDA reaffirm oral health as a public health priority in the 2015 Policy Document, as well as recognize that chewing sugar-free gum for 20 minutes after eating or drinking can help reduce cavities.

4. Positive research on cocoa/dark chocolate intake was reviewed by the 2010 DGAC. However, despite a substantial amount of research conducted on cocoa flavanols since the 2010, the 2015 DGAC did not consider or evaluate the scientific evidence.

- Given the significant progress in the generation of scientific evidence studies since the 2010 Dietary Guidelines for Americans, NCA encourages HHS and USDA to incorporate these findings into guidance for Americans on treats.

5. Use of low/no-calorie sweeteners has the potential to be a powerful tool for consumers.

- NCA urges HHS and USDA to review the DGAC’s recommendation that “added sugars should be reduced in the diet and not replaced with low-calorie sweeteners” in light of the committee’s scientific conclusion demonstrating the potential for low/no-calorie sweeteners to be used as a tool to reduce caloric intake.
- NCA encourages HHS and USDA to recognize the safety evaluations of aspartame by the relevant authorities, particularly in light of the potential for low/no-calorie sweeteners to be used in products such as sugar-free gum to promote consumer health.

1. The Dietary Guidelines should incorporate recommendations that offer realistic and constructive advice to Americans, including guidance on the role of small, occasional treats, like candy and chocolate.

The DGA are an important opportunity to provide helpful, realistic guidance on how to incorporate special foods like candy into a happy, balanced lifestyle. A practical, achievable approach to dietary guidance incorporates favorite foods and allows people to make dietary choices based on a range of factors including taste, preferences, cultural considerations, health and economic status.

a. Candy is an honest, authentic, transparent treat.

i. Candy's role is, and has always been, a treat. Americans understand this and consume candy accordingly.

Candy has a long and rich history of human consumption across many cultures. In fact, the earliest documented records of candy recipes date back to antiquity.¹ Today, chocolate and candy are understood to be treats by Americans and ranked as a favorite comfort food by many.² According to recent market research on shopper attitudes towards health and wellness, the majority of consumers prefer to eat their favorite candy less frequently or in smaller portions than to eliminate them or choose options with less sugar.³ Additionally, consumers expect there to be sugar in candy – they recognize the role of these products as treats.⁴

Health professionals overwhelmingly agree that there is a role for treats like candy and chocolate as part of a happy, balanced lifestyle. According to an NCA survey of registered dietitians at the 2014 Academy of Nutrition, 95% of RDs reported that they agree there is a “role for candy as part of a healthy balanced lifestyle”.⁵

Candy has been considered a special treat and has played an important role in cultural traditions and celebrations for thousands of years, and continues to be associated with holidays, traditions and everyday moments of celebration.

ii. Recent NHANES consumption data shows that Americans typically incorporate candy into their diet as a small, occasional treat.

Almost all (97%) Americans eat candy at least once per year according to the 2003-2006 National Health and Nutrition Examination Survey, What We Eat in America (NHANES, WWEIA),⁶ yet candy is not typically consumed daily and average per capita contribution of candy to the diet is consistently reported to be minimal. As per Table 1, on a given day, about a quarter of the population consumes candy. On average, candy is eaten as a treat about two or three times per week.⁷

Recent analyses of per capita candy intake from the 2007-2010 NHANES are shown in Table 1. Total candy intake was estimated at 10 g/d (~40-50 calories per day). This can be broken down into per capita intake of chocolate candy, which was 5.7g/d plus intake of non-chocolate candy, which was 4.3 g/d. Per capita candy intake by children and adolescents (ages 2-18) was approximately 11.9 g/d while adults 19 years and older consumed an estimated 9.4 g/d.

Per capita contributions of candy to total energy intake, total fat, saturated fat, total sugars and added sugars from the 2007-2010 NHANES data are shown in Table 2. Per capita total candy intake translates to 2.2% of total calories, or 45.7 kcal, for the U.S. population ages 2 years and older. Total fat and saturated fat contributed by candy accounted for 2.1% (1.6 g) and 3.2% (0.8 g), respectively. The contribution of candy to the intake of total sugars was estimated at 4.7% (5.7 g) and candy accounted for 6.4% (1.2 tsp) of added sugars intakes.

These analyses of per capita intake demonstrate that average candy consumption approximates moderate portions that fall into guidance on limitations of calories from sugar and solid fats by leading nutrition authorities including the American Heart Association, the World Health Organization, the Academy of Nutrition and Dietetics and the 2010 DGAC.

Table 1. Percent consumers of candy and per capita intake of candy among Americans ages 2 years and older, WWEIA, NHANES 2007-2010¹

Parameter	Population Group		
	≥2 y (n=17,571)	2-18 y (n=6,090)	≥19 y (n=11,481)
Candy consumers, %			
Candy containing chocolate	15.0 ± 0.6	13.2 ± 0.8	15.6 ± 0.6
Candy not containing chocolate	12.6 ± 0.5	21.3 ± 0.6	9.8 ± 0.5
Total candy	25.6 ± 0.8	31.3 ± 0.9	23.8 ± 0.9
Per capita candy intake, g/d			
Candy containing chocolate	5.7 ± 0.4	4.7 ± 0.4	6.1 ± 0.4
Candy not containing chocolate	4.3 ± 0.3	7.2 ± 0.4	3.4 ± 0.3
Total candy	10.0 ± 0.5	11.9 ± 0.4	9.4 ± 0.6

Table 2. Per capita contributions of candy to total energy, fat and sugar intakes among Americans ages 2 years and older, WWEIA, NHANES 2007-2010¹

Parameter	Population Group		
	≥2 y (n=17,571)	2-18 y (n=6,090)	≥19 y (n=11,481)
Total energy intake, kcal/d	2075 ± 13.8	1907 ± 17.7	2128 ± 16.9
Energy intake from candy, kcal/d	45.2 ± 2.1	51.6 ± 2.0	43.2 ± 2.4
% of energy intake from candy	2.2 ± 0.1	2.7 ± 0.1	2.0 ± 0.1
Total fat intake, g/d	77.6 ± 0.7	69.9 ± 0.8	80.0 ± 0.8
Fat intake from candy, g/d	1.6 ± 0.1	1.5 ± 0.1	1.7 ± 0.1
% of fat intake from candy	2.1 ± 0.1	2.1 ± 0.1	2.1 ± 0.1
Total saturated fat intake, g/d	25.9 ± 0.3	24.5 ± 0.3	26.4 ± 0.3
Saturated fat intake from candy, g/d	0.8 ± 0.0	0.8 ± 0.1	0.8 ± 0.1
% of saturated fat intake from candy	3.2 ± 0.2	3.2 ± 0.2	3.2 ± 0.2
Total sugars intake, g/d	120 ± 1.1	127 ± 1.2	117 ± 1.4
Sugars intake from candy, g/d	5.7 ± 0.3	6.7 ± 0.3	5.3 ± 0.3
% of sugars intake from candy	4.7 ± 0.2	5.3 ± 0.2	4.5 ± 0.3
Total added sugars intake, tsp/d	18.5 ± 0.3	19.1 ± 0.3	18.3 ± 0.4
Added sugars intake from candy, tsp/d	1.2 ± 0.1	1.3 ± 0.1	1.1 ± 0.1
% of added sugars intake from candy	6.4 ± 0.3	7.0 ± 0.3	6.3 ± 0.3

Source: What We Eat in America, National Health and Nutrition Examination Survey (WWEIA, NHANES) 2007-2010, day 1 dietary recalls from individuals 2 years of age and older, excluding breastfeeding children. Candy categories (candy containing chocolate, candy not containing chocolate) as defined in the WWEIA food categories; chewing gum was excluded from this analysis. Sum of values for candy containing chocolate and candy not containing chocolate may not equal values for total candy due to rounding. Values represent population-weighted proportions or means ± SE.

b. Promoting a restrictive approach to treats can have unintended negative consequences.

NCA applauds the inclusion of members with expertise in eating behavior research and agrees that exploring food intake and choice behavior will be a critical component of nutrition science going forward. NCA has extensively explored food intake behavior research relating to restrictive dietary approaches. This body of evidence is very consistent in showing that restricting foods, especially palatable foods, may be counterproductive to developing and maintaining healthy eating behaviors – both when parents use these tactics with children and when individuals self-impose them. Moreover, health professionals with experience counseling clients on strategies to improve their diets report that restriction is an ineffective method to manage treats in the diet. In a recent NCA survey of registered dietitians at the 2014 Food and Nutrition Conference and Expo, 92% were in agreement that behavioral research shows strictly limiting treats such as candy, may lead to increased consumption.

i. *Parental restriction of treats may reduce children’s ability to self-regulate intake of treats.*

A substantial body of research has evaluated the impact of parental restriction on children’s eating behavior, intake and BMI.⁸ A number of experimental studies have shown that parental restriction of palatable snack foods may be counterproductive and actually may increase children’s intake and attraction to the foods parents are attempting to limit. For instance, a restriction period of five weeks resulted in subsequent increase in intake of the restricted food in a study of three to five-year-old children.⁹ Another study of five- to seven-year-old children repeated these results and showed even greater increases in intake in children with certain characteristics, such as lower inhibitory control.¹⁰

Restriction may also increase children’s desire and preferences for certain foods. Even very short periods of restriction have elicited responses in children to the target food. For instance, children’s desire for and intake of a restricted chocolate increased when access was given following a one-time restriction of five minutes.^{11 12} Another study found that children’s desire for a highly-liked snack significantly increased following a two-week restriction period.¹³ Likewise, children whose parents restrict sweet foods are more likely to show preferences for sweeter foods than those whose parents allow access to them.¹⁴ Furthermore, chronic maternal restriction of children’s access to snack foods has been associated with higher levels of adiposity and girls’ intake of restricted snacks when they became available.¹⁵

Longitudinal studies have also demonstrated associations between restriction and children’s weight status and ability to self-regulate palatable foods, an

important skill for the development of long term healthy eating habits. Long term studies examining the effects of restrictive feeding practices on eating in the absence of hunger (EAH) have shown that restricting children's access to food promotes increased intake of the restricted foods. Two longitudinal studies of young girls found that parental restriction predicted EAH, which in turn increased risk for overweight.^{16 17} These findings were replicated in a more recent study that identified maternal feeding practice profiles and evaluated the effects on girls' eating behaviors and weight outcomes at five and seven years of age.¹⁸

The question of the role of parental restriction of candy specifically is currently being investigated by researchers at Penn State University, since candy is a food that is commonly restricted by parents.¹⁹ Recent findings were presented at The Obesity Society conference in October 2014. Researchers found that when candy was more restricted in the home, children consumed it less frequently, but when they did gain access, they consumed significantly more in a free access setting.²⁰

Restriction appears to be a common strategy used by parents.²¹ A recent study found that many parents engage in controlling eating practices with children and adolescents. These study authors concluded that, "given that there is accumulating evidence for the detrimental effects of controlling feeding practices on children's ability to self-regulate energy intake, these findings suggest that parents should be educated and empowered through anticipatory guidance to encourage moderation rather than overconsumption and emphasize healthful food choices rather than restrictive eating patterns."²²

ii. ***Research on self-restraint of food demonstrates an increase in subsequent desire, satisfaction and intake in adults.***

Studies have also evaluated the impact of self-restraint in adults on eating behavior, desire to eat and weight management.²³ Adults who chronically restrict their intake to avoid weight gain have been shown to be more susceptible to pre-occupation with restricted foods and subsequent weight fluctuations.²⁴ A longitudinal study over six years showed that women who reported dieting at study entry gained more weight over time than did non-dieters.²⁵

Specifically, feelings of guilt for eating chocolate may be associated with negative dietary outcomes.²⁶ For example, a recent study found that participants with a weight-loss goal who associated chocolate cake

with guilt were less successful at losing weight over a three month period compared to those associating chocolate cake with celebration.²⁷

Restriction has been shown to increase subsequent intake of favorite foods, particularly in individuals with certain characteristics, such as reduced measures of self-regulatory control.²⁸ For example, a study of 103 female undergraduates investigated the impact of a week of chocolate deprivation on cravings and chocolate intake. Chocolate-deprived restrained eaters ate more chocolate than any other group.²⁹ Another study of 68 females found increased consumption of a favorite snack following a 24-hour restriction in participants who displayed characteristics of high-restraint and high-disinhibition.³⁰

Highly restrictive eating practices have also been shown to increase the preoccupation with and preference for such foods in adults. For example, in a study by Cameron et al.³¹, participants selected their favorite snack food and were then placed on a 700-calorie deficit diet that included the ability to earn portions of their favorite snack. Though it was hypothesized that over the eight weeks of caloric restriction participants would experience a decrease in desire for snack foods, the participants' favorite snack foods rated much higher in liking post-weight loss than in pre-weight loss. Another short term study found that although consumption is not increased during a restriction period, thoughts about the forbidden product and the desire to consume the restricted product increased.³²

c. Consumption of candy at current intake levels is not linked to negative health outcomes.

Over the past several years, multiple epidemiological and clinical studies have evaluated the association between candy consumption with weight and health indicators.

Cross-sectional and longitudinal studies show no clear link between candy intake and weight or other unfavorable markers of health in adults and children, when candy intake is evaluated independently.

The impact of chocolate and candy consumption on weight measures was also evaluated in a number of clinical and intervention trials. For instance, a weight-loss intervention study that included daily sweet treats showed that premenopausal women who were overweight and obese successfully reduced energy intake, lost weight and reduced blood pressure, glucose and insulin levels.³³ Specific to chocolate, 19 studies with a BMI measure were evaluated in a meta-analysis of short-term studies on

flavanol-rich chocolate consumption. No significant differences in BMI measures following flavanol-rich chocolate consumption were observed in this analysis.³⁴

Furthermore, authors of independent literature reviews on the contribution of confectionery consumption to the global obesity epidemic have concluded that current research on confectionery consumption does not demonstrate a clear relationship with total energy intake or impact to health.^{35 36}

i. ***There is not an association between candy intake and negative health outcomes in adults.***

A study of more than 15,000 U.S. adults from the 1999-2004 National Health and Nutrition Examination Survey found no association between total candy intake and increased weight, body mass index (BMI) or cardiovascular risk factors, including lower diastolic blood pressure and C-reactive protein, higher levels of high-density lipoprotein (HDL) cholesterol, and lower triglycerides.³⁷

The science does not support a link between frequency of candy and chocolate intake and weight and related health issues in adults. For instance, Murphy et al. found that, using 2003-2006 NHANES FFQ data of more than 25,000 adults, there was no association between frequency of candy intake and risk of obesity/overweight, blood pressure, blood cholesterol levels or markers of insulin resistance.³⁸ On the other hand, a study evaluating self-reported data from a survey of more than 1,000 healthy men and women found that more frequent chocolate intake was associated with lower BMI scores.³⁹ This inverse association between frequency of chocolate intake and BMI was confirmed in a cross-sectional analysis of the participants in the ARIC study, however the opposite was observed when evaluating frequency of chocolate intake prospectively.⁴⁰

An older analysis from 1998 investigated the link between candy consumption frequency and lifestyle measures and longevity using data from 7,481 men in the Harvard alumni health study. When adjusted for age and other health indicators, candy consumers had an average increase in longevity of 0.92 years.⁴¹ However, the effects were greatest for moderate consumers of candy versus those with the highest intake.

ii. ***There is not an association between candy intake and negative health outcomes in children and adolescents.***

Similar to the findings in studies of adults, results from analyses of American and European children do not support a unique link between chocolate and candy intake and weight or other chronic disease risk factors.

Candy consumption and health outcome data of more than 11,000 children and adolescents ages two to 18 years were evaluated using the 1999-2004 NHANES data. Researchers found that children who consumed candy were less likely to be overweight or obese compared to those who did not consume candy and no associations were found between candy consumption and cardiovascular risk factors, including no differences in blood pressure or blood lipid levels.⁴² Likewise, a study of 1,458 European adolescents showed that higher chocolate consumption was associated with lower BMI.⁴³

A longitudinal study was conducted to investigate the long term relationship between candy consumption, indicators of weight, and markers of cardiovascular health. Candy consumption data from 355 ten-year-old children enrolled in the Bogalusa Heart Study was evaluated to determine if candy consumption predicts weight in early adulthood. Researchers concluded that there was no correlation between childhood candy intake and BMI or negative health risk factors (blood pressure, blood cholesterol, glucose and insulin) in adulthood.⁴⁴

d. There are a number of practical strategies HHS and USDA could promote to encourage moderate intake of treats like candy.

The public is seeking education on how to incorporate favorite treats into the diet. Leading nutrition and health authorities support the concept of moderation for all foods. Portion sizes are an effective method to promote moderate intake of palatable foods. Additionally, NCA encourages HHS and USDA to recognize a definition of moderate candy intake – such as 50-100 calories per day – for those who choose to eat candy as a part of the 2015 Dietary Guidelines for Americans.

i. Consumers and health practitioners want education on how to consume treats.

The vast majority of Americans would prefer access to nutritional information and educational initiatives, rather than infringements on choice. In fact, 86% of shoppers report that they as an individual are primarily responsible for the healthfulness of their diets⁴⁵ and 88% of American consumers believe that they have a high level of control over the healthfulness of their diet.⁴⁶

Given consumers' desire to enjoy treats as a part of their lives, it is practical to provide recommendations on how to include them in a way that still meets dietary recommendations.

A recent survey of health professionals found that 78% believed an approach based on balanced moderate consumption of a wider variety of foods would be

the most effective for providing dietary guidance to the public.⁴⁷ Specifically, Registered Dietitians support educating the public on specifically how much candy may fit in a balanced lifestyle. In fact, 94% agree that quantitative guidance (e.g., example amounts or calorie levels) on what “moderate consumption” of treats like candy and chocolate means can be useful for the public.⁴⁸

ii. Nutrition and health authorities support moderation.

The tagline of the 2010 Dietary Guidelines, “enjoy your food, but eat less,” embodied the recommendation that diets need to be enjoyable and portions need to be limited. This ethos supports the concept that treats such as candy can be enjoyed in moderation as a part of a balanced lifestyle. Additionally, the “Ten Tips Nutrition Education Series” derived from the 2010 Dietary Guidelines included advice recognizing that small treats, such as candy, can be part of a healthful eating pattern with guidance on serving small portions.

The Academy of Nutrition and Dietetics has had a longstanding philosophy that all foods can fit in a healthy eating pattern if consumed in moderation with appropriate portion size and combined with physical activity.⁴⁹ Additionally, the CDC supports that healthy eating is all about balance—people can enjoy their favorite foods even if high in calories or added sugar if they are only eating them once in a while and balancing them with “healthier” foods and more physical activity.⁵⁰ NCA requests that HHS and USDA retain the message that Americans should enjoy their food in moderation.

iii. Portion-sized packaging is a powerful tool for promoting moderation.

Packaging of a product has the ability to provide external cues about the appropriate amount of food to consume in a sitting.⁵¹ A number of studies have explored the effects of packaging and portion size on intake of foods.^{52 53 54} Reductions in portion or package size have demonstrated the ability to reduce energy intake.⁵⁵ The introduction of 100-calorie packaging has been shown to help reduce energy intake, most notably in those who are overweight.⁵⁶

Additionally, consumers are receptive to messages about portion control. According to the 2014 International Food Information Council Foundation’s food and health survey, the top ways consumers are trying to lose weight are to incorporate exercise and reduce portion sizes.⁵⁷ NCA supports the recommendations of the 2015 DGAC that individuals can use “a variety of strategies to reduce consumption of sodium, saturated fat and added sugars, including smaller portion sizes.”⁵⁸ Confectioners have provided a variety of portion-controlled products on the market to promote consumers choice.

iv. NCA has proposed a definition of moderate candy consumption of 50-100 calories per day.

A paper titled “Proposing a Definition of Candy in Moderation” was published in the 2014 March/April issue of *Nutrition Today*⁵⁹. The purpose of this article was to summarize current intakes of candy, examine the potential role of candy in a happy, balanced lifestyle and provide support for a proposed definition of “candy in moderation” for those who choose to consume confections, including chocolates, hard and chewy candy, and chewing gum. While the concept of moderation—or consuming all foods in reasonable amounts—is reflected in most current nutrition guidance recommendations from nutrition authorities, the interpretation of this term can vary widely. According to the paper, moderation is defined as an amount equivalent to 50-100 calories per day, depending on energy needs, for those people who choose to eat candy. This recommendation translates to 20%-30% of the maximum daily calorie allowance for SOFAS and falls within dietary guidance from leading health authorities for calories from added sugars and fats.

Examples of moderate servings of candy as per this definition include:

- 15-25 small jelly beans
- 1 snack/fun size candy bar
- 2-4 strings of licorice (about 8 inches long)
- 3-5 pieces of hard candy
- 2-4 bite-sized chocolate pieces

Current per capita candy intake, as summarized in Table 1, is considered moderate in the context of calories (2.2%), but a definition of moderation can help provide guidance to those consumers who may be looking for information on how to include favorite treats as a part of a balanced lifestyle. Additionally, NCA has developed visual “moderation guides” to help consumers understand the concept of moderate portions as per this definition. These guides are included as an appendix to these comments. NCA encourages HHS and USDA to incorporate recommendations on how to consume treats like candy and chocolate in moderation as a part of the 2015 Dietary Guidelines.

2. **The highest quality of evidence should be used to develop the foundational conclusions established by the DGAC. *USDA and HHS should only consider those recommendations for which the committee conducted their own thorough independent evaluation of the scientific evidence using the NEL.***

For certain research questions, such as those on sugars and weight, diabetes and dental caries, the committee did not conduct their own independent review of the evidence through the NEL, but rather relied on existing reviews. Furthermore, the committee did not review evidence on the efficacy of the recommended policy initiatives they put forth to reduce the intake of added sugars.

- a. **The confectionery industry supports moderate intake of sugars as a source of calories, however there are concerns with the scientific review process that informed the DGAC conclusions and policy recommendations on added sugars.**

The confectionery industry is committed to providing tools to consumers to promote choice and transparency. Recognizing added sugars are a source of calories in the diet, the candy industry supports moderation and front-of-pack (FOP) labeling. Nonetheless, it is essential that any conclusions on the effect of added sugars on health, beyond their contribution to caloric intake, be based on the highest quality evidence available. There are significant concerns with the quality of evidence used by the DGAC and the lack of transparency throughout the process to reach these critical conclusions on sugars and health. Stating concerns about a specific nutrient without strong scientific evidence has the potential to result in unintended consequences, such as a lack of a reduction in intake of overall calories, consumer confusion or even replacement/reformulation with problematic ingredients.

- i. ***The confectionery industry supports voluntary initiatives that promote moderate mindful intake of sugars.***

The candy industry has established tools to help consumers moderate candy intake, such as portion-controlled (“mini”, “snack” and “bite-size”) options, as well as shareable and re-sealable packages. As outlined above, America’s confectioners are dedicated to providing consumers with information they need to make the choices that are right for them through FOP labeling.

- ii. ***There are concerns with the evidence review process used by the DGAC on “added sugars” and obesity, diabetes, and cardiovascular disease. Specifically, the conclusions were based largely on observational evidence and the 2015 DGAC did not use the NEL process to answer all questions on sugars and health.***

Recommendations that lead the American public to believe there is a dietary component that can cause a serious disease outcome should only be made based on significant scientific agreement due to a robust review of the entire

body of scientific literature by experts in the field of investigation. The NEL process is designed to minimize bias, ensure transparency and reproducibility and, when properly employed, the process should yield evidence-based conclusions. Unfortunately, with respect to the questions regarding added sugars and weight, diabetes and dental caries the DGAC did not adhere to the NEL methodology.

The DGAC relied on the World Health Organization's review on sugars and health for their conclusions on dental caries. Additionally, the committee did not use the NEL process to evaluate the scientific evidence on weight or diabetes. For these endpoints, the committee relied on meta-analyses.

The evidence-basis for the Added Sugars Working Group conclusions linking "added sugars" intake with *serious* disease outcomes relies heavily on observational data. Epidemiological studies, and even meta-analyses of RCTs, are considered observational data and their findings should be interpreted as associations as they are *not proof of cause and effect*. Caution must be applied when making and communicating recommendations that are based primarily on observational data and not confirmed through well-designed trials.

iii. Overemphasis on the reduction of a single nutrient such as added sugars may result in damaging, unintended consequences.

1. Emphasis on added sugars may decrease attention given to calories.

All sugars in food systems are carbohydrates, providing 4 kcals/g. The origin of a sugar (added or naturally occurring) does not dictate its metabolism in the body, its physiological effect, its caloric contribution nor its impact on health. Thus, whether or not sugars are intrinsic or added is not as important as their total contribution to calories in the diet. Excess consumption of any macronutrient (fats, carbohydrates, and proteins) will increase overall caloric consumption and could lead to increased body weight. Emphasis on added sugars may detract from this important energy balance principle and message.

Many of the studies referenced by the WHO report the impact of the addition of calories from added sugar and the subsequent effect on body weight. Given that it is well founded that body weight is reflective of energy balance, the addition of any energy (calorie) source to the diet is likely to increase body weight.

2. *Sugars are a defining characteristic of confectionery products. Removing sugar from candy may not result in a commensurate reduction in caloric contribution.*

Sugars constitute the bulk or substance of many confectionery products, and also the unique properties of the sugars used to make candy determine the specific texture of a product through controlling crystallization and viscosity.⁶⁰ Sugars influence water activity (which has an important effect on food safety). Also, sugars impart sweetness, and act as precursors to develop flavor and color in certain confectionery products, such as toffees and caramels. Not surprisingly, while some of the sugars in confections are naturally occurring from the milk, fruit and nut ingredients, most of the sugar in candy products is added.

Although it is impossible to duplicate the characteristics of sugar, candy makers have had great success with some sugar alternatives, and reduced sugar or sugar-free options are available for most types of confections. The most common bulk sugar substitutes are the sugar alcohols or polyols, including sorbitol, maltitol, erythritol, isomalt and lactitol, which are only partially absorbed and thus contribute fewer calories than sugar. These sweeteners typically provide about 2 calories per gram versus 4 calories per gram of sugar; thus, while the sugar may be removed or reduced from some confections, the calories are often not reduced commensurately.

This category of sweeteners helps mimic the textural properties of sugar, but lacks sufficient sweetness and must therefore be combined with a high intensity sweetener. High intensity sweeteners present a range of challenges for confectioners including flavor impact, consumer acceptability, regulatory considerations (e.g. chocolate standard of identity require a nutritive sweetener). Perhaps the biggest hurdle to reducing sugars in confections is the reluctance of consumers to accept changes in the sweetness, texture, and flavor of confections –foods they consider a treat.

3. *Demonization of certain foods and nutrients has historically resulted in unintended consequences*

Previous dietary guidance that demonized specific nutrients has resulted in consumer confusion and in some cases, regrettable substitution. For instance, during the 1990s fat was targeted and the result led to consumer confusion and replacement of fat with sugar, without a substantial reduction in calories. Additionally,

recommendations to limit dietary cholesterol were later reversed. As another example, partially hydrogenated oils were developed as a healthier substitute for saturated fats in response to concerns about the impact of saturated fats on cardiovascular health. Now, FDA has proposed removing all partially hydrogenated oils from the food supply due to concerns about the effects of *trans* fat on cardiovascular health.

b. NCA does not support social policy measures that limit consumer choice and access

The DGAC strayed outside the parameters of their charter when they developed policy recommendations without the necessary scientific evidence. Federal dietary guidance should not include dietary or policy recommendations when there is no proof of their efficacy. The DGAC's specific policy recommendations related to local and federal economic/tax policies, marketing restrictions, food assistance programs, labeling requirements, health care and education were not based in scientific evidence. It is the role of the DGAC to translate and distill current science into a set of dietary recommendations from which the guidelines are developed. The 2015 charter of the DGAC states, "the law instructs that this publication shall contain nutritional and dietary information and guidelines for the general public, shall be based on the preponderance of scientific and medical knowledge current at the time of publication, and shall be promoted by each Federal agency in carrying out any Federal food, nutrition, or health program."⁶¹

Not only is there no evidence to support the efficacy of these recommendations, but the proposed measures may reinforce negative sentiments about certain foods and nutrients instead of promoting overall healthy eating patterns. Below, NCA highlights concerns with specific policy recommendations including added sugars labeling, marketing limitations, taxes and other restrictions.

i. The added sugars labeling recommendation was not based on an evaluation of evidence, such as existing studies of consumer understanding.

The DGAC recommends that FDA should require the labeling of added sugars in teaspoons and grams on the Nutrition Facts Panel, however recent research suggests that the labeling of added sugars may confuse consumers. The IFIC Foundation recently conducted consumer research relevant to the NFP and interpretation of added sugars labeling. The preliminary findings show that consumers do not understand what added sugars are or how to use this information on the label. Consumers had greater difficulty identifying the amount of total sugars in the product when an added sugars declaration was included on the label compared to a label that only listed sugars. Only 55% of consumers correctly identified the amount of total sugars in a product with a label that included an added sugars line, compared to 92% of consumers who viewed a label that only listed sugars.⁶² Similarly, in another recent consumer

survey only 5% of consumers incorrectly identified the amount of sugar from a current cereal NFP label. When added sugar was included on the label, more than one-third incorrectly identified the amount of sugar. More importantly, when asked to pick the healthier option of two labels, more than one-third chose a food with lower added sugar, even though it contained higher calories, fat and saturated fat.⁶³

- ii. ***Marketing restriction recommendations are not justified, especially considering the strides made by industry through voluntary commitments.*** The DGAC has produced no evidence that implementation of the proposed guidelines on marketing will be effective at reducing childhood obesity. The committee suggests “[i]mplementing policies that limit exposure and marketing of foods and beverages high in added sugars and sodium to all age groups, particularly children and adolescents.” At this time the impact of food marketing on obesity is unknown. The Institute of Medicine’s 2006 report on food marketing concluded that “. . . the current evidence is not sufficient to arrive at any finding about a causal relationship from television advertising to adiposity”.⁶⁴

In the past 9 years, the industry has made extensive strides to reduce advertisements directed to children under the age of 12. Leading candy and chocolate manufacturers have made major commitments not to advertise to children under 12 through the Children’s Food and Beverage Advertising Initiative (CFBAI).

Recent literature has shown that these commitments have had a dramatic impact on the reduction of candy advertisements. A study by the Georgetown Economic Service (GES) found that exposure to candy ads fell by almost 70% for children ages 2-11 between 2004 and 2010.⁶⁵ Prior to publication, this GES study was cited by the Grocery Manufacturer’s Association in a presentation that noted ads for candy during children’s programming had already fallen by 68% between 2004 and 2008.⁶⁶ Advertising reductions were apparent as early as 2007. One study found that exposure to candy bar ads fell by 69.1% and 62%, respectively, among children ages 2-5 and 6-11 between 2003 and 2007.⁶⁷ Another study found exposure to candy ads fell by 47.2% among children ages 2-11 from 2004 to 2008.⁶⁸

The 2012 IOM Food Marketing to Children and Adolescents Review included information on the reduction of candy and frozen dessert ads – “The primary change in this category was a large reduction in the number of products marketed and total spending. There was also some nutritional improvement in the category, particularly with respect to children’s marketing, which averaged

30 fewer calories, 7 g less sugar, and 0.6 g less saturated fat per serving in 2009.” Candy and frozen dessert marketing budgets for youth products dropped from 25.8% to 14.8%.⁶⁹

Expanding marketing restrictions to adolescents and adults is not scientifically justified. CFBAI, the industry standard for self-regulation, focuses on children under 12. They point to research that suggests by age 12 children have the ability to understand the persuasive intent of advertising.⁷⁰ The FTC encouraged restrictions only for kids under 12. Keeping in line with this recommendation, NCA and member companies support the CFBAI pledge.

iii. *Taxes on foods are unpopular, ineffective and regressive.*

In 2011 the Tax Foundation did a special report on candy taxes that outlines many concerns related to candy taxes:

“[T]he primary purpose of taxes is to raise revenue for necessary government services, not to change behavior. Therefore, the tax code should not discriminate against certain groups of people and favor others. A careful reading of the literature on ‘sin tax’ suggests that not only do excise taxes have unintended consequences; they are often completely ineffective at bringing about the desired behavior change.”

A significant concern is that low income persons spend a larger portion of their income on food purchases than do the more affluent.⁷¹ It is the consumers who can least afford it who will bear a disproportionate share of the burden imposed by discriminatory food taxes.

Additionally, research from 1998 to 2010 suggests that it is not possible to predict demand responses to price changes based on the current research and that the substitution effect, replacing one source of calories with another, may be 100%. The efficacy of food taxes on caloric intake and obesity are unclear. While taxes may have the ability to reduce consumption of the taxed item, some evidence suggests that consumers may replace the calories with other products.⁷²

iv. *Expanding “smart snacks” restrictions to parks, recreation centers, sports leagues, after-school programs, worksites, colleges and universities, healthcare, and other community settings is misguided.*

Confectioners recognize that schools are a unique environment, as parents are not present during the school day, and as such support USDA’s interim final rule on Smart Snacks in Schools. NCA commends USDA for striving to make the

school a healthier environment during the school day and supports all related efforts. However, there is no evidence that applying these restrictions beyond child-oriented settings is beneficial. Furthermore, consumers oppose government restrictions on where and how food products can be sold.

v. ***Recommending a standardized FOP symbol is redundant because industry has already adopted a label that is used consistently across the grocery store aisles.***

The Advisory Committee recommends that FDA, “standardize and create easy-to-understand front-of-package (FOP) labels on all food and beverage products to give clear guidance about a food’s healthfulness.” This information is already present on a number of food packages, ranging from beverages, to candy bars to cereal boxes.

The confectionery industry is dedicated to providing consumers with useful information when purchasing decisions are being made. As a packaged food, under the Nutrition Labeling and Education Act requirements, confectionery products carry a nutrition facts panel. Additionally, companies that manufacture approximately 85% of the confections on retail shelves have implemented or have plans to implement a voluntary FOP labeling system.⁷³ NCA’s voluntary Treat Right FOP program was developed to meet the specific needs of the confectionery industry while at the same time providing as much consistency as possible with other domestic and international FOP schemes. The confectionery industry approach uses one icon declaring calories. Calories were selected because they are the single most important piece of nutritional information for weight management. Calories are also the top nutrient considered by consumers when making a purchasing decision; 71% of Americans take calories into account when making purchasing decisions⁷⁴ and 88% of Americans report they would find calorie information on the front of the package at least somewhat helpful.⁷⁵

The simplicity of the icon is intended to be helpful for making decisions at the point of purchase and given that many candy packages tend to be small, this icon fits on the front of the package for the majority of candy products in an easy-to-read way. Some companies may include additional icons displaying other nutrient information (e.g. saturated fat, sugars, sodium) on the back of larger packages.

3. NCA urges HHS and USDA to confirm that oral health is a public health priority and either conduct a scientific review or recognize the USDA's assessment of the evidence on chewing sugar-free gum and oral health.

NCA is concerned that the 2015 DGAC did not identify oral health as a public health priority unlike the 2005 and 2010 editions of the Dietary Guidelines for Americans. Therefore, NCA respectfully requests that HHS and USDA reaffirm oral health as a public health priority in the 2015 Policy Document, as well as recognize that chewing sugar-free gum for 20 minutes after eating or drinking can help reduce cavities. This finding has already been recognized by USDA through its Smart Snacks rule,⁷⁶ and we ask that HHS and USDA continue to recognize the anti-carries benefits of chewing sugar-free gum in the 2015 Policy Document.

We are disappointed by the Scientific Report's treatment of oral health because it does not meaningfully address the issue, despite oral health remaining a public health priority by the federal government. According to the National Institutes of Health, in the United States "dental caries (tooth decay) remains the most prevalent chronic disease in both children and adults, even though it is largely preventable. Although caries have significantly decreased for most Americans over the past four decades, disparities remain among population groups."⁷⁷ Additionally, HHS has selected oral health as one of its Leading Health Indicators in its "Healthy People 2020," which provides a comprehensive set of 10-year goals and objectives for improving the health of all Americans.⁷⁸ Also, according to the Surgeon General's report on oral health, "[m]ore than 51 million school hours are lost each year to dental-related illness."⁷⁹ Similarly, the Centers for Disease Control recognized the burden of tooth decay—"for children, untreated cavities can cause pain, dysfunction, school absences, difficulty concentrating, and poor appearance—problems that greatly affect a child's quality of life and ability to succeed."⁸⁰

Further, both the 2005 and 2010 DGA recognized oral health as a public health priority. The 2005 DGAC's Technical Report found a causal relationship between the intake of carbohydrates and dental caries.⁸¹ The Committee also went a step further by focusing on oral hygiene methods proven to help improve oral health. It concluded that "[d]rinking fluoridated water and/or using fluoride-containing dental hygiene products help reduce the risk of dental caries. A combined approach of reducing the frequency and duration of exposure to fermentable carbohydrate intake and optimizing oral hygiene practices is the most effective way to reduce caries incidence."⁸² The 2010 DGAC reaffirmed these conclusions,⁸³ but the 2015 DGAC did not do so. Therefore, NCA asks HHS and USDA to reaffirm the oral health conclusions in the 2015 Policy Document.

Should HHS and USDA reaffirm the oral health conclusions from the 2005 and 2010 DGAs, we also request that the Departments include chewing sugar-free gum as an oral hygiene measure. More than 50 scientific studies and literature, covering more than 40 years of research on the topic, were submitted for a systematic review, but the DGAC did not conduct such a review. Therefore, we ask that HHS and USDA conduct a systematic review of the submitted evidence

showing that chewing sugar-free gum stimulates salivary flow, which neutralizes plaque acids and enhances remineralization of the tooth enamel, as well as reduces dental caries.

If the Departments decide not to conduct a systematic review, then we ask HHS and USDA to affirm USDA's scientific finding that chewing sugar-free gum after meals reduces dental caries. In the interim final rule published in June 2013 for Smart Snacks, USDA's Food Nutrition Service recognized the oral health benefits of chewing sugar-free gum as its reasoning for allowing sugar-free gum products to be sold in schools under the new nutrition standards.⁸⁴ Based on USDA's review of the same studies submitted to the 2015 DGAC, USDA agreed that "[c]linical studies have shown that chewing sugarless gum for 20 minutes following meals can help prevent tooth decay."⁸⁵ Therefore, HHS and USDA should continue to recognize the oral health benefits of chewing sugar-free gum in the 2015 Policy Document in order to align with existing nutrition policy created by USDA through a formal rulemaking proceeding in compliance with the Administrative Procedures Act.

4. Positive research on cocoa/dark chocolate intake was reviewed by the 2010 DGAC, however despite a substantial amount of research conducted on cocoa flavanols since the 2010 Report, the 2015 DGAC did not consider or evaluate the scientific evidence.

The 2010 DGAC concluded that, “moderate evidence suggests that modest consumption of dark chocolate or cocoa is associated with health benefits in the form of reduced CVD risk. Potential health benefits need to be balanced with caloric intake.”⁸⁶ The 2010 DGAC further recommended a need for future research to elucidate the role of the polyphenolic compounds (cocoa flavanols) in cocoa and chocolate on health benefits.

Over the past five years, the body of evidence on dark chocolate and cocoa, and specifically the flavanol compounds in cocoa, has grown tremendously. Notable clinical trials in recent years found improvements in blood flow function/arterial stiffness⁸⁷ and HDL cholesterol^{88, 89}, as well as short term reductions in blood pressure.⁹⁰ For example, a prospective study published in the February 2015 issue of *American Journal of Clinical Nutrition* reported that more frequent chocolate consumption was linked to reduced risk of diabetes in men.⁹¹ Additionally, prospective studies have been published including a recently published study of over 20,000 men in the Physicians’ Health Study showing that chocolate consumption was associated with reduced risk of heart failure in healthy weight men.⁹²

Recent meta-analyses of 66 randomized clinical trials found consistent short- and long-term improvements in blood pressure, insulin resistance, lipid profiles, and vascular dilation and promising effects of cocoa flavanols on insulin and HOMA-IR associated with dark chocolate and cocoa consumption.^{93, 94} The evidence has evolved to the point that the European Food Safety Authority recently finalized approval of a claim that “cocoa flavanols help maintain endothelium-dependent vasodilation which contributes to healthy blood flow”.⁹⁵

Emerging evidence shows cocoa flavanols may have promising effects on cognitive function, reducing anxiety and improving quality of life.^{96, 97, 98, 99} A recent trial explored the impact of cocoa flavanols on blood flow to the brain and found improvements in cerebral blood volume and cognition in older adults.¹⁰⁰ Additionally, there has been some work on the impact of chocolate on stress, anxiety and mood. For example, a recent study found that markers of stress were reduced following high-flavanol cocoa consumption.¹⁰¹

5. Use of low-calorie sweeteners has the potential to be a powerful tool for consumers.

Despite a conclusion that “Moderate and generally consistent evidence from short-term RCTs conducted in adults and children supports that replacing sugar-containing sweeteners with low-calorie sweeteners reduces calorie intake, body weight, and adiposity,” by the Added Sugars Working Group, the Committee writes in their Executive Summary: “[A]dded sugars should be reduced in the diet and not replaced with low-calorie sweeteners.” However, numerous health authorities including the Academy of Nutrition and Dietetics and the American Heart Association recognize the potential of low-calorie sweeteners to assist in managing weight. NCA urges HHS and USDA to review this conclusion in light of the scientific conclusions demonstrating the potential for low-calorie sweeteners to be used as a tool to reduce caloric intake.

The safety of low-calorie sweeteners, such as aspartame, has been confirmed through rigorous review by FDA and other food standards organizations. Evidence suggests that consumers safely and effectively use products containing these ingredients to reduce caloric intake. Furthermore, these ingredients have the potential to have a beneficial impact on dental health. NCA encourages HHS and USDA to recognize the safety evaluations of aspartame by the relevant authorities, particularly in light of the potential for artificial sweeteners to be used in products such as sugar-free gum to promote consumer health.

6. Conclusion

In summary, there is a role for treats like chocolate, candy, gum and mints in a happy, balanced lifestyle. Consumers and health professionals would benefit from practical guidance on how to incorporate these favorite foods into the diet. Restrictive practices have been shown to be detrimental, but portion control may have a great deal of promise for these types of products. As per NCA's proposed definition, an intake of 50-100 calories from candy may fit into a daily diet when consumed mindfully after nutrient requirements are met. NCA proposes that for individuals who choose to eat candy, HHS and USDA support and bolster industry efforts to provide consumers with practical guidance on how to incorporate these treats in moderation.

It is essential that the Dietary Guidelines for Americans be based only on the strongest evidence available and that the committee's recommendations are based on thorough independent review of the evidence, using the established NEL process.

Thank you for your consideration of these comments.

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⁸⁰ Centers for Disease Control, “Oral Health Preventing Cavities, Gum Disease, Tooth Loss, and Oral Cancers: At a Glance 2011,” at 2, available at <http://www.cdc.gov/chronicdisease/resources/publications/aag/pdf/2011/Oral-Health-AAG-PDF-508.pdf> (last accessed March 18, 2013).

⁸¹ Overall, the Committee concluded that “the process of dental caries formation involves three steps: the fermentation of substrate by cariogenic bacteria in the mouth to produce acid, demineralization of the enamel surface by the acid, and subsequent bacterial invasion.”⁸¹ The Committee defined “substrate” as “sugars, (including sucrose, glucose, fructose, and lactose) and starch”⁸¹ and also focused on other important factors that contribute to the formation of dental caries, including “the form of the food, how long it remains in the mouth, and the frequency of consumption.” 2005 Dietary Guidelines Advisory Committee, “The Report of the Dietary Guidelines Advisory Committee on Dietary Guidelines for Americans, 2005,” at Part A: Executive Summary, page 6, (2005), available at <http://www.health.gov/dietaryguidelines/dga2005/report/> (last accessed March 23, 2015).

⁸² *Id.* at 6.

⁸³ 2005 Dietary Guidelines Advisory Committee, “Section: 5 Carbohydrates,” at 4.

⁸⁴ “Smart Snacks Rule” at 125.

⁸⁵ *Id.*

⁸⁶ 2010 DGAC Report. Part D, Section 3: Fatty Acids and Cholesterol. P44.

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