

## ***Dietary Guidelines Advisory Committee Meeting***

### ***Sponsored by the***

U.S. Department of Health and Human Services  
U.S. Department of Agriculture

### ***Held at the***

Omni Shoreham Hotel  
Washington, DC

August 11, 2004

### ***Meeting Summary***

*Wednesday, August 11*

*(7:45 a.m.)*

### ***Participants***

**Dietary Guidelines Advisory Committee:** Dr. Janet King (Chair), Dr. Larry Appel, Dr. Benjamin Caballero, Dr. Penny Kris-Etherton, Dr. Carlos Camargo, Dr. Xavier Pi-Sunyer, Dr. Joanne Lupton, Dr. Connie Weaver, Dr. Yvonne Bronner, Dr. Fergus Clydesdale, Dr. Theresa Nicklas, Dr. Bill Go

**Co-Executive Secretaries:** Ms. Kathryn McMurry, Ms. Carole Davis

**Others:** Dr. Cristina Beato, Dr. Eric Hentges, Capt. Penelope Royall, Dr. Carol Suitor

### ***Welcome and Introductions***

**Dr. Cristina Beato, Acting Assistant Secretary for Health, U.S. Department of Health and Human Services,** welcomed Committee members, staff, and observers, and thanked Committee members for volunteering their time and expertise to work on these guidelines. She said that the *Dietary Guidelines for Americans* are an important part of the health and the well-being of Americans of all ages in every community in our country. She noted that many of the nation's education initiatives and activities are based on this guidance, including food label information, food guidance systems, as well as the food that is prepared and served in the school meal programs and health initiatives that measure the objectives for our nation. She reiterated that this was a Federal Advisory Committee and operated under the regulations of the Federal Advisory Committee Act. Responsibility for chartering the Committee rotates between the Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA). HHS is the lead agency for the *2005 Dietary Guidelines for Americans*.

She state that this Committee was finalizing its recommendations—based on the best available science—on how to improve and maintain good health through food choices and physical activity. After the Committee presents its report to the Secretaries of HHS and USDA, the public will have another opportunity to submit comments to the Departments for consideration in drafting the *2005 Dietary Guidelines for Americans*. Then, in early 2005, HHS and USDA will release the *2005 Dietary Guidelines for Americans* policy document.

At that time the two Departments will continue their collaboration, shifting focus to communicating the messages of the *Dietary Guidelines* accurately and effectively to a wide range of audiences in order to improve the health and well-being of our American citizens. HHS has issued a *Federal Register* notice for 90 days, open through the end of August, soliciting communication research pertinent to the development of messages and materials for the *2005 Dietary Guidelines*.

**Dr. Janet C. King, Chair, Dietary Guidelines Advisory Committee**, thanked Dr. Beato, Capt. Royall, and Dr. Hentges for giving the Committee an additional 6 weeks to work on their report. She then reviewed the agenda, and the meeting goal that Committee members discuss and agree upon the content, wording, and order of each section.

### ***Discretionary Calories*** ***Benjamin Caballero***

Dr. Caballero distributed a handout containing a rewrite of the section in the notebook on discretionary calories, including the basic definition. He noted that where the document said “nutrient requirements” it should be replaced with “recommended intake of nutrients.” The first paragraph on the second page—“Data from national surveys indicates that the average American...”—was revised to make it less categorical in terms of the data; and an example was cited.

There were two graphs attached to the distributed document. One graph was drawn without data to describe the concept of discretionary calories. The other graph was based on modeling data from USDA illustrating the concept of discretionary calories for a sedentary 40-year-old man. Dr. Caballero noted that with discretionary calories, one can consume some foods that have calories, but no nutrients—like desserts or alcoholic beverages—or more healthy foods—another portion of fruits and vegetables. He stated that it is not necessary to use discretionary calories only for low-nutrient foods. The column on the right of the graph reflected consumption data for a sedentary individual who typically consumes more calories than the recommended level and would consequently have no discretionary calories.

Dr. King said the graph included in this section was an excellent way to present this concept, including the fact that it takes about 1950 calories to meet recommended nutrient intakes. Dr. Appel thought it would be important to have one graph for men and one for women, so people would understand the amount of discretionary calories for each.

Dr. Caballero continued his presentation by pointing out the two main messages in this section, namely: selecting foods higher in nutrient density, and increasing physical activity. He stated that the section first describes the concept of discretionary calories, then how to select foods to maximize them. Secondly, it emphasizes the current situation and the need to adjust the choices of foods to select nutrient-dense foods and increase the energy requirement by increasing physical activity.

An issue for discussion was classifying the physical activity category that has a physical activity level (PAL) of 1.6 to 1.9 as “very active.” Dr. Caballero noted that this may be misleading because that level of activity is usually defined as “active,” and the starting point for “very active” is likely at a PAL of 1.9 or 2 and up to 2.4. If the Committee adopted only three physical activity categories, Dr. Caballero suggested calling them “sedentary,” “moderately active,” and “active.” Those names correlate with the Institute of Medicine (IOM) categories, “sedentary” and “active,” as well as the IOM range of PAL. To avoid confusion, Dr. Caballero suggested that a footnote could be added to explain why the IOM has four categories but the Committee’s report has only three. He also noted that people who reach a PAL of 1.6 should not perceive themselves “very active.”

Dr. Nicklas suggested including an equation for children. Dr. Caballero explained that for children younger than two years there is a separate equation, and another similar equation for children older than two. Because children are growing, retaining energy, and gaining weight, the issue of discretionary calories will likely be more complex.

Dr. Caballero stated that a footnote explaining what “mode of activity” means in terms of walking (e.g., walking about four miles in an hour) was included. The definition is consistent with both the Centers for Disease Control and Prevention (CDC) recommendation of 1995 and the IOM. Dr. Bronner asked why the Committee was not using the IOM categories. Dr. Pi-Sunyer said it was because Dr. Pate’s tables contained only three activity levels, and it seemed more consistent to keep the three levels. Dr. Caballero added that Dr. Pate wanted to avoid the use of the IOM’s term “low active” for 30 minutes of activity. “Low” implies inadequacy, whereas, the Committee stated that 30 minutes is desirable.

Dr. King thought it important to emphasize that the desirable level of activity is the “active” level, not “moderately active” and certainly not “sedentary.” The section on typical total energy needs of different population groups is the place to discuss the unique situation of an obese person or overweight person who wants to lose weight. Dr. Caballero agreed this was an important issue, because in the initial definition the focus was strictly on calorie balance. The report mentions that the calorie difference that defines discretionary calories relates to the energy requirements to maintain a steady weight. The section, especially in the bullet points, was clear enough about why the concept was introduced that the foods in the various patterns are at their lowest level. It was explaining this difficult concept that inspired the Committee to use the difference between the calories in the nutrient pattern and those extras that make up the total energy requirement.

Dr. Caballero concluded that the rest of the section on discretionary calories had not changed. He noted that if this person wishes to lose weight, then obviously discretionary calories would

not be used. Dr. Pi-Sunyer pointed out that this is discussed in the Energy section, and Dr. King thought that the Committee only need to say in this section that it is recommending that individuals who want to lose weight still meet their essential calorie needs and decrease their discretionary calories to create a negative energy balance. Dr. Caballero stated that it was a little more complex than that because if one is in a weight-loss program, his or her calorie restrictions really preclude meeting nutrient needs from foods, and he or she has to take supplements. Anyone who is on a 1200- to 1300-calorie weight-loss diet would have to take supplements to meet their nutritional needs.

Dr. Weaver reminded the Committee that one of the nutrient adequacy Subcommittee's primary recommendations to the process was to ask that future Committees have the resources to evaluate the role of supplements in meeting *Dietary Guidelines*. So, adding such a sentence now goes beyond the Committee's deliberations. Dr. Caballero regarded this more as a management issue than a recommendation to the general population. He noted that an energy-deficit diet must be followed under the guidance of a health professional because there could be side effects from water loss and electrolytes. It is not a recommendation that the general population should buy supplements and eat 1000 calories. Dr. King thought the data in Table D1-10 showed how nutrient recommendations have been met at different levels of caloric intake, starting at 1000 to 1200 to 1400 and higher.

Dr. Appel asked which number for the average calorie deficit is correct, as sometimes the report talks about 50; sometimes 100. Dr. Pi-Sunyer said that it varied with the individual, but has been estimated anywhere between 50 and 100, so it would be good to use the range. He recommended that the statements in the report be changed from "50" to "50 to 100." Dr. King pointed out that it also now means "caloric deficit" rather than "sustained reduction," so the sentence should read, "An intervention or diet that resulted in a caloric deficit of as few 50 to 100 calories per day could prevent weight gain or promote modest weight reduction."

To be consistent with the nutrient adequacy, on the key points on page six, Dr. Nicklas suggested adding to point number two, calcium, a key nutrient that the Committee has identified, along with vitamin E, potassium, and fiber.

Dr. Appel stated that some of the key concepts are now included in the introduction to the updated discretionary calories sections. He suggested that a bullet in the key points should be the idea that because most Americans are overweight, they don't have discretionary calories. If they are not overweight and are consuming a good diet, they might have some, but if they are not eating a good diet, they might not. It is only a concept for people who are not overweight and trying not to become overweight. Dr. Appel concluded that it should be stated that, because of the current status of the population, there are often no discretionary calories. Intake should be somewhat hypo-caloric. Dr. King referred again to Table D1-10, which shows that no matter what group a person is in, the person will not have many discretionary calories. The number for the different calorie-intake groups from 1000 to 3200 per day ranges from 154 to 344—300 at the most, and for most people it is around 200. She noted that most weight-loss programs recommend a 500-calorie deficit for adults, with which it is very difficult to meet the essential nutrient needs.

Dr. Caballero pointed out that the Committee is not saying you cannot be overweight, but that it is undesirable—even the U.S. Clinical Guidelines do not say that everybody absolutely needs to lose weight. So, the estimated energy requirement calculations can be applied to overweight people without telling them they have to lose weight first. The needs of somebody with a BMI of 27 can be calculated, and therefore, knowing what this person eats, it can be related to discretionary calories based on that concept. Dr. Caballero noted that what a person actually does with discretionary calories is a matter of personal choice. The person may choose to lose weight, or may choose not to lose weight, or continue to eat healthy foods and do something else. Conceptually, normal weight is separate from the calculation of discretionary calories.

Dr. King thought it important to emphasize that this section differs from the other sections of the report in presenting the concept of discretionary calories. There are no conclusive statements about this, but Committee members believe it is a useful way to address those calories that are not essential for meeting nutrient recommendations, but fall within one's estimated energy requirements.

### *Carbohydrates* *Joanne Lupton*

Dr. Lupton first identified carbohydrate-related issues that are addressed elsewhere in the report, and then presented the changes in the Carbohydrates section since the May meeting. All of these statements differ from the conclusive statement at the May meeting and also from what was distributed in the briefing book.

Carbohydrate-related issues dealt with elsewhere in the report and not in Section 4:

*θ Carbohydrates: What Are the Major Health Benefits of Carbohydrate Containing Foods? This information is found in Section 5, Selected Food Groups—Fruits and Vegetables, Whole Grains and Milk Products.*

*θ What are the optimal proportions of dietary fat and carbohydrates to maintain body mass index and to achieve long-term weight loss? This information is found in Section 2, Energy.*

*θ What is the evidence to support caloric compensation for liquids versus solid foods? This discussion is found in Sections 2 and G.*

The first major change in the Carbohydrates section since the May meeting was that there is a separate Carbohydrates section. It is no longer part of Other Food Groups. This section has five questions and their corresponding conclusive statements. Each of the five conclusive statements has changed and, there is now a conclusive statement on carbohydrates and dental caries. Also, there is now a conclusive statement on added sugars. The third and final change is that the major health benefits of fiber-containing foods have been combined into one conclusive statement, and this statement now includes laxation, reducing the risk of type 2 diabetes and reducing the risk of coronary heart disease.

*Question 1: What is the relationship between the intake of carbohydrates and dental caries?*

Proposed conclusion: The intake of carbohydrates (including sucrose, glucose, fructose, lactose, and starch) contributes to dental caries by providing substrate for bacterial fermentation in the

mouth. Drinking fluoridated water or using fluoride-containing dental hygiene products helps reduce the risk of dental caries. A combined approach of reducing the frequency and duration of exposure to fermentable carbohydrates and optimizing oral hygiene practices is the most effective way to reduce caries incidence.

Dr. Appel reminded the Committee that fluoridation has become a concern because people who drink bottled water are not getting enough fluoride and at the same time communities are reducing fluoridation. Yet, fluoridation is fundamental to prevention. Dr. King suggested putting the concept in the rationale rather than in the conclusive statement.

*Question 2: How important to human health is the glycemic response to carbohydrates?*

Proposed conclusion: A potential health concern for foods that raise blood glucose levels and initiate an insulin response is that they may eventually lead to diabetes. Current evidence suggests that there is no relationship between total carbohydrate intake (minus fiber) and the incidence of either type 1 or type 2 diabetes. The intake of fiber-containing foods is associated with a decreased risk of type 2 diabetes in a number of epidemiological studies.

Dr. Caballero and Dr. Pi-Sunyer noted that the statement does not really address the question. It may be implicit, but the statement talks about carbohydrate intake, so the question should be changed to fit the answer. Human health concerns are really related to the incidence of diabetes.

Dr. Caballero pointed out that the exclusive focus on diabetes may be an issue because another avenue for glycemic response has been obesity. Dr. Lupton noted that this was addressed in another section. The question is human health; here the text says the concern about carbohydrates in human health is diabetes. Dr. Pi-Sunyer noted the concern about carbohydrates and increased triglyceride levels. Dr. Lupton said they had not reviewed that literature because that wasn't the initial question, so the question should be changed.

At the suggestion of Dr. Pi-Sunyer the Committee agreed to change the question to: "What is the relationship between carbohydrate intake and incidence of diabetes mellitus"? since that is the question the answer addresses.

*Question 3: What is the utility of the glycemic index/glycemic load for providing dietary guidance for Americans?*

Proposed conclusion: Current evidence suggests that glycemic index or glycemic load are of little utility for providing dietary guidance for Americans.

There were no questions regarding this conclusion.

*Question 4: What is the significance of added sugars intake to human health?*

Proposed conclusion: Compared with individuals who consume small amounts of foods and beverages that are high in added sugars, those who consume large amounts tend to consume more calories, but smaller amounts of micronutrients. Although more research is needed, available prospective studies suggest a positive association between the consumption of sugar-sweetened beverages and weight gain. A reduced intake of added sugars (especially sugar-

sweetened beverages) may be helpful in achieving recommended intakes of nutrients and in weight control.”

Dr. Lupton noted that this was a new proposed conclusive statement on added sugars; previously all of the information on added sugars has been in separate sections of the report. The proposed conclusive statement brings all the information on added sugars together in one place.

*Question 5: What are the major health benefits of fiber-containing foods?*

Proposed conclusion: Diets rich in dietary fiber have a number of important health benefits, including helping to promote healthy laxation, reducing the risk of type 2 diabetes, and decreasing the risk of coronary heart disease. Prospective cohort studies suggest that decreased risk of heart disease is associated with the intake of 14 grams of dietary fiber per 100 calories.

Dr. Lupton noted that all the recommendations on fiber were combined into one conclusive statement. The reason for doing this was for simplicity and for a unified approach. The rationale for increasing intake of high-fiber foods involves decreased risk of coronary heart disease and diabetes and improved laxation.

Dr. Appel stated that the data appear to be consistent on increased fiber and the maintenance of weight. Dr. Lupton said that information is now under the Whole Grains, where the conclusive statement has been changed to include the fact that they are also protective against weight gain. That is not repeated under this research question, but the section on Whole Grains could be referred to. Dr. Weaver thought it would be good to add body weight into the sentence on benefits—“helping to promote healthy laxation... and maintain healthy body weight.” Dr. Nicklas asked whether these conclusive statements should follow the pattern of the others in clearly saying studies “have been associated with....” Here the text says “prospective cohort studies suggest.” The 14 grams of fiber used here comes from the IOM report and forms the basis of the food patterns. Dr. Lupton agreed with the point that the science in support of the fiber conclusive statement is more than suggestive. It will be changed, as Dr. Weaver suggested to “associated” instead of “suggests.”

Dr. King read the revised, proposed conclusion: Diets rich in dietary fiber have a number of important health benefits, including helping to promote healthy laxation, reducing the risk of type 2 diabetes, decreasing the risk of coronary heart disease, and maintaining healthy body weight. Prospective cohort studies show that decreased risk of heart disease has been associated with the intake of 14 grams of dietary fiber per 1000 calories.

Dr. King asked for a show of hands of those who approved the five carbohydrate statements; all agreed.

***Fat***  
***Penny Kris-Etherton***

Dr. Kris-Etherton said that there were no major changes to the conclusions for total fat, saturated fat, *trans* fat, dietary cholesterol, omega -6 polyunsaturated fatty acids,  $\alpha$ -linolenic acid, and monounsaturated fatty acids. The conclusive statement for fish has changed, however. The proposed new conclusive statement wording is based on the rationale that it considers the potential for other food sources of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), as well as  $\alpha$ -linolenic acid.

Proposed conclusion: “The consumption of two servings per week of fish high in EPA and DHA is associated with reduced risk of both sudden death and coronary heart disease death in adults. To benefit from the potential cardioprotective effects of EPA and DHA, the weekly consumption of two servings of fish, particularly fish rich in EPA and DHA, is suggested. Other sources of EPA and DHA may provide similar benefits; however, further research is warranted.”

Additional text was inserted in the n-3 fatty acid intake section. The current text was: “Other sources of long chain n-3 fatty acids are currently on the market. Some foods are fortified with deodorized fish oil or contain algae as the source of EPA + DHA. With the pending availability of agronomic crops such as corn and soybeans that have been genetically enhanced to contain EPA and DHA, it is conceivable that vegetable oils rich in these n-3 fatty acids will become an important plant source of these fatty acids.” The proposed new text to follow this section was: “EPA + DHA supplements on the market may provide variable amounts of these fatty acids.  $\alpha$ -linolenic acid from plant sources, including canola and soybean oils, walnuts and flaxseed, can be converted to a limited extent to EPA + DHA in the body.”

Dr. Kris-Etherton summarized the proposed changes for other part of the fat chapter. The fat section summary was updated to reflect the rationales. With respect to total fat, the Subcommittee corrected the recommendation for 4- to 18-year-olds in the conclusive statement to be consistent with the IOM recommendation that 25 to 35% of calories come from fat for this age group. For saturated fat, *trans* fat, and dietary cholesterol the rationale was strengthened on the basis of current clinical data.

Dr. Nicklas asked whether, when supplements are discussed, the text provides information on the variable amounts of these fatty acids, and whether supplements also provide limited amounts of n-3 fatty acids due to the conversion. Dr. Kris-Etherton responded that conversion relates to  $\alpha$ -linolenic acid; the supplements contain EPA and DHA, which is the active component, so there is no conversion beyond that point. Dr. Caballero asked for the definition of “limited extent”; Dr. Kris-Etherton said that less than 10% of  $\alpha$ -linolenic acid is converted to EPA and DHA, however, one study shows that in women of childbearing age the conversion rate is higher. The literature is just beginning to grow in this area. Dr. King suggested rephrasing the sentence to say, “...to a limited extent less than 10%.” Dr. Camargo noted that the intent was for the final sentence in the conclusive statement to not actually be a sentence, but to be attached to the “Other sources” sentence with a semicolon so as not to give the impression that that entire conclusive statement requires further research.



Dr. Kris-Etherton reviewed the fat recommendations:

θ For total fat, the recommendation is consistent with the IOM recommendation; 20 to 35% of calories from total fat for adults, 25 to 35% for 4- to 18-year-olds, and 30 to 35% for 2- to 3-year-olds.

θ For saturated fat, the recommendation is less than 10% of calories for people with LDL cholesterol below 130 mg/dL, and less than 7% of calories for those who have LDL cholesterol greater than or equal to 130 mg/dL.

θ For *trans* fat, less than 1% of calories.

θ For dietary cholesterol, less than 300 milligrams per day, but less than 200 milligrams per day for people who have LDL cholesterol levels greater than or equal to 130 mg/dL.

θ For n-6 polyunsaturated fatty acids, 5 to 10% of calories.

θ For  $\alpha$ -linolenic acid 0.6 to 1.2% of calories.

θ For fish, the weekly consumption of two servings of fish, particularly fish rich in EPA and DHA

θ MUFA provides the remaining fat calories to achieve total fat recommendations.

Dr. King noted that there are seven conclusive statements in this section. The first deals with total fat and health, the second deals with saturated fat intake and health, the third with *trans* fat and health, the fourth with cholesterol and cardiovascular disease, the fifth with omega-6 polyunsaturated fatty acid and health, the sixth (where the fish recommendation is) with the omega-3 fatty acids and health, and the seventh with monounsaturated intake and health.

Committee members accepted the fat section by a show of hands.

### ***Energy*** ***Xavier Pi-Sunyer***

Dr. Pi-Sunyer noted that Part D, Section 2 now addresses five major questions, not seven.

Question 5 was transferred to the Carbohydrates section. Question 4 has been changed to, *What is the relationship between the intake of energy dense foods and BMI?* And two issues remain unresolved: the relationship between breakfast consumption and BMI and caloric compensation for liquid versus solid foods.

*Question 1: How is physical activity related to body weight and other nutrition-related aspects of health?*

Part of the proposed conclusive statement for Question 1 was reworded to give more emphasis to exercise loading the skeleton to reduce the risk of osteoporosis by increasing and maintaining peak bone mass and reducing the rate of bone loss during aging. In the last paragraph of the proposed conclusive statement for Question 1, the sentences were reversed so that "...reducing sedentary behaviors..." now follows "...children and adolescents...." Dr. Caballero clarified a sentence in the rationale, stating it was more correct to say two-thirds of adults who maintain energy balance have the physical activity level equivalent to 60 minutes.

*Question 2: How much physical activity is needed to avoid weight regain in weight-reduced persons?*

The proposed conclusion for Question 2 did not change.

*Question 3: What are the optimal proportions of dietary fat and carbohydrate to maintain BMI and to achieve long-term weight loss?*

The proposed conclusion for Question 3 stayed the same, except where protein calories were added to carbohydrate and fat calories. Dr Pi-Sunyer noted that protein calories should constitute 10 to 35% of the total caloric intake.

*Question 4: What is the relationship between the intake of energy-dense foods and BMI?*

The proposed conclusion for Question 4 stayed the same.

Dr. Pi-Sunyer explained that Dr. Pate rewrote the sections on physical fitness and physical activity in the rationale for Question 1 because the rationale and references related to this section needed strengthening. The idea was to clarify the 30 and 60 minutes of activity in Question 2.

For the rationale for Question 4, Dr. Caballero suggested that it would be better to say, “However, direct evidence that consumption of energy-dense nutrient-poor foods results in an increased BMI is still lacking.” He also questioned the summary, which says, “at least 60 minutes of at least moderate physical activity is helpful.” Dr. King thought the idea was that at least 30 minutes of physical activity most days was needed for reducing the risk of chronic disease, but at least 60 was needed for maintaining weight. Dr. Pi-Sunyer clarified the issue, noting that there are two thoughts, one related to chronic disease and the other related to weight maintenance. Dr. Appel noted the issue is not that some people need more than 30 minutes to prevent weight gain; the issue is that 60 minutes was not set as a number for all people to prevent unhealthy weight gain. Dr. Caballero said the statement should read that adults need at least 30 and may need as much as 60 to prevent unhealthy weight gain. However, another sentence says at least 60 is necessary to maintain weight. Dr. King noted this may be stated incorrectly in other sections of the report and that Committee members should watch for it when going through the major conclusions and the Executive Summary. Ms. McMurry also noted that there currently is no mention in the summary of the amount of activity needed to maintain weight loss. Dr. Caballero thought it could be picked up from Question 2: “The amount of physical activity that weight-reduced adults require to avoid weight regain is estimated to be from 60 to 90 minutes daily.” Dr. Nicklas suggested that the first sentence regarding health benefits of physical activity be separated, so that adults and children are addressed in separate sentences.

*Question 5: What is the relationship between portion size and energy intake?*

The proposed conclusion for Question 5 stayed the same.

The heading for the last two questions was changed from Inconclusive Issues to Unresolved Issues. The discussion of the relationship between breakfast consumption and BMI stayed the same. The liquids versus solids discussion changed slightly. The Committee notes that the evidence is conflicting that liquids and solid foods differ in their effect on calorie compensation,

the ability to regulate calorie intake with minimal conscious effort, such as reducing the amount of food consumed on some occasions to compensate for increased consumption at other times. These areas are unresolved because the evidence reviewed was considered insufficient to draw conclusions.

Dr. King asked for approval of the five conclusive statements for this section of the report. Committee members approved the energy conclusions by a show of hands.

### *Nutrient Adequacy* *Connie Weaver*

Dr. Weaver explained that for nutrient adequacy, quite a bit of additional introductory material had been added to the text to establish the framework the section was based on. Since May the only major rewriting was for the vitamin D conclusive statement. Minor changes were made in the sections related to identifying the shortfall nutrients for adults and children, on use of dietary patterns to meet nutrient needs, and on the DASH diet as another example of food patterns in addition to the USDA-prepared food patterns. A table was added that showed the nutrient profile of the DASH diet and the revised USDA food pattern. There was some minor editing on the sections for flexible food patterns and special subgroups (for iron and vitamin B<sub>12</sub>).

Dr. Weaver stated that the vitamin D section was rewritten to recognize a considerable amount of data available since the 1997 IOM report set an AI for vitamin D. The Subcommittee hopes the Food Nutrition Board will convene a panel to review these data so that the next *Dietary Guidelines* Committee has an AI that reflects them. The rewritten proposed conclusive statement read, “The elderly, persons with dark skin and persons exposed to insufficient UVB radiation are at risk of being unable to maintain vitamin D status. Persons in these high-risk groups may need substantially more than the 1997 AI for vitamin D, vitamin D-fortified foods and/or vitamin D supplements.” There are no further changes

Dr. King listed the 5 questions:

*Question 1: What nutrients are most likely to be consumed in amounts low enough to be of concern?*

*Question 2: What dietary patterns are associated with achieving recommended nutrient intakes? We added a second example there in addition to the USDA food patterns—the DASH food pattern.*

*Question 3: What factors related to diet or physical activity may help or hinder achieving recommended nutrient intakes?*

*Question 4: How can the flexibility of the food patterns be increased?*

*Question 5: Are special nutrient recommendations needed for certain subgroups?*

She then asked for approval, and the Committee approved the conclusions written for these questions by a show of hands.

*Break, 9:35*

***Energy—Unresolved Issues***  
***Xavier Pi-Sunyer***

Dr. King requested that the Committee return to the discussion of the Unresolved Issues in the Energy section. Dr. Pi-Sunyer summarized the proposal for presenting the unresolved issues related to Breakfast and BMI and Liquids versus Solids. He noted these issues remain unresolved, although conclusions for them have been drawn; and that this is inconsistent because if they are unresolved, a conclusion cannot be drawn. Dr. Pi-Sunyer suggested dropping the conclusion and presenting the reviewed research as a discussion.

Dr. Caballero suggested a brief introductory paragraph and Dr. Appel recommended that the conclusion be moved to the end as a summary of that discussion, a “bottom line,” even if it is not a conclusion. Dr. Camargo suggested the text be limited, as in the rationale, and at the end say “in summary” and then insert that comment, but without a heading that says “conclusion.” Dr. King thought this was a good solution for issues that were unresolved—they are unresolved because the data are conflicting or inconclusive, so, it is inappropriate for the report to have a paragraph headed, “conclusions.” It was agreed that the research question would be retained, and then the text, as drafted, would follow, but without the headings of “conclusion” and “rationale.”

***Selected Food Groups***  
***Bill Go***

Dr. Go presented an overview of Section 5, Selected Food Groups, noting that the Subcommittee had looked at fruits and vegetables, whole grains, and milk products, but not fish because it was already covered in the Fat and the Food Safety sections, and that meat and beans in Nutrient Adequacy during the development of the food pattern. The Food Group section focused on three questions.

*Question 1: What are the relationship between fruit and vegetable intake and health?*

The proposed conclusive statement did not change.

*Question 2: What are the relationship between whole grain intake and health?*

The proposed conclusive statement changed by dropping the word “may.” It reads, “Consuming at least 3 servings (equivalent to 3 ounces) of whole grains per day can reduce the risk of diabetes and coronary heart disease and help with weight maintenance. Thus, the daily intake of 3 or more servings of whole grain per day is recommended, preferably by substituting whole grains for refined grains.” Added text on whole grain and cancer was added to the rationale.

*Question 3: What are the relationships between dairy product intake and health?*

The proposed conclusive statement remained the same.

Dr. King stated that she thought the conclusion for Question 3 had changed. Dr. Weaver agreed that the Committee had wanted to take into account some of the newer studies that there may be other health benefits besides bone and nutrient adequacy without being too specific to allow for

the rationale that was developed. To do that, they expanded the sentence, “Furthermore, this amount of milk product consumption may have additional benefits and is not associated with an increased body weight.” They also put in the first sentence, “Equivalent to 3 cups,” to get the amount as well as the servings. Dr. King noted that the Committee is striving to quantitate what they mean by of a serving. Wherever the word “serving” is use, Dr. King encouraged the Committee to insert an amount either by volume or weight. Dr. Nicklas questioned if the conclusive statement was consistent with the summary, because it says consuming three servings per day of milk and milk product can reduce the risk of low bone mass, and the summary says the daily consumption of approximately three cups of milk, not milk or milk products. Dr. Weaver agreed that this could be changed to be consistent and that it says “or the equivalent,” e.g., cheese wouldn’t be in cups. Dr. King concluded that the passage would be marked to be looked at again during final editing.

Dr. Pi-Sunyer questioned about an introduction that was to be written for this section. Dr. Go said they had written the introduction. The introduction says the Committee identified research priorities, and a specific question arose involving fruits and vegetables, whole grains, milk and milk products. A Subcommittee was convened from the other subcommittees to address questions important to health and good sources of shortfall nutrients. The three research questions will then be presented. Dr. King raised the issue of whether it was feasible for children and adolescents to have 3 servings of whole grains per day because their total servings of grains ranges from 4 to 5. Dr. Lupton confirmed that the Committee had concluded that this is something they should strive for without making a specific recommendation. This will be added to the rationale.

Dr. King sought approval of the three Selected Food Group questions and conclusive statements. The Committee, by a show of hands, approved them.

### ***Fluids and Electrolytes*** ***Lawrence Appel***

Dr. Appel reported that his Subcommittee had made no changes to the conclusive statements.

*Question 1: What amount of fluid is recommended for health?*

Proposed conclusion: The combination of thirst and usual drinking behavior, especially the consumption of fluids with meals, is sufficient to maintain normal hydration. Health individuals who have routine access to fluids and who are not exposed to heat stress consume adequate water to meet their needs. Purposely drinking is warranted for individuals who are exposed to heat stress or who perform sustained activity.

Dr. Appel stated there were only minor edits and clarifications to the text supporting the fluid conclusion.

*Question 2: What are the effects of salt/ sodium chloride intake on health?*

Proposed conclusion: The relationship between salt (sodium chloride) intake and blood pressure is direct and progressive without an apparent threshold. Hence, individuals should reduce their

salt intake as much as possible. In view of the currently high levels of salt intake, a daily sodium intake of less than 2300 milligrams is recommended. Many individuals will benefit from further reductions in salt intake, including hypertension individuals, blacks, and middle-aged and older adults. Individuals should concurrently increase their consumption of potassium because a diet rich in potassium blunts the effects of salt on blood pressure.

Dr. Appel noted that in the rationale section text was added on salts, the preference for salt intake, and positions taken by other expert groups. The Subcommittee also edited to improve the clarity and standardization of this section with the others

*Question 3: What are the effects of potassium intake on health?*

Proposed conclusion: Diets rich in potassium can lower blood pressure and lessen the adverse effects of salt on blood pressure, may reduce the risk of developing kidney stones, and possibly decrease bone loss. In view of the health benefits of potassium and its relatively low intake by the general population, a daily potassium intake of at least 4700 milligrams is recommended. Blacks are especially likely to benefit from an increased intake of potassium.

Dr. Appel noted that the Subcommittee clarified the text in several places, and, because this will be used as an example of how diet could reduce racial disparities, the median intakes were added for blacks and non-blacks, which are quite different.

Dr. King asked for and received approval of the Fluid and Electrolyte conclusions by a show of hands.

### *Ethanol* *Carlos Camargo*

Dr. Camargo recalled that the Committee was largely in agreement with the *2000 Dietary Guidelines*. The Subcommittee explored three areas in detail to update the literature and to investigate modifying the earlier guidelines. There has been no change in any of those three conclusive statements since the May meeting.

*Question 1: Among persons who consume 4 or fewer alcoholic beverages per day, what is the dose response relationship between alcohol intake and health?*

Proposed conclusion: In middle-aged and older adults a daily intake of one to two alcoholic beverages is associated with the lowest total alcohol to mortality. Compared with non-drinkers, adults who consume one to two alcoholic beverages per day appear to have a lower risk of coronary heart disease. Compared with non-drinkers, women who consume one alcoholic beverage per day appear to have a slightly higher risk of breast cancer. The relationships of alcohol consumption with major causes of death do not differ from middle-aged and elderly Americans. Among younger people, however, alcohol consumption appears to provide little, if any, health benefit. Alcohol use among young adults is associated with a higher risk of traumatic injury and death.

*Question 2: What is the relationship between consuming 4 or fewer alcoholic beverages per day and macronutrient profiles, micronutrient profiles, and overall diet quality?*

Proposed conclusion: A daily intake of one to two alcoholic beverages is not associated with inadequate intake of macronutrients or micronutrients or with overall dietary qualities.

*Question 3: What is the relationship between consuming 4 or fewer alcoholic beverages daily and caloric intake, physical activity, and body weight?*

The relationship between consuming alcoholic beverages daily and obesity is an unresolved issue, so there is no conclusive statement. The Subcommittee noted that available data on the relationship between alcohol consumption and weight gain/obesity are sparse and inconclusive. They also noted that although prospective data are limited, there is no apparent association between consuming one or two alcoholic beverages daily and obesity.

Dr. Caballero asked about the issue of women who may become pregnant. Dr. Camargo replied that this was not addressed in a conclusive statement, but is included in the discussion about specific situations in which alcohol should be avoided. The concern is that it is inadvisable for women to drink during pregnancy and at the time of conception (i.e. before they know they are pregnant). So, the Subcommittee used the wording in the 2000 *Dietary Guidelines*, which is, “women who may become pregnant or who are pregnant.” Many pregnancies are unplanned, so the recommendation includes women who may become pregnant. Dr. Camargo noted that the evidence is indirect. He stated that fetal alcohol syndrome launched this whole area of research, and it is very clear that the first trimester is the time of greatest concern. During that time of dramatic fetal development it would not be good to have alcohol in the mother’s body. Dr. Camargo stated that the hypothesis is based on animal data. There is reason to think that even modest amounts of alcohol during that highly vulnerable time could be adverse, So the Subcommittee is sticking with the previous guidelines and with the guidelines of many other groups on this topic.

Dr. King asked approval of the two ethanol conclusive statements and the Committee approved by a show of hands.

### ***Food Safety*** ***Fergus Clydesdale***

Dr. Clydesdale reported that the subcommittee addressed one major question, which resulted in two conclusive statements, necessitating a slight change in the text. The food safety introduction now reads: “The section addresses one major question related to food safety, which resulted in two conclusive statements.” Dr. Clydesdale noted that there was a change in the second conclusive statement, but not the first.

*Question 1: What behaviors are most likely to prevent food safety problems?*

The proposed conclusive statement did not change. The conclusion addresses behavior in the home most likely to prevent food-borne illnesses, namely, cleaning hands, contact surfaces, fruits, and vegetables. In parentheses it is noted that this does not apply to meat and poultry, which should not be washed. It is recommended that consumers separate raw, cooked, and ready-

to-eat foods while shopping, preparing, or storing and then cooking foods to a safe temperature and chilling (refrigerate) perishable foods promptly.

*Question 2: What topics, if any, need attention even though they are not an integral part of the “FightBAC!” campaign?*

The proposed conclusive statement has been changed to better define what is meant by avoiding potentially unsafe foods. It now reads, “Avoiding higher risk foods (e.g., uncooked frankfurters, uncooked deli meats, in the case of listeria) is an important protective measure, especially for high-risk groups (those who are very young, pregnant, elderly, or immunocompromised).”

Dr. Clydesdale explained the changes in the proposed conclusion, noting that “potentially unsafe foods” was changed to “higher risk foods” and a parenthetical example of uncooked frankfurters, and uncooked deli meats, in the case of listeriosis was added. A comprehensive list was not included, to avoid getting into the issue of unpasteurized eggs with *Salmonella* and hamburger with *E. coli*, etc.

Dr. Clydesdale stated that other changes to the food safety chapter were minor and included an explanation of the difference between “use by” dates and “purchase by” dates and the rationale for not washing poultry and meats was moved under the section on washing. To the “Separate” Message rationale, the phrase “produce, perishables, ready-to-eat foods, cooked foods, and raw and poultry juice” was added. Two new references were added, the first on the effect of some of the recommendations on behaviors in Latinos, showing a great increase in knowledge of food safety and in food-handling behavior. The second reference, on methyl mercury, was added at the very end of the section.

Dr. Appel asked whether fish should be washed, although meat and poultry should not, and whether this should be presented as a separate bullet. Dr. Clydesdale said that consumers often wash meat and poultry. However, because the Subcommittee could not find a reference on fish and what consumers should do with it, or a reference that recommends not washing fish, they didn’t include fish. The Subcommittee had discussed making this point a second bullet, but decided against it. Dr. Nicklas suggested putting it in as a recommendation for research, particularly since the Committee is recommending two fish servings per week. Dr. King suggested adding to the rationale a statement that there are no data on washing fish. Dr. Clydesdale agreed to add it under the section that discusses the rationale for not washing meat and poultry.

Dr. King asked for and received approval of the two food safety conclusive statements by a show of hands.

### **Major Conclusions** **Janet King**

Dr. King began by explaining that the purpose of having Section 10 in Part D was to summarize the major points of the first nine sections in Part D, and to provide a transition into Part E, which contains the key messages that form the basis of the *Dietary Guidelines*. Dr. King then reviewed



the key points under each of the major headings to be sure that everyone agreed that these are the key points to be highlighted.

#### *Nutrient Intakes within the Energy Needs*

θ Nutrient requirements have increased. Therefore, there is a need to consume a nutrient-dense diet.

θ Typical eating patterns of Americans differ from patterns that meet the nutrient recommendations. Requirements can be met following a food pattern—and the report gives several examples from the USDA modeling, as well as from the DASH diet—but it is necessary to control calorie intake.

#### *Benefits of Increased Physical Activity*

θ Reduces the risk of chronic disease.

θ Improves physical fitness.

θ Increases peak bone mass.

The first 2-sentence paragraph, about physical inactivity contributing to chronic disease, will be retained, as will the heading. Dr. Appel suggested reversing the wording of the first paragraph in a positive way: “Physical activity reduces . . .,” rather than the converse.

#### *Managing Body Weight*

θ It is important to balance energy intake with energy expenditure.

θ A small imbalance can lead to a big difference over a long period, whether as weight gain or weight loss.

A number of factors described in this section contribute to energy imbalance or weight control, as is the environment influences the individual’s ability to manage body weight.

#### *Energy Balance*

θ Portion size

θ Physical activity

Dr. Pi-Sunyer asked whether the Committee was going to separate the factors that have desirable and undesirable effects on BMI. Dr. King noted that they were going to do that in the rewrite to make it clear that they are discussing factors that might increase BMI, then list them, and delete the last sentence of that paragraph. She stated that basically the Committee was saying that the government, food industry, employers, schools, and other groups and institutions can play a major role in assisting individuals to reduce calorie intake and increase physical activity.

Dr. Nicklas suggested revising the bottom of that paragraph—starting with the line, “among the environmental factors”—to make it consistent with the introduction. Ms. McMurry clarified that the Committee did not conduct an in-depth review of scientific research on these environmental factors. Dr. King said they would add that this section reflects Committee viewpoints. Dr. Clydesdale did not disagree, but stated he did not like the idea of stating that inexpensive calories are inherently bad. He noted that great effort and progress has been made to provide

food for the entire population at a relatively inexpensive price, and the text implies that, because the United States has the lowest cost per capita, it is somehow bad. Dr. King suggested they remove that phrase, because in the parentheses that follow are very specific factors including: increased portion sizes, increased density of foods, reduced costs, bulk, product purchases, and increased consumption of meals at food establishments (eating out). It reads: “By environment we mean the constellation of cultural forces, societal norms, family influences (e.g., mealtime structure, parental feeding styles [referenced], changes in meal patterns [reference], and commercial advertising that potentially influence individual behavior)... Among the environmental factors that may contribute to excessive caloric intake include, but are not limited to, increased availability of energy dense nutrient poor foods, beverages, expanding portion sizes and an increased consumption of meals at restaurants, and convenience and prepackaged foods.” Dr. Kris-Etherton suggested saying something about the habits people develop that are carried through life. Dr. Nicklas said this idea is included in the introduction where the Committee states these are adult guidelines, but the development of healthy habits is the rationale for also applying them to children.

Dr. Clydesdale objected to the phrasing about prepackaged foods when, 50 years ago, people kept bacon fat in the refrigerator. Comparing that as a contributing factor with a prepackaged food that might be vegetables is problematic. He also noted that technology should not become a pejorative term. Technology has produced some things that are not good, but technology has also produced some things that are terrific, and it is important to differentiate. Dr. King suggested that the Committee come back to this paragraph when they talk about the environment in the introduction, and then compare it with Dr. Nicklas’ revision.

Dr King stated that the Discretionary Calories section defines discretionary calories, their sources, and the fact that physical activity increases discretionary calories. Dr. Pi-Sunyer recalled a discussion that this explanation seems to suggest that discretionary calories should all come from added fats, added sugars, and alcohol, whereas they could come from broccoli or grains or something else. Dr. King had made a note to reword this section so that it includes additional servings of recommended food groups. Committee members continued the discussion and Dr. King concluded that this section on discretionary calories needs to be rewritten for Part 10, emphasizing that because people do not follow the food patterns, the quantity of discretionary calories is very small. Dr. Clydesdale thought portion size was important to include.

Dr. King continued to review the key points under each section of D10.

### *Choosing Fats Wisely for Good Health*

Fats contribute to good health.

- Vegetable oils provide the essential fatty acids, as well as polyunsaturated fatty acids and monounsaturated fatty acids, which keep LDL cholesterol levels under control; and they are a good source of vitamin E.
- Omega-3 fatty acids, EPA and DHA, help reduce cardiovascular disease, and fish rich in omega-3s is one way to meet this need.
- This is followed by fats that affect blood levels, lipids, and coronary heart disease risk: hard fats that are high in saturated fatty acids that raise LDL cholesterol; hydrogenated fats that

contain *trans* fatty acids, which also raise LDL cholesterol; and cholesterol, where it is found, and that it, too, raises LDL cholesterol. These 3 components of fat have a dose response between their intake and LDL cholesterol, and therefore, are associated with the risk of coronary heart disease.

- The text contains very little about mono-unsaturated and polyunsaturated fats.

Dr. Kris-Etherton pointed out that one statement had changed to read that: Fats also provide other polyunsaturated fatty acids and monounsaturated fatty acids that help keep the serum LDL cholesterol concentration under control, and that vegetable oils—such as soybean oil, corn oil, and canola oil—provide essential fatty acids. When substituted for solid fats high in saturated fat, they will decrease serum LDL concentration.

#### *Choosing Carbohydrates Wisely for Good Health*

The first part of this section addresses the value of fruits, vegetables, whole grains, milk, and milk products in the diet, and the second part discusses adverse effects of added sugars, namely, dental caries and weight gain. Dr. Nicklas and Dr. Caballero thought this conclusive statement was not consistent with the others because the others say there is an association whereas this conclusion says there is a cause. In prospective studies there is a possible association between consumption of sugar-sweetened beverages and weight gain. The text says there are limited studies and more research is needed, and that there is a weak association between consumption of sugar-sweetened beverages and weight gain. So, while the Committee agreed to mention this trend, it should be clear that the data are limited. Dr. Camargo suggested that the Committee begin with the conclusive statement, which members have agreed upon, and insert that language verbatim. That would also apply to the glycemic response, which was also modified. Dr. Clydesdale thought the same should be done for the sugar and starches with regard to dental caries.

Dr. Lupton said the statement on added sugars had to do not with the effect of sugar, *per se*, because sugar alone is not the issue here. It has to do with the vehicle from which the sugar is ingested, which may also bring along other nutrients. Dr. Lupton noted that there were two major issues with added sugars—adding calories, and diluting micronutrient content of the diet. One is that sugars are often added to the diet without a decrease in overall caloric intake, and that calories are added to the diet without adding any micronutrients. She stated that whether that results in weight gain is equivocal, although three well-reviewed prospective studies suggest that it is the case. Dr. Lupton reiterated that one issue is adding calories that don't bring along micronutrients and gaining weight in a population in which obesity is a major public health problem. The other issue is that some people will decrease their intake of other substances when they increase their intake of added sugars, and then, at a certain point, they lose some of the micronutrients from the diet. And, those data are very strong. There is very little debate that added sugar consumption dilutes macronutrient intake. This was reinforced by the section on discretionary calories, where it became clear that it should be tied together and put in one section.

#### *Choosing and Preparing Foods with Little Salt*

Dr King noted that a salt summary is missing from this section. Dr. Appel distributed text he had written following Dr. Camargo's suggestion of using the conclusion that had been agreed to. Dr. Appel included a statement that because salts added during the processing of foods

provide more than three-quarters of the total intake, the food industry has a large role in assisting consumers to decrease their sodium intake. Dr. King summarized that the heading would be Choosing and Preparing Foods with Little Salt and the text would follow the carbohydrates section).

#### *Alcohol and Food Safety*

Dr. King recommended moving the discussion of alcohol before the discussion about making changes in diet and physical activity to delay the onset of disease, but leaving food safety at the end.

#### *Other Discussion*

Dr. Appel suggested this section be organized so that the first part corresponds one-for-one with Section E, followed by changes in diet and physical activity with food safety here as well. Dr. Pi-Sunyer observed that the section on chronic disease was missing obesity and diabetes. Dr. King asked each Committee member to look closely at the bulleted points under each disease to be sure all of the diet and physical activity information was correctly integrated and applied to delaying the onset of disease. In summary, it will be organized with headings that link back to the first 9 parts of Section D, and then at the end a section on making changes in diet and physical activity to delay the onset of disease. Sections on obesity and diabetes will be added. Dr. Kris-Etherton suggested ordering of the bullets should be consistent, the most important first. Dr. King replied that the ordering of the bullets should be the same here as it is in Section D. She noted that Section E states that the key messages are not in any particular order, but that the whole set of messages is important for improving diet quality and promoting health.

### ***Discretionary Calories*** ***Benjamin Caballero***

Dr. Caballero said that for Discretionary Calories they had incorporated all the changes discussed and they changed the summary to reflect those changes. Dr. Appel recalled that originally the Committee had wanted to have figures for men and women, but that that might present a distorted impression because women tend to underreport calories, and it might give an inaccurate presentation on the number of discretionary calories available. So, the Subcommittee cited the example that applies to men and refers the reader to the table (D1-10), which equally applies to men and women. Dr. Caballero added that since the Committee was trying to make the point that a sedentary person who consumes the average American diet has no discretionary calories, this example should be presented with the implication that the concept applies to women as well—there is no reason to suspect that the sedentary woman who consumes low-nutrient energy-dense foods would have discretionary calories. Dr. King recommended that text be added explaining that there is no comparable table for women because they tend to underestimate their energy intakes, and quote the doubly labeled water data. In the end, the Committee agreed to keep Figure 8-1, but make it a generic example with no numbers.

Dr. Pi-Sunyer recommended that the two ways to increase discretionary calories should be reversed so that physical activity comes first. This would make it consistent with the order of the key points. Dr. Camargo stated it important to make the connection that the discussion on discretionary calories refers to a healthy diet. If people are eating a poor diet, the best way to

improve the diet is not physical exercise. Dr. King summarized that under “ways that discretionary calories may be used,” the order should be: extra servings of any foods from the basic food groups, then sugar, then solid fat. Dr. Caballero said the intent is to give some priority on how to use discretionary calories, so it should be first to consume more of the healthy foods and second added sugars because there is some benefit because sugar intake may be associated with the intake micronutrients. He recommended that the order be: extra servings from the food groups first, added sugars second, solid fats third, a combination of added sugars and solid fats for desserts fourth and alcohol fifth. Dr. Appel replied that the broader concept is that the Committee is trying to provide guidance on how to increase the number of discretionary calories, covered on page two. Dr. King summarized: The report will use the generic figure and the list of items will be reordered in the section on ways that discretionary calories may be used.

Dr. Lupton asked for time to review Discretionary Calories at lunch. Dr. King added that to the lunchtime assignment of reviewing the bulleted points in Section 10 under the diseases people can delay through diet and physical activity.

*(Lunch Break, 11:50–1:00)*

Dr. King opened the afternoon session by recounting the three issues that still needed attention from the morning: the review of Section 10, discretionary calories, and the paragraph on environment. Discussion of the environment will be deferred until the introduction to the report is discussed.

### *Section D10*

Dr. King recounted that Section D10 was based on the May draft of the conclusive statements, which did not have a separate section for carbohydrates. Since then, there have been major revisions of the conclusive statements for the nine different areas. Now, Section D10 seems redundant because—except for the section on making changes in diet and physical activity to delay the onset of disease—it duplicates much of the material in the earlier sections. She stated that there were three choices: keep Section 10 as is, but revise it to make sure that it matches what is in the earlier conclusive statements; eliminate all of Section D10, except for the part on changes in diet and physical activity and disease; or delete Section D10 completely. Dr. Appel stated that Section D10 it pulls together disbursed pieces of information that are together neither in Parts D nor E. The most important is coronary heart disease and how it relates to fats, potassium, and fiber. It might be less important for other areas.

Dr. King summarized two ideas the discussion elicited: Section 10 would be titled “Making Changes in Diet and Physical Activity to Delay the Onset of Disease.” Section 10 will be a summary of the questions and the conclusive statements, and the various diseases will be listed, referring the reader to the appropriate sections of Part D for further information about the effect of diet and physical activity.

### *Discretionary Calories (Continued)*

Dr. Appel, Dr. Caballero, and Dr. Lupton identified points that could be condensed into a summary section. Dr. Appel read the points:

1. Discretionary calories are calories remaining when an individual fulfills his/her recommended nutrient intake and has not yet met his/her daily energy requirement.
2. Discretionary calories only exist when individuals consume nutrient dense, lower energy density foods and maintain an adequate level of physical activity.
3. At present Americans are consuming calories in excess of calorie needs (as manifest by the high prevalence of overweight and obesity), but are not meeting recommended nutrient intakes. (See Section D1.) This pattern of calorie intake results because Americans often consume nutrient-poor foods and because they select the more energy-dense versions of foods, for example, whole fat rather than non-fat milk. Hence, Americans have few, if any, discretionary calories.
4. To make discretionary calories available or to increase the amount of discretionary calories individuals need to either increase their physical activity or increase their consumption of nutrient-rich foods in a manner consistent with the dietary patterns in this report.
5. Discretionary calories, when they exist, can be used to consume additional nutrient-dense foods from the basic food groups and/or foods that provide few nutrients.

Dr. Caballero explained that after explaining what discretionary calories are, person B in the graphic example represents the most common type in the U.S. population. Food consumption surveys indicate that most adults have few or no discretionary calories. The same data indicate that the consumption of essential nutrients may be inadequate (section D1), leading to a shortfall of certain essential nutrients. The main change in the section was that the detailed list on how to use discretionary calories was too prescriptive. He recommended that the emphasis be on how to maximize discretionary calories and then mention first that these extra available calories can be used to consume more healthy foods. The sentence, “Discretionary calories, when they exist, can be used to....,” would go in the summary at the end.

Dr. Kris-Etherton recommended rewording the last point: “Discretionary calories, when they exist, can be used to consume additional nutrient dense foods from the basic food groups and/or foods in the recommended food groups that are higher in sugar and fat and/or foods that provide few nutrients.” This wording makes the distinction between foods with more fat or butter versus sugar only.

Dr. Caballero referred the Committee to the first sentence in the section that they had planned to eliminate. It is a generic statement that says some discretionary calories might be obtained from foods in one or more of the basic food groups. For example, drinking low-fat milk rather than skim milk would use some discretionary calories, as would eating hamburger instead of lean meat.

Dr. Caballero said one key concept is that discretionary calories only exist when people consume according to the guidelines and have a certain level of physical activity. The other key concept is that consuming certain food types from the food groups requires discretionary calories. He noted that a person who doesn't have discretionary calories would not have the luxury of consuming

2% fat milk or added sugars. Dr. King suggested that the Committee does not want to convey the message that people do not have discretionary calories, because everyone does, but that by making certain lifestyle choices and food choices the person has already used them. Dr. Caballero pointed out that the text is not saying that discretionary calories are essential for health. A person can have 0 discretionary calories and have an adequate diet. That is why the range of fat is from 20 to 35%. Dr. King replied that the Committee may not want to tell the American public that their nutrient recommendations are so high that the calories they need to consume in order to meet their nutrient requirements exceed their energy requirement.

Dr. Caballero mentioned the approved changes to Part D, Section 8: moving the essential calories up; and changes in estimating discretionary calories, because of the discrepancy between the physical activity levels of this example with the IOM. There is no change in physical activity and discretionary calories. The main change is deleting a list of recommended foods to use to burn those discretionary calories, but the general statement is retained saying that individuals who have discretionary calories can, first, increase their intake of healthy foods—fresh fruits and vegetables and so on. But they can also then enjoy some more flexibility in choosing foods from the different food groups that have more fat or added sugars than the minimum on which the food groups are based.

Dr. Camargo asked for and received confirmation that the entire section on other ways to sweeten foods without using sugar is being eliminated. Dr. Camargo wanted the key points to specifically mention reducing added sugar intake. Dr. Caballero explained that the things listed there are the ones that, no matter how many discretionary calories a person has, have limits are imposed for other reasons, e.g., alcohol—it is important to make sure that people do not think that because they have many discretionary calories they can consume more than two servings of alcohol per day or more than 1% *trans* fat. Dr. Lupton concurred. Dr. Camargo wanted to add that the consumer might want to cut back on sugar-sweetened beverages to avoid obesity. There are no nutrients to speak of in a sugar-sweetened beverage besides calories. He noted that solid fat, added sugars, and alcohol are given as examples in every other section of the document that discusses discretionary calories. These key points talk about fat and alcohol, but not sugar. Dr. Caballero said they had eliminated those sections where the foods, other sugars, and alcohol are listed. The only reason to mention alcohol and *trans* fat here is to make clear that their restrictions are based on things other than the existence (or not) of discretionary calories.

Dr. King made a note to review the conclusive statement on added sugars to make sure it was consistent with that was being said in this Section. She then sought approval of the five concepts on discretionary calories as outlined in the summary. All approved by a show of hands.

## *Section E*

Dr. King said the purpose of Section E, “Translating the Science into Dietary Guidance,” is to translate all of the science-based evidence in Part D into food guidance. The nine messages are listed on the first page of the section. Rewording the statement on salt was the only recommended change to this list. Dr. King invited Committee members to consider each of the nine one-by-one and go through the report and look at the key messages under each of these topic headings to be sure they are the correct key messages. Then Committee members were advised to look at the additional information and to be sure that everything in this part of the report was consistent with the other parts.

### *1. Consuming a variety of foods within and among the basic food groups while staying within energy needs.*

Dr. King summarized the key points in the section - Those who consume amounts of fruits and vegetables, whole grains, and non-fat and low-fat milk and milk products within the U.S. food guide patterns will achieve the level of intake of these foods that are associated with a reduced risk of chronic disease. Diets can be planned to meet nutrient needs while considering food preferences for a variety of groups. And, a few special nutrient recommendations apply to the elderly, women of childbearing age, and groups susceptible to vitamin D insufficiency. Combining a physically active lifestyle with an eating pattern that features nutrient-dense foods helps to achieve recommended nutrient intake without excess calorie intake. She noted that the subcommittee recommended rewording text on ways to select a vegetarian diet that would have the same nutritional value as a meat-containing diet. Dr. Weaver said the explanation appears just before the bullets, so, at the bottom of page 4, it reads: “These foods can be substituted for 6 ounces of meat, fish, and poultry....” New wording appears for the next two substitutions—enriched grains and legumes. The details appear in an Appendix. The key points here, Dr. King summarized, are to meet nutrient recommendations while staying within caloric needs; choose nutrient-dense foods; and choose a variety of foods.

### *2. Controlling calories to manage body weight.*

Dr. King summarized the key points in the section - Calories count, not the proportion of carbohydrate, fat, and protein in the diet. Small decreases in calorie intake can have a significant effect over the long-term. The focus is on the prevention of being overweight rather than the need to lose weight, because the behaviors needed to change in order to lose weight are much more difficult to achieve than to prevent the weight gain. The healthiest way to reduce caloric intake is to reduce one’s intake of saturated fat, added sugars, and alcohol. When making changes to improve nutrient intake one needs to take care that substitutions avoid excess caloric intake. In other words, choose fruits and vegetables high in fiber in place of more refined foods. Monitor body weight regularly and reduce calories in the diet that provide fat, carbohydrates, and protein within the recommended ranges that are safe and efficacious for weight loss. Very low or very high amounts of protein, carbohydrate, and fat as a way to lose weight may provide small amounts of a number of nutrients and are not advisable over the long term.

Dr. Pi-Sunyer added that, on bullet number 2, under key messages, even though intake is the primary mechanism here, and another section deals with physical activity, when recommending decreasing intake by 50 or 100 calories, the text should also add “increasing expenditure.” Dr. Lupton asked whether, where the text says that diets very low or very high in protein,



carbohydrates, or fat are not advisable for long periods, that implies that they are advisable for short periods. Dr. Caballero noted that in the other sections the text says that there is no evidence of adverse effects over the short term. Dr. King suggested that the Committee should not be so rigid, and should leave diets as an option. Dr. Weaver said that although there is no evidence over the short term that such diets are adverse or beneficial, the Committee does want consumers to control body weight—it is the overarching priority. If this is a way that can help someone control weight, it should not be discouraged. Dr. Pi-Sunyer disagreed and stated that the report should not say it is good to lose weight no matter what one does to achieve it. Long-term data on these diets are not available, and until they are, people should not be advised to follow them. Dr. Lupton suggested that if it were left off altogether, the report would not be advising people to go on these diets that are outside the AMDR's for protein, carbohydrate, and fat and that do not go along with the Committee's recommendations. Dr. Pi-Sunyer countered that it was stated this way because some people are indeed losing quite a lot of weight on these extreme diets. So the Committee would not want to say that that is unalterably bad, because the data for the short term—one or even two years—do not show that it is bad for the dieter. Dr. Lupton maintained that it was not advisable to adhere to these diets for long periods, and that the statement seemed to imply that it was acceptable for short periods. Dr. King stated that what was being said was that no data were available that show that the diets are not okay for short periods. Dr. Nicklas suggested the compromise of adding onto that sentence, "However, short-term benefits are not known at this time." Dr. Caballero noted that the Committee was not saying those diets were okay, but that certain studies did not show adverse effects of these diets. He stated that some show a reduction of LDL in 6 months, and then no difference at 12 months. He summarized that the preponderance of data showed that these diets were effective to lose weight and they do not seem to show short-term adverse effects and that the statement reflected the literature and the rationale.

On the fourth bullet, Dr. Camargo recommended changing "saturated fat" to "solid fat" to include *trans* fat.

Dr. King said that additional information in this section will remind people that eating foods that are high in calories and low in volume make it hard to avoid excessive caloric intake. Controlling portion size is an important way to limit calorie intake. Diets rich in whole grains, fruits, and vegetables may help with weight maintenance. She noted that it was unclear whether consuming milk products helped control body weight, but consuming three servings of milk products daily was not associated with increased body weight. The table included gives examples of how to decrease intake by 100 calories per day, since one of the points made is that decreasing calories by 100 per day can lead to approximately 10 pounds of weight loss per year. Data are available for estimating the BMI and identifying a healthy weight goal. Another table helps estimate current energy requirements.

Dr. Appel noted that the concept of discretionary calories is not covered well in Section E. He suggested it may be necessary to disaggregate the concept and move it to key messages in each of the first three sections because nutrient needs, weight control, and increased physical activity are ways to increase discretionary calories. Dr. Camargo repeated his concern that the Discretionary Calories section is a theoretical model, which does not apply to the majority of Americans because most people in this country are overweight and are trying to remove

calories. As they remove calories, they should be strongly encouraged to remove foods that have few nutrients and that increase risk of disease. Dr. Cabarello noted that the model is the basis of the education to teach what to eat, the basis of the food guide, and the basis on which nutrient needs are fulfilled. The first point in these key points—how to fulfill nutrient needs from the food groups—shows that by consuming these foods, one can fulfill nutrient needs before consuming other calories, and that an active lifestyle increases the amount of calories available. Dr. Lupton noted that the reason the emphasis was changed was the fact that there are very few discretionary calories. Dr. Caballero agreed that the situation is serious in terms of all the things people do not do. Nevertheless, an education program cannot be built on that negative situation. That is why this guidance document is based on the IOM and the Dietary Reference Intakes (DRIs).

Dr. King summarized the discussion, that Dr. Camargo was recommending that part of the report should start with what people are currently consuming and should strive to get them to change to comply with the recommendations. Currently most people have used up their discretionary calories, and so, emphasizing how to use them is a bit off the mark. Dr. Caballero and Dr. Lupton were noting that the food pattern is based on the lowest fat, most nutrient-dense sources of foods. By following that pattern, one would have discretionary calories and the report should provide guidance on how one might use them.

Dr. Bronner thought the only point that was not made clearly enough was the fact that the way most people eat is not that pattern. Although it was said, it was diluted by the discussion of discretionary calories for people who have used them up in the extreme.

Dr. Caballero noted that the general scientific approach in public health aims at defining a reference standard and then developing the interventions to move the population to that reference standard. For an example, he stated that only one-third of the U.S. population has a BMI below 25. The CDC, in developing the current growth curve for children, eliminated the more recent data as over-representing overweight children. So, the CDC is advising that today's children grow at the rate of children in 1970 because the current rate is not acceptable. In general, public health interventions set standards of what optimizes health. The rest is strategy on how to get there. When the situation is really adverse, as in this one, intermediate steps may be necessary. A goal may be given that is a little more modest for the next five years, but the standards are not changed. So, to set a science-based reference today on the goals for optimizing health, necessitates going where the science takes us and then deciding how far from there we are.

### *Secretary Tommy Thompson*

Dr. King welcomed Secretary Thompson. Secretary Thompson personally thanked members of the Committee for their effort. He said he understood that this Committee had devoted more time than any previous Dietary Guidelines Advisory Committee and that spoke to the dedication and the passion that Committee members brought to this endeavor. Secretary Thompson said that this Committee was probably the most important Committee in regard to food that has ever been assembled. He noted that after the report was submitted, it would be posted for public comment. Before leaving, the Secretary shook the hand of each Committee member.

Dr. King thanked Secretary Thompson and told him she appreciated his support. Dr. King also told Secretary Thompson that the Committee would not have been able to do this task without the excellent staff that has assisted from both HHS and USDA.

### *Section E (continued)*

Dr. Kris-Etherton picked up the discussion of discretionary calories, saying that this is something the Committee must be very careful about. They do not want to communicate a message that makes people think they have extra calories to add to their diet. She suggested that one way to do this would be to communicate the message that the very first step for most Americans is to get to the recommended pattern. Forget about discretionary calories at first, but strive to get to the recommended pattern. Dr. Go agreed. Dr. King observed that the first point made was to select a variety of foods to meet nutrient recommendations while staying within energy limits. One of the things the Committee had done this year that may be different from the work of the previous four Committees was to take a holistic approach to establishing dietary guidance by looking at the whole diet to meet nutrient recommendations while staying within caloric needs. Dr. Clydesdale noted that for the first time the Committee had integrated that with physical activity.

Dr. Weaver supported Dr. Caballero's perspective. She stated that the Committee's assignment was to take the science, look at the literature, and establish the reference and the links with disease. All of the messages are in there for how to do it, although Committee members may not be the best communicators. Dr. Pi-Sunyer agreed and noted that under the key messages in the section relating to controlling calories, the fact that most Americans have already used up their discretionary calories could be the first point. To avoid the dangers of inserting discretionary calories here, Dr. Camargo recommended reminding people that people are not abiding by these rules. He recommended strongly emphasizing the reality and how people could get to the ideal. Dr. Appel suggested a visual that presents a current diet, a proposed diet, and the distance between the two; then people would realize the problem. He noted it was really the marketing of the product that would be crucial.

Dr. King summarized that there would be a limited discussion on discretionary calories in Part E, and comments there would be based on Part D with the science showing what a quality, health-promoting diet is.

### *3. Being physically active every day.*

Dr. King continued by providing a summary of the key physical activity message: 30 minutes of at least moderate physical activity on most days provide important health benefits by reducing the risk of chronic disease. More than 30 minutes may provide even more health benefits. The next point is that regular physical activity is essential to the maintenance of healthy weight for children and adults. It increases total energy expenditure and the number of calories needed in a day. Energy expenditure increases with increases in both duration and intensity; a table gives examples of physical activity and the calories expended. Participating in as much as 60 minutes of moderate to vigorous activity is recommended to prevent unhealthy weight gain. After losing weight, adults who obtain 60 to 90 minutes of moderate to vigorous physical activity are more successful at maintaining their reduced weight; the recommendation for children is at least 60 minutes of moderate to vigorous physical activity on most days. Physical fitness requires regular physical activity, and that involves cardiovascular conditioning, stretching, exercises to enhance flexibility, and weight work and calisthenics to develop strength and muscle endurance. Vigorous intensity physical activity burns more calories, and during leisure time it is advisable to limit sedentary behaviors, such as watching TV and videos.

Dr. Appel reminded the group that this section must be parallel with the description of the 30 minutes and the 60 minutes. It was agreed to put the first bullet in the physical activity section. Dr. Caballero pointed out that the conclusive statement says many people may need as much as 60 minutes to maintain healthy weight, but 60 minutes is not the recommendation for everyone. The group had agreed that the second bullet (setting aside 30 to 60 minutes is not necessary) was a little too strong, so “is not necessary” was removed.

Dr. Weaver called attention to the issue of weight-bearing exercise in helping prevent falls. She recommended that “weight-bearing” be removed because exercise that is not weight loading can also help prevent falls. To be consistent with the conclusive statement, it should say that exercise that loads the skeleton increases bone mass accrual in children and in adults. In the last line, it would be “exercise that loads the skeleton increases bone mass.” She noted that it was not wrong as is; but that it may be perceived that the only kind of exercise that is weight-bearing is foot impact, whereas resistance also is weight-bearing. So, if “exercise that loads the skeleton” was used in both of those places, it should be consistent with the conclusive statement.

### *4. Increasing daily intake of fruits and vegetables, whole grains and non-fat or low-fat milk and milk products.*

Dr. King continued with the key messages: Fruits, vegetables, whole grains, and milk products are important to a healthy diet. Then the number of servings is given: 5 to 13 servings of fruits and vegetables or 2-1/2 to 7-1/2 cups of fruits and vegetables. The goal is to consume a variety of fruits and vegetables. The goal for whole grains is at least 3 servings or 3 ounces per day, preferably whole grains and not refined grains. For people who require 1600 calories per day or more, the goal for milk and milk products is 3 cups of non-fat or low-fat milk or its equivalent. For others it is 2 cups per day.

Dr. King noted that these food groups are good sources of the shortfall nutrients in Part 1. Dr. Go reminded the group that 2 tables had been added, one on ways to increase fruit and vegetable intakes, and the other on ways to increase dairy product intake. Dr. King said they have in the additional information that most refined grains are required to be fortified with folic acid. Also

in this section is information on reading the labels for whole grains—as whole grains cannot be identified by the color. A statement was included stating that the strength of evidence for association between increased intake of fruits and vegetables and reduced risk of chronic disease is variable and depends on the specific disease, but a wide array of evidence points to beneficial health effects. In other words, not everyone will experience the same benefit. This was followed by a comment on how lactose-intolerant people could select milk; and that fruits, vegetables, whole grains, and, to a lesser extent, milk products contain sugar and starches, and that these also provide fermentable substrates for bacteria that can cause dental caries. Dr. Clydesdale suggested making the oral hygiene statement consistent with the conclusive statement.

#### *5. Choosing fats wisely for good health*

Dr. King provided an overview of this section, and noted that the overview states that a high intake (greater than 35% of the energy intake) of total fat makes it more difficult to avoid consuming excess calories and saturated fat. A low intake of total fat (less than 20% of the energy intake) increases the risk of inadequate intake of vitamin E and essential fatty acids and may contribute to unfavorable changes in HDL cholesterol and triglycerides. This is followed by the bulleted points/key messages. To decrease the risk of elevated LDL cholesterol, most Americans need to decrease their intake of saturated fat, *trans* fat, and many—especially men because of their high cholesterol intake—need to decrease their dietary intake of cholesterol.

Next, the recommendations were repeated from the earlier sections of the report. Decreasing one's intake of saturated fat and *trans* fat is a recommended way to reduce fat intake so that it does not exceed 35% of calories. Consuming two servings of fish per week may reduce the risks from cardiovascular disease, especially mortality from coronary artery disease. The intake of salmon, trout, or other fish that are high in omega-3 fatty acids may be especially beneficial. Dr. King noted that something should be added about potential other sources of omega-3 fatty acids. Dr. Kris-Etherton agreed and stated that the key messages recommend values for saturated fat and cholesterol, so “less than 1% of *trans* fat” should be added. Dr. Nicklas said saturated fat was targeted because much more saturated fat is consumed.

Dr. King noted that tables give practical examples of the differences in saturated fat content of different foods; the greatest sources of saturated fat; strategies for decreasing saturated fat intake; sources of *trans* fat; and sources of cholesterol. Information on a Web site was provided for the most current information about exposure to environmental contaminants, such as methyl mercury in fish—that was important to include, because levels vary by region within the United States.

Dr. Camargo and Kris-Etherton reviewed what was said in Part D regarding prioritization of limiting fat intake. They proposed stating that because dietary intake of saturated fat is much higher than that of *trans* fat and cholesterol, it is most important to decrease one's intake of saturated fat. However, intake of all 3 should be decreased.

#### *6. Choosing Carbohydrates Wisely*

Dr. King provided an overview of this section, noting it stated that foods that are rich in carbohydrates are important sources of many nutrients and also reduce disease risk. When selecting foods from the fruit, vegetable, and grains group, it is beneficial to make fiber-rich

choices often; a table lists the best sources of dietary fiber. Reducing the intake of added sugars, especially sugar-sweetened beverages, may be helpful in weight control and aid in achieving recommended nutrient intakes.

Dr. Appel suggested saying that reducing the intake of added sugars can lower calorie intake, which has been agreed upon. It may be helpful in weight control and should aid at achieving recommended nutrient intake. Dr. Nicklas proposed that the statement be revised to clearly show an association. She proposed that the key message be revised to: “Based on the weight of the scientific evidence, that reducing intake of added sugars may be helpful in achieving recommended nutrient intakes.”

For added sugars, specifically sweetened beverages and their relationship to weight control, Dr. Nicklas suggested, under additional information, text be added that says studies suggest that reduced intake of added sugars, especially sugar-sweetened beverages, may be helpful in weight maintenance. Or, this idea of added sugars and weight could be put in Discretionary Calories. A key point under Discretionary Calories states for weight maintenance that the goal is to consume essential calories, plus discretionary calories, to equal total energy expenditure. The conclusive statement reads, “Reducing intake of added sugars may be helpful in achieving recommended nutrient intakes.” The second part of that conclusive statement, which requires additional research, Dr. Nicklas proposed to make a bullet, under additional important information, stating, “Studies suggest that reduced intake of added sugars, especially sugar-sweetened beverages, may be helpful in weight control” Most of the conclusive statements clearly show an association, and this is the only place that includes a statement that needs additional research. Dr. Caballero said the issue is that there is no rule that the conclusive statement should go in key messages. These key messages are simply key messages, so the question is whether the evidence is sufficient. That evidence is quite limited. There is a difference between the relationship between sugar-sweetened drinks and weight gain, and the relationship between sugar-sweetened drinks as an effective means for weight loss. Only one randomized trial used that as a strategy to weight loss, and it is one of the weakest studies reviewed. So Dr. Caballero was more inclined to link the sugar-sweetened drinks to the possibility of weight gain, than as an effective tool for weight loss. Dr. King pointed out that the additional important information was primarily to improve the translation of the key messages. Dr. Appel suggested: “Reducing intake of added sugars (especially sugar-sweetened beverages) can lower calorie intake, may be helpful in weight control, and should aid in achieving recommended nutrient intakes.” Dr. King asked for a show of hands as to whether Committee members supported this rewrite; a majority of the Committee did.

### *7. Choosing and Preparing Foods with Little to No Salt*

Dr. King provided an overview of this section: The goal was to consume less than 2300 milligrams of sodium per day. Many persons will benefit from reducing their salt intake even more than that, especially hypertensive individuals, blacks, and middle-aged and older adults. At the same time, individuals are encouraged to increase their consumption of foods rich in potassium because it lowers blood pressure and blunts the effects of salt. Since sodium added during processing provides more than  $\frac{3}{4}$  of the sodium intake, the food industry has a large role to play in helping us meet this goal.

Dr. Clydesdale thought the conclusive statement said that foods with little to no salt are desirable. Dr. Appel suggested recommending that people consume as little salt as possible. However, it is the selection of the foods that creates the problem, not the small amount that is added by the shaker.

Dr. King concluded with the wording, “Choosing and preparing foods with little salt.”

*8. If alcohol is consumed, moderating alcoholic beverage intake*

Dr. King provided an overview of the key messages: Those who choose to drink should do so sensibly and in moderation. Abstention is an important option. One in three American adults does not drink alcohol. “Moderation” is defined as up to one drink per day for women and up to two drinks per day for men; quantities are given for beer, wine, and distilled spirits. Drinking alcoholic beverages should be avoided before or when driving or whenever it puts anyone at risk.

Dr. Camargo preferred the wording, “If you drink alcoholic beverages, do so in moderation.” He noted that it is the same message, but the phrase “moderating alcoholic beverage” is not obvious. Dr. King agreed to change the heading to “If you drink alcoholic beverages, do so in moderation.”

Dr. Clydesdale directed the Committee’s attention to the statement: “Compared with non-drinkers, women who consume 1 drink per day...” He recommended it say women who meet the recommendation and consume 1 drink per day. Dr. Camargo replied that the breast cancer wording is identical to the conclusive statement and that it is a separate issue—it is a risk. Question 1 from Alcohol is a risk benefit analysis with mortality being the summation, and it recognizes that for both men and women heart disease seems to go down. Uniquely in women, breast cancer goes up. But it is a 9% increase at the highest level of moderate drinking, whereas the reduction in heart disease, which is a much bigger factor for mortality, is much larger. Dr. Camargo stated that this section discussed the concept that even for moderate drinking levels, which seemed to be safe, there were situations in which one shouldn’t drink; specifically the Committee was not advising children to consume at these levels. Breast cancer is a fundamentally different concept than exposure and outcome.

*9. Keeping foods safe to eat.*

Dr. King provided a summary of this section: The most important food safety problem is microbial food-borne illness. Behaviors in the home most likely to prevent this are cleaning hands, contact surfaces, fruits, and vegetables; separating raw, cooked, and ready-to-eat foods while shopping, preparing, or storing; cooking foods to a safe temperature and chilling; and avoiding higher risk foods.

Dr. Clydesdale said some foods are defined as higher risk foods, particularly for *Listeria*, in e.g., uncooked frankfurters and deli meats. In fact, it is contamination, which the subcommittee wanted to downplay because obviously not all frankfurters and not all deli meats are contaminated, but because of the method of preparation and the amount that is eaten, these rise to the surface in any risk analysis.

Dr. Appel asked why the report cannot use such words as, “consume, control, be physically active, increase this.” Capt. Royall replied that verbs like that make the report very prescriptive and very easily mistaken as a direct consumer statement. Dr. Caballero stated that the real question is whether Committee members are satisfied that the science behind it is strong enough. The nine summary statements were reworded to use active verbs.

Dr. King took a vote on the 9 statements. All members raised their right hand.

By acclamation, Committee members agreed to insert a sentence on page 1 of Part E before listing the 9 key recommendations. It reads, “In brief, the Committee’s findings support the development of *Dietary Guidelines* that convey the following messages.”

**(Break 3:10–3:25)**

### ***Executive Summary***

Dr. King gave the topics of the Executive Summary: an introduction describing what the *Dietary Guidelines for Americans* are, and a brief discussion of the legislation that led to the development of the report, the Committee, and how it did its work. The major scientific findings translate into dietary and physical activity guidance. The nine topics are: meeting recommended nutrient intakes (titled like they are in Part D), energy, discretionary calories, fats, carbohydrates, selected food groups, fluids and electrolytes, ethanol, and food safety. Then the Executive Summary gives making changes in diet and physical activity to delay the onset of disease. A brief paragraph is given here, with the insertion of type 2 diabetes in the list of diseases addressed. Next is key messages, translating scientific findings into dietary and physical activity guidance; and then, a discussion of these various topics: consuming a variety of foods within and among the basic food groups while staying within energy needs; controlling calorie intake to manage body weight; being physically active every day; increasing daily intake of fruits and vegetables, whole grains and nonfat or low-fat dairy products; choosing fats wisely; choosing carbohydrates wisely; choosing and preparing foods with little salt; if alcoholic beverages are consumed, doing so in moderation; and keeping food safe to eat. The next section, which is very important, discusses heeding all the messages because the greatest benefits can be anticipated if one heeds all of the major recommendations. Using the USDA food pattern to meet nutrient recommendations is discussed, as well as reducing the risk of chronic disease, but that there are other patterns that could fulfill the same role. There is a statement on physical activity and its importance, and then contributions of the environment.

Dr. Appel wrote a section on disparities, which Dr. King thought should be put in the introduction, but with a statement in the Executive Summary. Then Dr. Appel observed that Heeding All the Messages in the Executive Summary omits the *trans* message, which could be added along with saturated fat, cholesterol, and salt. Dr. King noted that the reason *trans* fat is not on this list is that the list includes only those components for which data are available. This is explained in a footnote.



Dr. King said, on that the discussion of the DASH pattern might be expanded, in comparison to the USDA food pattern, and include a description of health benefits observed with the DASH pattern. Also a “disclaimer” could be added, i.e., that because of lack of time, it was not possible to address some potentially important topics (e.g., iron, protein). Dr. Appel said it is important that the report apply to people with high blood pressure, people who are overweight, people who have high cholesterol, and the disclaimer should be at the beginning.

Dr. King explained to Dr. Camargo that in the Executive Summary, there is a listing of all the sections and then there is the same listing again because it lists the sections of Part D, a review of the scientific literature, and then it discusses how these facts have been translated into guidelines. Dr. Weaver suggested consolidating them. Dr. Camargo agreed that it would be more effective to list the facts, then the conclusive statements, and then the rationale.

Dr. Nicklas suggested it would be appropriate to add that these recommendations are for children aged 2 and older, and that although the recommendations are based mostly on adult studies, it is the Committee’s opinion that these recommendations will promote healthy eating patterns in children. Dr. King agreed that it should be here, probably as part of the introduction to this section.

Dr. King asked for approval of the Executive Summary in its general format; all were in favor.

### *Introduction*

Dr. King continued: The introduction starts with a brief history of the *Dietary Guidelines* and an overview of the role of diet and physical activity and health promotion, a general statement on the role of the environment in implementing guidelines and then a discussion of the chronic diseases that are affected by diet—cardiovascular disease, overweight and obesity, elevated blood pressure, dyslipidemias, metabolic syndrome, diabetes, cancer, and osteoporosis. Then the audience for *Dietary Guidelines* is discussed; this is where children are discussed.

Dr. Nicklas suggested replacing the first two paragraphs with the following. The first paragraph, the last sentence says: “By environment we mean the constellation of cultural forces, societal norms, family influences, changes in meal patterns, and commercial advertising that potentially influence individual behavior.” And then similarly in the last paragraph: “In brief, there is increasing recognition that the current environment may be encouraging over-consumption of calories and discouraging expenditure of energy. Among the environmental factors that may contribute to excess calorie include, but are not limited to, increased availability of energy dense, nutrient-poor foods, beverages, expanding portion sizes and an increased consumption of snacks and meals outside the home.” Dr. Camargo thought the sentence should remain: “There is growing agreement among experts that changes in the environment—rather than changes in individual behavior and certainly not changes in genes—are the driving force that accounts for the obesity epidemic.” But Dr. Nicklas disagreed with that statement. Dr. Pi-Sunyer said it is a combination of individual behavior and environmental behavior, and both have to change. Dr. King reminded the Committee that members want to make it clear that this section on the

environment represents Committee members' opinion and not an in-depth review of the literature. The same should probably be done for health disparities.

Dr. Camargo asserted that individual behaviors are not driven by genes, and that the statement that changes in individual behavior are the driving force is very important to have in the report. But, Dr. Clydesdale countered, it is phenotypic because it is a combination of the genetic and the environment, which does not affect everybody. A phenotypic reaction is not a change in genes, and not everyone is affected the same way. Dr. Camargo said the statement is getting at the driving force. People can disagree and the report should reflect that debate. In the same way that Dr. Appel stated the report should not say that the current environment may be encouraging over-consumption, Dr. Camargo said he believed there is abundant evidence that the current environment does encourage over-consumption. Dr. Caballero said there is really no conflict there because what the report is saying is that an environment can make behavior change easy or more difficult. At least for obesity an obesogenic environment is discussed. Similarly, if there are no sidewalks, it is difficult for people to walk 30 minutes a day. This statement is a point without need and an in-depth scientific review. The report should state the fact that implementing this guidance and effectively changing behavior is going to be very difficult unless people do something about changing the environment. Dr. Pi-Sunyer agreed that individual behavior is important and it is also a driving force. The environment is not the only driving force. Dr. Camargo suggested a compromise: "Changes in the environment and changes in individual behavior, but not changes in genes, are driving forces that account for the obesity epidemic." Dr. Pi-Sunyer thought changes in genes are also important. This would explain minority populations that have a propensity to obesity. But, said Dr. Camargo, in every single gene pool, obesity is higher today than it was 30 or 40 years ago, so that is not the explanation for the obesity epidemic. Dr. Camargo suggested: "In brief, we believe that the current environment tends to encourage over-consumption of calories and discourage expenditure of energy." It qualifies the statement, it clearly identifies the source, and it introduces what follows.

Dr. Appel said the Committee did not review the literature on health disparities. However, this Committee has an unusual opportunity to comment on a possible strategy to reduce health disparities. So, he developed text (distributed to the Committee) using the area he knows best, which is blood pressure, but, it probably applies to other areas as well. Committee members read the proposed text. The Committee has been using this diet-related example, but Dr. Appel thinks with the obesity issue it is self-evident that physical activity has to be part of the picture.

Dr. Pi-Sunyer asked whether to include economic disparities and their influence on health, a much more difficult issue to address. It is underappreciated—the average clinic or clinician in America would not deal with this at all. The text on economic disparities that influence health will be inserted in Part D, Section 5, page 7, last paragraph. Dr. Weaver mentioned a recent press release that showed how cost effective vegetables are. But, Dr. Camargo said, the way to address the fact that people eat too few vegetables is to address policy issues, which this Committee cannot do here. Dr. Pi-Sunyer suggested making it a research recommendation or something. Dr. Appel suggested that, without addressing this topic, the Committee could add at the top a comment about "as well as disparities by socioeconomic status," and at least acknowledge it even though not much can be said about it. Dr. Caballero thought it important to

bring up the cost of healthy versus unhealthy foods, in general. If health disparities are discussed and how they may affect the implementation of the guidelines, then all types of disparities—social, economic, ethnic and racial—should be included. Dr. Go added that there is an income disparity on the fruits and vegetables from the USDA National Survey data, which was incorporated. But, Dr. Caballero noted, because this is an opinion piece—not a scientific piece—it should be general. The statement should be left for the record that this Committee is concerned that disparity is a factor that would affect the implementation of these guidelines. Dr. Camargo re-introduced making it a research question: “Investigate the feasibility of dietary guideline compliance among different population groups, especially lower socioeconomic groups.” And the rationale could be that many of these foods are expensive and not readily available.

Dr. King stated there was a need to weave something into the first few sentences to suggest that the Committee is aware that there are disparities that go beyond racial and ethnic disparities, including economic disparities. Dr. Appel agreed to add such a sentence. Dr. King thought this could also put in the Executive Summary: “The Committee is concerned that economic disparities will make it difficult for some groups to comply with the recommendations or something to that effect, and may limit compliance.” This section on disparities could be inserted before discussion of the environment. The role of diet and physical activity in health promotion is next, then changes in diet and physical activity as a means to reduce health disparities, and finally the role of the environment in implementing the guidelines.

Everyone showed approval of the Introduction by raising his or her right hand.

### *Methodology*

Dr. King summarized the section. It starts with a discussion of the process of Committee appointment and reviews the charge to the Committee. It then describes the process used, the formulation of research questions, the systematic review of the scientific evidence, types of evidence reviewed, literature searches carried out, and how they were carried out. It summarizes the results and gives the Web site on which they are available. It gives a critical review of the summaries, how that was done, and then the preparation of the conclusive statements. The other part of the process was the use of the USDA food pattern and special analyses. It discussed how the Committee used the food modeling, and discusses the advantages and disadvantages of that approach. It also gives the special analyses using the NHANES and the CSFII data on the sources of nutrients in the American diet. A table shows the comparison of the sources of potassium intake from the CSFII database and the NHANES database, illustrating that the results are quite similar between those two databases. A statement will be added to the effect that the results were similar. It ends with the summary of this section.

The Committee voted in favor of approving the Methodology section.

### ***Research Recommendations***

Dr. King continued: The Research Recommendations (Section F) consist of three major parts. The first is overarching recommendations, i.e. means research to be done on the whole overarching process of developing dietary guidance. Second is specific research recommendations for the various sections of the report—nutrient adequacy, energy balance, fats, carbohydrates, the selected food groups, fluids and electrolytes, ethanol, and food safety. Recommendations are supported by the rationale. Dr. Appel recommended moving the advisory Committee process to a note afterward. Dr. King agreed.

### ***Wrap-Up***

Dr. King thanked each Committee member, Capt. Royall, Dr. Hentges, Dr. Beato and Ms. McMurry for their support. She thanked the HHS staff and the USDA staff and Dr. Suitor. Dr. Lupton thanked Dr. King on behalf of the Committee.

### ***Closing Remarks*** ***Eric Hentges***

Dr. Hentges thanked the Committee members, noting that their work is particularly significant given the issues of overweight and obesity that the United States faces now. He thought it significant that the Committee had pioneered a new approach to this *Dietary Guidelines* process. He quoted Capt. Royall in saying that the Committee members truly have embodied the spirit of public servants with this type of work and their time spent and effort volunteered for the ultimate good of all of Americans. Dr. Hentges, too, thanked the Departments' staff for their work and he thanked Dr. King for her leadership.

Dr. King thanked Dr. Hentges, and then reviewed remaining steps:

- θ Committee members will get an electronic copy of the discretionary calories and research questions to review within a couple of days.
- θ They will receive the full report at the same time it goes to the Secretaries—probably early the week of August 23.

Dr. King then adjourned the meeting

***(Meeting adjourned, 4:35 p.m.)***