

Consumer Research for Development of Educational Messages for the MyPyramid Food Guidance System

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ABSTRACT

Objective: To assess consumer understanding and use of messages from the original Food Guide Pyramid and potential concepts for a revised Food Guidance System.

Design: Focus groups conducted in two phases, in 2002 and 2004.

Setting: Market research facilities in Baltimore, Chicago, and Houston.

Participants: Phase I, 178 participants in 18 groups: 6 of general adult consumers, 4 of adults over 60 years of age, 4 of food stamp recipients, and 4 of overweight adults. Phase II, 75 participants in 8 groups: 4 of younger adults and 4 of older adults.

Phenomenon of Interest: Understanding and use of original Pyramid symbol and messages and potential concepts for a revised food guidance system.

Analysis: Focus group sessions were audiotaped and transcribed. Content analysis summarized comments into meaningful themes.

Results: Key concepts of the original Pyramid were widely understood, but specific knowledge was limited and misunderstandings common, especially related to servings and food group placement. Detailed information about whole grains, types of fats, vegetable subgroups, and physical activity was lacking.

Conclusions and Implications: While consumers are aware of general concepts about healthy eating, they lack specific knowledge to help them implement recommendations. Educators can help by providing consumers with concrete examples and specific information.

Key Words: MyPyramid, dietary guidance, consumer research, qualitative research

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INTRODUCTION

The original Food Guide Pyramid (Pyramid), released in 1992, became one of the most recognized, used, and influential food guides in history.^{1,2} Although the Pyramid was adopted by many nutrition education programs, and a large majority of American consumers were familiar with the graphic, there was concern that consumers were not implementing its advice.^{1,3} National food intake surveys documented that consumers were not selecting diets consistent with Pyramid recommendations.⁴ The Healthy Eating Index, which assesses compliance with the Dietary Guidelines

for Americans and incorporates measures of Pyramid food group consumption as 5 of its 10 subscales, indicated that most Americans were not following the Pyramid's guidance and that their diets needed improvement.^{5,6}

During the 1990s, a new body of science-based information about nutrition, health, diet, and consumption patterns was generated. These new findings and recommendations prompted the United States Department of Agriculture (USDA) Center for Nutrition Policy and Promotion (CNPP) to undertake a broad-based reassessment and revision of the original Pyramid.³ Researchers have detailed the technical research that was undertaken and that resulted in the revision of the Pyramid's food intake patterns in accompanying articles.^{7,8} In addition to revising the underlying food intake patterns, CNPP staff designed the reassessment of the Pyramid to explore how a new food guide could provide useful and actionable guidance to consumers that would encourage adoption of the new food intake patterns. Consumer research was identified as an integral part of the overall process for reassessing and revising the Pyramid, to explore how to create guidance that is more useful to consumers.³

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The 2005 *Dietary Guidelines for Americans*,⁹ which was under development at the same time that the Pyramid was being reassessed, provided the scientific basis for the nutrition guidance to be included in the new food guidance system. The process for developing the 2005 Dietary Guidelines began with appointment of a committee of health and nutrition experts, the Dietary Guidelines Advisory Committee (DGAC), by the secretaries of the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) in September 2003.^{10,11} The secretaries charged the DGAC to provide a scientific report of its recommendations for the 2005 *Dietary Guidelines for Americans*.¹²

As the DGAC began its deliberations, the research questions that they selected for study helped to identify topics that might call for potential new food guidance messages. CNPP staff used topics that were of interest to the DGAC to help identify areas in which consumer research might be needed to explore how consumers understood and could apply guidance on these topics as part of a new food guidance system. For example, the DGAC decided to examine the evidence for the impact of whole-grain consumption on health and the links between activity, diet, and health.¹² Because the original Pyramid included only limited information on whole grains and did not include guidance on physical activity, formative research was needed to explore how consumers would understand and react to various terminology and messages that might be incorporated into a new guidance system. Additional concerns considered in developing the consumer research topics included a number of issues that had been raised by nutrition and industry groups and were summarized by Nestle.² Also, authors have suggested that the way in which recommended food intake amounts were presented, as a number of servings of specified size, was subject to widespread misinterpretation by consumers.^{13,14}

This article presents the results of 2 phases of consumer research conducted as part of the overall process for reassessing and revising the Pyramid. The first phase of this research, conducted in 2002, was designed to explore consumer understanding and use of the original Pyramid.¹⁵ The main objective for this phase was to assess consumer understanding of messages from the original Pyramid, and the extent to which the graphic illustration of the Pyramid communicated these concepts and messages. The second phase of the research, which began in 2004, built on the findings from the first phase.¹⁶ Its major objective was to assess how consumers perceived and understood potential concepts and messages for a new food guidance system.

METHODS

Study Design

Focus group interviews (focus groups) were used to obtain insight into consumers' understanding, opinions, and beliefs regarding the topics of interest. Focus groups constitute a qualitative research method widely used in nutrition

education research.¹⁷ As noted by Kreuger, focus groups "provide an environment in which disclosures are encouraged and nurtured. . . through open-ended questions within a permissive environment."¹⁸ [p. 15] The discussion format of focus groups allows respondents to discuss their understandings and feelings about specific topics in depth and to react to or build on the opinions of other participants. We were especially interested in identifying potential terminology that was understandable and messages that were considered actionable as part of the development process for revising the Pyramid. In addition, the group discussion format can provide insights into alternative ways of expressing educational messages that may be better understood by consumers.

The study included 2 phases of consumer research, with a total of 26 focus groups. Phase I included 18 groups of 8 to 12 participants each, in May and June 2002. Phase II consisted of 8 focus groups of 8 to 11 participants each, in February and March 2004. All focus groups were approximately 2 hours long and were audiotaped. The research was conducted under contract for USDA by Systems Assessment and Research, Inc., (Phase I) and Annapolis Professional Resources, Inc. (Phase II). Both contractors used the services of market research firms in each focus group location for their facilities and participant recruitment capabilities.

Moderator guides were prepared by the contractor, using descriptions of topics provided by USDA and following discussion with USDA of the intended purpose for the groups and types of information being sought. The guides were reviewed by USDA and revised by the contractors as needed. The topics for the Phase I and Phase II groups, which served as the basis for development of the moderator guides, are outlined in Table 1 and Table 2, respectively. Sample questions and probes from the guides are also presented in Tables 1 and 2. All research materials, including participant screeners and moderator guides, were approved by the Federal Office of Management and Budget for compliance with regulations based on the Paperwork Reduction Act of 1995. Informed consent was obtained from all participants prior to their participation in a group session.

Professional moderators conducted the focus groups using these moderator guides to direct discussion around topics of interest. Moderators with extensive experience in moderating focus groups were selected by the contractors with review and approval by USDA. They all possessed formal training and experience as skilled neutrals, which enabled them to appropriately solicit relevant information from focus group participants without offering their personal opinions or ideas. Phase I focus groups were led by 1 of 2 moderators. The 2 moderators attended training and role-playing sessions to pre-test the guide with contract staff, and they discussed possible issues with contract and USDA staff to establish common meanings and come to agreement on the approach. One moderator also observed the first focus group led by the other moderator, to ensure

Table 1. Topics for Focus Group Discussions, Phase I

Focus group topics, sample moderator questions, and activities:

- Consumer awareness of the original Food Guide Pyramid and key Pyramid messages:
 - Are you familiar with the Food Guide Pyramid?
 - Where have you seen or heard of it?
 - In general, what does the Food Guide Pyramid tell you about healthy eating?
- Consumer understanding of Pyramid food groupings, where specific foods fit, and the “tip” of the Pyramid:
 - [Moderator hands out blank Pyramid outlines and alphabetical list of food groups] Just for fun, see if you can fill in the Pyramid with the names of the various food groups.
 - [Moderator hands out a complete Pyramid graphic] In our opening discussion, each of you mentioned a favorite food. Who would like to tell us where their favorite food fits in the Food Guide Pyramid?
 - What messages or ideas about eating does this graphic convey to you?
 - What message about eating does the tip of the Pyramid convey to you?
 - What do you think the small dots and triangles scattered throughout the Pyramid represent?
- Consumer understanding of the serving sizes and the range of Pyramid servings recommended for each food group:
 - What does the word “portion” mean to you, in terms of food?
 - What does the word “serving” mean to you?
 - Is there any difference between a serving and a portion?
 - [Moderator shows a list of serving sizes for sample foods] How do these serving sizes compare to the portions you usually choose to eat?
 - Why do you think the Pyramid includes a range of servings for each group instead of just one number?
- Ways in which the Pyramid is used by consumers in making food choice decisions, and barriers to use of the Pyramid^a
- Additional types of educational materials that would be useful in helping consumers follow the Pyramid^a

^aTopics that were discussed in the focus groups but are not included in this report.

consistency of presentation. The Phase II focus groups were all led by 1 moderator, who attended training and role-playing sessions to pre-test the guide with contract staff, and met with contract and USDA staff to discuss possible issues and come to agreement on the approach.

Participants

Phase I. The participants for Phase I focus groups consisted of adult consumers in 3 cities: Baltimore, Chicago, and Houston. A professional market research firm in each city recruited and selected participants for the study. The cities were selected to provide some geographic diversity in the research population, and because market research firms were available in these cities with access to databases from which a diverse sample of respondents could be recruited. Altogether, 178 individuals participated in the Phase I focus groups: 59 in Baltimore, 66 in Houston, and 53 in Chicago. Twelve or 13 participants were recruited for each group to ensure that at least 8 would attend, and each Phase I group consisted of 8 to 12 participants.

The market research firms used in this study conduct research across a broad range of topics, and they used their own databases of potential participants. These databases are large, proprietary lists of consumers within the firms' geographic areas who have indicated an interest in participation in focus group research. All participants were offered compensation in an amount consistent with what was typ-

ical in the local area for general consumer groups of this length at the time of the study. Each market research firm used a participant screener, developed by the contractor in collaboration with USDA, to select eligible participants and ensure a mix of participants within the groups. The screening criteria for establishing a mix of participants included marital status, age, education, race/ethnicity, employment status, and household income. The screeners also asked for self-reported height and weight. Individuals who met the other screening criteria for selection and who had a BMI of 30 or more were assigned to an “overweight” group. Individuals were excluded from the study if:

- They or a household member were employed in the marketing research, advertising, health care, nutrition, fitness, or pharmaceutical industries.
- They had participated in a market research focus group during the past 6 months.
- They or a household member were on a medically prescribed diet, allergic to wheat products or milk, or on medication or undergoing treatment for a health condition such as heart disease, cancer, or diabetes.
- They considered themselves to be an expert in nutrition.

Participants between 25 and 60 years of age were recruited for 6 general consumer focus groups, 4 food stamp recipient groups, and 4 overweight adult groups; persons over 60 years of age were recruited for 4 older adult groups. All 18 focus groups were separated by gender, and an equal

Table 2. Topics for Focus Group Discussions, Phase II

Focus group topics, sample moderator questions, and activities:

- Consumer understanding of advice regarding how much food to eat each day provided in household measures:
 - [Moderator shows a list of sample recommendations for intake amounts from grain group, in ounces, and fruit group, in cups.] What does this advice mean to you? [Probe what “ounces” and “cups” mean to them, and what additional information they need in order to use this advice.]
 - [Moderator shows list of sample foods that count as 1 ounce or 1 cup] How might this information help you understand the advice about how much to eat? [Probe for what they understand the sample amounts to mean and what additional information they might need to help them understand this advice.]
 - Take a look at the chart as though you were trying to follow the advice. How might you use this information to make daily food choices? [Probe for if the advice implies eating the entire amount at once or over the day, how they think about food intake over the day as opposed to at a meal, and possible barriers to use.]
- Consumer understanding of potential dietary guidance related to whole grains and vegetable subgroups (and perceived ability to apply. . .):
 - When you hear the term “whole grains,” what does it mean to you? [Probe for specific foods that are whole grains, and food they are not sure about.]
 - Some experts suggest that half of the grain you eat should be whole grains. If you wanted to follow this advice, how would you do it?
- Consumer understanding of distinctions among types of fats in various foods and their potential health effects:
 - You may have heard that there are different types of fats. What have you heard about different types of fats?
 - What have you heard about some fats being better for you than others?
 - What terms or names have you heard for different types of fats?
 - [Moderator shows list of fats terminology: saturated, unsaturated, *trans*, omega-3, hydrogenated, solid, oils] What do you know about these types of fats? [Probe for any type listed that is not mentioned, health effects, other types that are not listed.]
 - What are some foods that contain the types of fat listed on the chart?
- Consumer understanding of terminology for various levels of physical activity:
 - What terms would you use to describe your overall level of physical activity?
 - [Moderator shows list of terms: sedentary, low active, active] What do these terms mean to you?
 - How would you define a “sedentary,” “active,” or “low active” person, in terms of how much exercise they get each day?
 - [Moderator shows list of definitions for 3 levels of activity by miles/time walked] What terms would you use to define someone with these levels of exercise?
 - How would you fit yourself into the levels that are shown on the chart?
- Consumer understanding of differences between sugars and added sugars^a
- Potential channels for communicating nutrition guidance messages to consumers^a

^aTopics that were discussed in the focus groups but are not included in this report.

number of groups was held with males and with females. The groups were segmented by gender to maximize homogeneity—a characteristic of focus groups known to foster open, honest discussion of sensitive issues among participants in an environment perceived as “safe” from judgment. The study was presented to participants as a discussion “about food and nutrition” during the screening process, and introduced as research to investigate “what consumers believe and understand about healthy eating” in the group sessions.

Phase II. The participants for Phase II of the study consisted of adult consumers in 2 cities, Baltimore and Chicago. Professional market research firms recruited and selected participants for the study using the same methods as Phase I. Phase II focus groups included 75 individuals, 35

in Baltimore and 40 in Chicago. Twelve or 13 participants were recruited for each group to ensure that at least 8 would attend. Each Phase II group consisted of 8 to 11 participants.

Participants were recruited for 8 focus groups of general adult consumers. The groups were segmented by age to create more harmonious groups for discussion, with 4 focus groups of younger adults between 25 and 49 years of age and 4 groups of older adults between 50 and 79 years of age. As in Phase I, a mix of participants was recruited for each group using the same screening criteria, with the exception of height and weight, which were not used in Phase II screening. All focus groups were separated by gender. The study was presented to participants as an “opportunity to share your thoughts and opinions with other adults from your area” during the screening process, and it was introduced as a discussion about “food and the

advice people often hear about what they should eat” in the group sessions.

recruitment of participants for the groups, interpretation of the study participants’ perspectives and responses may not be representative of a broader population.

Sample Demographics

Table 3 presents a summary of demographic and socioeconomic characteristics of participants in the Phase I and Phase II focus groups. Overall, the focus groups consisted of a diverse group of participants in terms of their gender, age, marital status, and ethnicity. However, given the purposive

Analysis

All of the focus group sessions were audiotaped, and the audiotapes were transcribed by an independent professional transcription service. The transcripts were verified by contract staff who had observed all focus group sessions, and

Table 3. Demographic and Socioeconomic Characteristics of Phase I (N=178) and Phase II (N=75) Focus Group Participants

| Characteristics | Phase I Groups | | | | | Phase II Groups | | |
|-----------------------|---------------------------------|-----------------------|-------------------|-----------------------|---------------|--------------------------|------------------------|----------------|
| | General Consumers (25-60 y) | Older Adults (> 60 y) | Overweight Adults | Food Stamp Recipients | Total Phase I | Younger adults (20-49 y) | Older adults (50-79 y) | Total Phase II |
| | Number (Percentage of subgroup) | | | | | | | |
| Gender | | | | | | | | |
| Male | 30 (49%) | 17 (44%) | 19 (49%) | 21 (54%) | 87 (49%) | 19 (50%) | 19 (51%) | 38 (51%) |
| Female | 31 (51%) | 22 (56%) | 20 (51%) | 18 (46%) | 91 (51%) | 19 (50%) | 18 (49%) | 37 (49%) |
| Age | | | | | | | | |
| 25-40 | 26 (43%) | 0 (0%) | 16 (41%) | 24 (62%) | 66 (37%) | -- | -- | -- |
| 41-60 | 35 (57%) | 0 (0%) | 23 (59%) | 15 (38%) | 73 (41%) | -- | -- | -- |
| Over 60 | 0 (0%) | 39 (100%) | 0 (0%) | 0 (0%) | 39 (22%) | -- | -- | -- |
| 25-49 | -- | -- | -- | -- | -- | 38 (100%) | 0 (0%) | 38 (51%) |
| 50-79 | -- | -- | -- | -- | -- | 0 (0%) | 37 (100%) | 37 (49%) |
| Marital Status | | | | | | | | |
| Single | 22 (36%) | 15 (38%) | 14 (36%) | 29 (74%) | 80 (45%) | 20 (53%) | 5 (14%) | 25 (33%) |
| Married | 36 (59%) | 25 (54%) | 25 (64%) | 10 (26%) | 93 (52%) | 15 (39%) | 24 (65%) | 39 (52%) |
| Other | 3 (5%) | 3 (8%) | 0 (0%) | 0 (0%) | 5 (3%) | 3 (8%) | 8 (22%) | 11 (15%) |
| Ethnicity | | | | | | | | |
| White | 32 (52%) | 21 (56%) | 21 (54%) | 5 (13%) | 80 (45%) | 17 (45%) | 20 (54%) | 37 (49%) |
| Black | 23 (38%) | 9 (36%) | 9 (23%) | 32 (82%) | 78 (44%) | 18 (47%) | 13 (35%) | 31 (41%) |
| Hispanic | 6 (10%) | 3 (8%) | 9 (23%) | 2 (5%) | 20 (11%) | 3 (8%) | 2 (5%) | 5 (7%) |
| Other | -- | -- | -- | -- | -- | 0 (0%) | 2 (5%) | 2 (3%) |
| Employment | | | | | | | | |
| Not employed | 9 (15%) | 16 (41%) | 5 (13%) | 23 (59%) | 53 (30%) | -- | -- | -- |
| Part-time | 12 (20%) | 9 (23%) | 5 (13%) | 10 (26%) | 36 (20%) | -- | -- | -- |
| Full-time | 40 (66%) | 5 (13%) | 29 (74%) | 6 (15%) | 80 (45%) | -- | -- | -- |
| Retired | 0 (0%) | 9 (23%) | 0 (0%) | 0 (0%) | 9 (5%) | -- | -- | -- |
| Education | | | | | | | | |
| < High school | 3 (5%) | 3 (8%) | 1 (2%) | 8 (20%) | 14 (8%) | 1 (3%) | 3 (8%) | 4 (5%) |
| H.S. graduate | 13 (21%) | 6 (15%) | 11 (28%) | 19 (49%) | 50 (28%) | 6 (15%) | 8 (22%) | 14 (19%) |
| Some college | 18 (30%) | 14 (36%) | 10 (26%) | 12 (31%) | 53 (30%) | 16 (41%) | 10 (27%) | 26 (35%) |
| College graduate | 27 (44%) | 16 (41%) | 17 (44%) | 0 (0%) | 61 (34%) | 14 (36%) | 13 (35%) | 27 (36%) |
| Postgraduate | -- | -- | -- | -- | -- | 2 (5%) | 3 (8%) | 5 (7%) |
| Family Income | | | | | | | | |
| <\$25,000 | 6 (10%) | 9 (23%) | 4 (10%) | 37 (95%) | 55 (31%) | 6 (16%) | 3 (8%) | 9 (12%) |
| \$25,000-50,000 | 26 (43%) | 19 (49%) | 11 (28%) | 2 (5%) | 59 (33%) | 16 (42%) | 16 (43%) | 32 (43%) |
| \$50,000-75,000 | 16 (26%) | 6 (15%) | 12 (31%) | 0 (0%) | 34 (19%) | 7 (18%) | 11 (30%) | 18 (24%) |
| >\$75,000 | 13 (21%) | 5 (13%) | 12 (31%) | 0 (0%) | 30 (17%) | 9 (24%) | 7 (19%) | 16 (21%) |
| Total | 61 (34%) | 39 (22%) | 39 (22%) | 39 (22%) | 178 (100%) | 38 (51%) | 37 (49%) | 75 (100%) |

these transcripts served as the primary data sets for the study. They were supplemented by audiotapes, observation notes taken by contract and USDA staff, and debriefings after each group session that included all observers.

A systematic content analysis was used to analyze the focus group findings.^{18,19,20} Transcripts and notes were read by one contract staff member who had attended all focus group sessions, to become familiar with the range of comments and to begin the process of identifying recurring comments. To provide a structure for organizing the data, this staff member recorded individual comments into a grid that had been prepared for each question from the moderator guide. The grid organized responses by group type and location. Potential themes were generated from the initial reading and the organization of individual comments. Comments were then grouped into recurring themes to identify common response categories. The range and diversity of perceptions were also identified, and differences between groups based on location or type of group were noted. Based on this analysis, the staff member prepared a draft report of findings and submitted it for review by other contract staff, including the focus group moderator, and USDA staff. All of these reviewers had observed at least some of the focus group sessions. Reviewers were able to compare the draft report to notes from their observations and to the transcripts or audiotapes to assess the validity of the analysis. The draft report was modified to incorporate suggestions from all reviewers.

Although the analysis revealed some differences in response between the various groups of participants, such as between men and women or between older and younger adults, the commonalities among groups overshadowed the differences. Therefore, the results presented here focus on reactions, beliefs, and attitudes that were common across all groups. Where clear differences existed in the responses of 1 category of participant, they are noted as such in the results. The information and quotes presented in the results section reflect themes most often mentioned by participants across several or many of the focus groups.

RESULTS

Findings from the Phase I Focus Groups

Perceptions of healthy eating. Several common themes emerged in response to a question about what the phrase “healthy eating” meant to participants. The most frequent theme, which emerged from all groups, was that fruits and vegetables should be part of a healthy diet. The need to avoid or limit fats was also widely mentioned. Key concepts from the original Pyramid, including “moderation,” “variety,” and “proportion,” were also frequently mentioned as part of the definition of healthy eating. A few participants specifically mentioned the Pyramid in their responses. Another common theme was “balance” as an important aspect of a healthy diet, although the term was used in varied ways. A wide diversity of other responses included eating regular meals, and avoidance of certain

foods such as “junk foods,” carbohydrates, red meat, or dairy products. Finally, in keeping with the wide array of perceptions expressed, a number of participants stated that they were confused about what constituted a healthy diet because of changing nutritional advice and conflicting opinions among experts.

Awareness of the original Food Guide Pyramid.

In every group, participants indicated that they were familiar with the Pyramid, explaining that they had seen the symbol in health care settings, grocery stores, schools, or in the media. When asked what the Pyramid tells them about healthy eating, many responses mentioned or implied some of the nutrition messages the Pyramid was intended to convey: eating a variety of foods, moderation, balance, and proportionality:

It shows you all the food groups that you should eat during the course of the day. (Chicago, overweight female)

Stuff at the bottom you should eat more of, and stuff at the top you should have less of. I don't think that many Americans eat that way, but that's what the Pyramid is telling you you should do. (Baltimore, general consumer, male)

Despite this familiarity and recognition of some of the Pyramid's messages, participants had difficulty recalling information of a more specific nature about the Pyramid and did not always understand the specific information correctly. Some expressed misunderstanding of food group placement and amounts of food recommended:

The base is about carbohydrates, the middle section is about fruits and vegetables, then use oils sparingly, use sugars sparingly. I don't know what the top is, maybe protein. There are 7 or 11 servings of carbohydrates on the base, then 3-4 fruits or vegetables per day. (Houston, general consumer, male)

If I can recall, the big top has carbohydrates, and then next it has fruits and vegetables, and then next it has proteins, meats, and things, and then next it has dairy and next it has sweets, my favorite. (Houston, general consumer, female)

[It recommends] eating too much bread, and who can eat four pieces of fruit a day? (Baltimore, general consumer, female)

Knowledge of the Pyramid graphic and food groups.

To assess consumers' more detailed knowledge about the original Pyramid graphic, participants were given a list of the food groups to place on a blank outline of the Pyramid. This assignment was completed individually before being discussed by the group. Placement was considered “correct” if the food group was placed in the correct tier, or level, of the Pyramid, not considering placement in the correct position on the left or right side of the tier. All

but 2 of the 178 participants completed this exercise, but the activity was clearly challenging for many. More than 80% placed at least 1 food group in the wrong tier, and about 12% did not place a single food group on its correct tier. More than half of the participants, however, placed fats, oils, and sweets correctly in the top tier (the tip) of the Pyramid. Only about one-fourth placed the bread and cereal group correctly in the bottom tier, whereas a similar number placed vegetables in the bottom tier. Very few participants conceptually reversed the food groups, putting what they perceived as the most important food groups toward the top and the fats, oils, and sweets at the bottom.

To explore consumers' ability to identify the appropriate food group placement for mixed dishes, participants were asked to identify where favorite foods mentioned during the warm-up discussion and common mixed dishes, such as pizza, fit into Pyramid food groups. In general, they had no difficulty identifying where these foods fit, even when they included ingredients from several food groups. In all groups, participants responded with ease, indicating a sense of confidence with the concept that a single food could contain ingredients from multiple food groups.

It fits all over the place, because I serve my chili on rice at the bottom, beans, which is the vegetable, meat, which is in meats. There is definitely some fat, no dairy. Yes, I use tomatoes. (Houston, general consumer, male)

(Turkey sandwich with everything): I guess it's in the bread and cereal group, and I have poultry, and I got the milk and cheese group, fats and oils—actually I have everything except fruit in there. So it's the perfect food! Actually, that is why I eat it, because I don't have time to eat and so a good quick sandwich everyday will cover a bunch of stuff and keep me full. (Chicago, general consumer, male)

Understanding of key Pyramid messages. After being allowed to examine a Pyramid graphic, participants were asked about what messages the graphic conveys. The concept of proportionality, that is, selecting more foods from the bottom tiers than the top, emerged as a common theme across groups, and responses in many groups also related to the concepts of variety or balance among the food groups.

A pyramid is built from the bottom up; therefore, you should use more of the foods at the bottom than at the top. So, the message that I get is that you eat less of the foods as you go up the Pyramid. (Baltimore, older male)

I think you are supposed to eat something from each group. (Houston, general consumer, female)

Participants found it relatively easy to comprehend the message that the tip was for foods to eat sparingly. However, the symbols for fats, oils, and sweets "sprinkled" throughout the food groups on the graphic were not clearly understood; many comments in response to probes on these

symbols appeared to be little more than blind guesses. (The Pyramid graphic that was distributed to participants did not include a key to these symbols.) A wide variety of other comments on the Pyramid graphic indicated that it conveyed many differing messages, including varying ideas about how much food the Pyramid recommends, and especially the amount of carbohydrates recommended. There was no general agreement among participants related to the appropriateness of the overall amount of food recommended by the Pyramid graphic:

It suggests that if you eat that much you will be as big as a house. (Houston, general consumer, male)

If I eat according to this Pyramid I can maintain about 135 pounds. (Chicago, Food Stamp recipient, female)

Understanding of serving sizes and range of servings.

A major focus of this study was to explore consumer understanding of Pyramid serving recommendations and serving sizes for each food group. Participants' responses in this area indicated that these terms as used in food guidance are commonly misunderstood by consumers. The most common theme that emerged was that the words "serving" and "portion" were different ways to express the same concept, the amount eaten on a single occasion. A number of participants used the term "serving" in their definition of "portion," or vice versa

The serving is the portion that an individual eats. (Baltimore, older male)

They are both the same, just whatever falls off of the spoon. (Baltimore, general consumer, female)

[Portion] means a serving, but I don't know what either one is or how big it is supposed to be, but I would use the word interchangeably. (Chicago, general consumer, male)

Some participants did identify a serving as a measured or recommended amount of food, especially in relation to the serving size listed on the Nutrition Facts label of food packages.

I think of size, a predetermined amount. (Chicago, overweight female)

Serving means something different at a restaurant and on the side of a box. But both are measured amounts of something. At a restaurant, you may get 4 servings or what they call a serving of spaghetti. The word is flexible. (Baltimore, general consumer, female)

The nutritional community quantifies the serving. Which is why they put number of servings on packaging. (Baltimore, older male)

A list of several foods (bread, pasta, cooked vegetables, milk, and meat) was presented, and participants were asked how much they thought counted as one Pyramid serving of each. With the exception of bread and milk, most did not know the standard Pyramid serving size for these foods, and

their responses were generally larger than a Pyramid serving. When shown a list of the actual Pyramid serving sizes for these foods, most participants said that the standard servings were smaller than the portions they usually chose. Many responses suggested that the participant felt—erroneously—that the stated serving size was an official recommendation of an amount to eat at one time. Very few seemed to recognize that their portions could represent several standard Pyramid servings.

I eat double of what it suggests. (Baltimore, Food Stamp recipient, female)

I eat more vegetables than a half a cup, I eat much more meat; milk is fine. (Chicago, older male)

They are too small to really relate to a meal. (Baltimore, general consumer, male)

Participants were asked to suggest ways in which a standard amount of food could be expressed without using the term “serving.” Many suggested that weights or measures would be more effective because they are commonly understood.

You know, they could say it could be up to 6 or 9 ounces of this category of meat, poultry, fish, whatever. Instead of saying 2 or 3 servings, say 6 to 9 ounces, because it would be 2 to 3 servings. (Baltimore, general consumer, male)

Spoonfuls, ounces, and cups. (Chicago, Food Stamp recipient, female)

There was also considerable difficulty in understanding the range of servings presented on the Pyramid graphic for each food group. A number of participants stated that the range of servings reflects differences among people in terms of age, sex, activity level, calorie needs, or metabolism.

Different size people eat different amounts of food. Different age people eat different amounts of food. (Houston, general consumer, female)

However, there were many misinterpretations. For example, some participants thought that the Pyramid includes a range of servings to allow for variety, flexibility, and choices within and across groups to individuals. Another common response was that the range of servings represents the minimum and maximum amounts of food for a healthy diet.

So it doesn't seem like you're eating the same thing everyday. You can mix and eat different things because of the different servings you can have. (Chicago, Food Stamp recipient, female)

I just think that 2-3 servings to me means a minimum of 2, no more than 3. That's what I get out of it. (Houston, general consumer, female)

Summary of Phase I findings. The Phase I focus groups revealed that the original Pyramid was widely recognized by consumers as a guide to healthy eating, and its

general tenets, such as variety and moderation, were commonly understood. However, most consumers were not able to recall more specific information about Pyramid recommendations or each food group. Among these focus group participants, the least understood and most confusing messages from the original Pyramid were how to interpret the recommended number of servings and serving sizes into amounts that should be consumed.

Findings From the Phase II Focus Groups **Understanding of food group recommendations.**

The Phase II focus groups were designed to build on the findings from Phase I, such as in exploring consumer understanding of advice about how much food to eat each day. Phase I revealed confusion among consumers associated with the original Pyramid's measurement system, which was based on standard Pyramid (USDA) serving sizes and a recommended range of servings each day. Some Phase I participants had suggested replacing the term “serving” with specific amounts expressed in common terms, such as household measurements.

In Phase II groups, this new approach was tested. A chart that gave examples of recommended amounts of food for 2 selected food groups (grains and fruit) was presented. Recommended amounts of grains were expressed in ounces per day, and the recommended amounts of fruit were expressed in cups per day. Participants were first asked to respond to the chart without seeing examples of what would count as 1 ounce of grains or 1 cup of fruit. They gave a wide range of responses when asked what the advice shown on the chart meant to them. Most found it easier to understand amounts expressed in “cups” rather than “ounces.” Some stated that cups were easier to measure than ounces; others stated that cups were more tangible or easier to visualize.

It is easier to visualize, though—a cup versus an ounce. (Baltimore, younger female)

I think [“cup”] gives you an idea of an amount in your head that's easily visualized. (Chicago, older male)

Many participants had difficulty translating cups of fruit or ounces of grains into specific quantities of food without concrete examples. When asked what additional information they would need in order to follow the advice shown on the chart, many participants spoke of specific examples.

Something more tangible. .. but, you know, 2 apples. I mean, actual amounts. A cup of oatmeal, as far as your grain. (Chicago, younger female)

I would like to know how many, like pieces of bread, 9 ounces a day. And if I eat a banana and an orange, is that one and a half cups? (Baltimore, younger male)

Following the initial group discussion, an additional column on the chart was uncovered to reveal examples of food amounts that would equal 1 cup or 1 ounce equivalent.

The examples made it much easier for participants to understand the advice regarding how much food to eat from these 2 food groups.

This is much better. The example, like 1 slice of bread—people can relate to that. (Baltimore, younger female)

I think that's far more explanatory than the other 2 columns. There's a reference there and you can relate to those, you know, 1 slice of bread, ready-to-eat cereal. That means something. Because the other one is sort of esoteric. (Baltimore, older male)

It helps me a lot, the information. (Chicago, younger male)

A number of participants stated that the examples provided in the chart showed them that there were options for meeting the recommended amount of food in each group. A few others, however, felt that the sample chart presented limited options.

It like gives you a variety, like choices of something. (Baltimore, younger male)

If I don't want to eat a slice of bread, what can I eat instead of that? Like a substitute, or something. (Chicago, younger male)

The chart with examples of cup and ounce equivalents also prompted some to consider additional information that they would find helpful, such as additional specific examples of foods in each category and more information on the nutritional value of these foods.

What is a grain? Is it rice? Is it bread? It doesn't go into detail. (Baltimore, older female)

Which is best of grains, and which is worst of grains? (Chicago, older female)

Participants had mixed responses as to how they could use this information to make daily food choices. Some provided a detailed description of how they would apply the information for themselves or their family by mentally summing up the cup or ounce equivalents they might consume in each meal and comparing that to the daily recommendation.

(First participant): I'm thinking if you have 2 slices of toast for breakfast and a bowl of cereal, what's that... 3 ounces. So you only have 4 left. (Second participant): Well, you could have 2 slices of bread for lunch and then a cup of pasta for dinner. (Baltimore, older female)

I'll try in 3 meals to eat some blueberries, eat some grapes, you know, whatever you eat, banana, whatever you eat, to make up that volume. (Chicago, older male)

Others perceived lifestyle issues as obstacles to using this guidance. Women with children cited a lack of time to plan meals or cook and the difficulty of getting children to eat the foods that were recommended. Older adults and single young adults, both male and female, indicated that

they were less interested in shopping and preparing food for themselves.

I would never have time, first of all, to make my kids eat all those different things. And they would never eat all of that. (Baltimore, younger female)

What is the sense of cooking every day if you are by yourself? (Chicago, older female)

Understanding of whole grains. Participants displayed a very limited understanding of whole-grain foods. When asked what the term “whole grains” meant to them, the most common responses were “wheat” (or “whole wheat”) and “not processed.” In general, younger women and some older men appeared to be more knowledgeable in this area. They gave more detailed responses than other participants and were more likely to mention health or nutritional benefits of whole grains.

Healthier, enriched, plus having nutrients in it and all. If you want to eat healthy, you eat whole grains. Fiber, more vitamins. Digest more slowly, so your body gets more benefit from it. (Baltimore, younger female)

It means not a processed grain that's got the whole husk. It hasn't been broken down and refined. So you're getting more vitamins, more nutrients. It's better for you. It processes in your body at a slower rate, so that you're not taking in as many calories too fast in your system. (Chicago, older male)

Younger men appeared to know less about whole grains than other groups did. They offered fewer responses on this topic and were the only groups in which participants specifically stated that they did not know what whole grains were.

I don't know the difference. (Chicago, younger male)

Requests for examples of whole-grain foods elicited a limited range of responses. Bread and cereal were the most common examples provided. Some participants specified whole-wheat or whole-grain bread; others simply stated “bread” or “wheat bread.” Some mentioned specific types of cereal, and a few participants mentioned barley or brown rice. A number mentioned that they were unsure about the difference between “wheat bread” and “whole-wheat bread.” Others were unsure about the difference between rice and brown rice, and several noted that it was not easy to tell which cereals were whole grains. Some suggested that food labels could help in determining whether a food was a whole grain.

Is wheat bread whole grain? (Chicago, younger male)

Unless you sit there and you read the whole label, it's hard to tell which ones are whole grains and which ones are not. The same goes with the enriched. (Chicago, younger female)

Confusion about whole grains was a common theme. Some participants expressed a desire for definitions and information in plain language that could help them make informed decisions and for clear standards that they could trust.

I want to know what they meant by “eat whole grains.” I mean, really find out a definition of what is considered a whole grain. (Baltimore, older female)

...there are so many things out there, and so it’s hard to tell which one is the right one to go with. And maybe if there was a standard set that a lot of research was done on, that you could really trust. (Baltimore, younger female)

When asked what they could do to follow advice that half of the grains in their diet should be whole grains, the most common theme that emerged was to read food labels.

You’d have to read lots of labels. (Baltimore, older female)

When you shop, everything you pick up, you’ve got to read it. And, you know, I think over a period of time, if I started to do it, I think it would become habit. (Chicago, younger male)

A number of additional strategies were identified, including eating more whole-grain breads or cereals, eating a combination of white and whole-grain breads, or eating wild rice instead of white rice. Participants in several groups felt that doing so would require shopping at health food stores. Several other potential barriers to eating more whole grains were mentioned, including the effort and time needed to read food labels and the expense of whole grains.

If you are in the store and you want to get out you do not have time to sit there, you know, reading all [the labels]. (Chicago, older female)

I think that most of these natural food stores that I’ve gone into are very expensive. (Baltimore, older male)

In addition, some noted that it was difficult to change food choices that were cultural or habitual.

I think that it may be cultural as well. The foods that I’m accustomed to having are foods that I’ve been exposed to all of my life, so it’s what I know. And with that mind set, if you are on that path where your diet isn’t necessarily healthy or you are not exposed to those things, it’s a difficult thing to change that habit or that way of eating or thinking about food. (Baltimore, younger female)

Understanding of vegetable subgroups. The concept of eating vegetables from a variety of different subgroups was a new focus in the 2005 Dietary Guidelines. Consumer understanding of different types of vegetables was therefore of interest in this study. Most groups had difficulty when asked to name vegetables in each of the 5 Pyramid subgroups: dark-green leafy vegetables; orange vegetables; dry peas and beans; starchy vegetables; and other vegetables. (Foods in each of these subgroups are delineated

in an accompanying article.⁷) Although some vegetables such as spinach (dark-green) and potatoes (starchy) were mentioned as part of the correct subgroup in all focus groups, a number of vegetables proved more difficult. For example, across different focus groups, these vegetables were incorrectly mentioned as part of various subgroups: broccoli and romaine (should be in dark-green subgroup, mentioned in “other” subgroup), Brussels sprouts, cabbage, and green beans (should be in “other” subgroup, mentioned in dark-green subgroup), cauliflower and eggplant (should be in “other” subgroup, mentioned in starchy subgroup), corn (should be in starchy subgroup, mentioned in “other” subgroup), and sweet potatoes (should be in orange subgroup, mentioned in starchy subgroup).

When asked what they could do to follow advice to eat a variety of different types of vegetables over the course of the week, the most common theme that emerged was not to eat the same thing every day.

I would take the statement to mean that you can reach your goal by having variety. You don’t have to stick to the same vegetable. (Baltimore, older male)

Mixing up the different vegetables throughout my meals throughout the week will help me get a wider variety of nutrients for my body and. . . it will help my body sustain itself and repair itself and everything. (Chicago, younger male)

A chart that identified potential recommended amounts from each subgroup per week generated mixed reactions. Some thought the weekly recommendations were a large amount, whereas others thought they were not very much. Many said they could use this advice as a general guideline for planning meals or shopping.

I would not be able to eat anything else if I have to eat that many vegetables. I don’t like vegetables that well. (Baltimore, younger female)

This should just be a guideline, you know; it can’t be a daily thing. Just be aware, “Okay, I should have dark-green leafy vegetables, I should have oranges.” You just keep that in mind when you shop. (Baltimore, older female)

Participants offered a variety of suggestions to make it easier for consumers to understand the recommended amount of vegetables to eat. Many wanted additional information that would help them understand the advice, such as visual examples of portion sizes, lists of vegetables in each subgroup, or sample menus that would include different types of vegetables.

Show them a picture of how much of that vegetable needs to be consumed, in a picture form, you know? (Chicago, older male)

If you had a definition listing, [for example,] these are all your dark-green leafy vegetables, these are your orange vegetables. But if you are not sure where it falls, then how do

you know you are getting that variety? (Baltimore, younger female)

Understanding types of fats. Many participants were both concerned about and confused by health distinctions among types of fats and the types of fats found in various foods. When asked what they had heard about different types of fats, they offered a limited range of responses. The most common was mention of saturated and/or unsaturated fats, whereas omega-3 fatty acids and/or fish oils, *trans* fats, and oils were mentioned less often. The belief that saturated fats were bad and unsaturated fats were good was widely held. Many indicated that they had heard about *trans* fats but did not know what they were or whether they were good or bad. Some mentioned omega-3 fats, fish oil, or avocado oil and associated them with health benefits.

I want somebody to explain what a trans fatty acid is. Because I keep seeing that word and I don't know what it is. (Chicago, older female)

Saturated fats are supposed to be bad ones. And unsaturated are the good ones. (Baltimore, younger female)

Omega-3 fats are supposedly better. Like higher concentration in salmon and fatty fish that you are supposed to eat. (Chicago, older female)

Good fats and bad fats. But don't ask what they are. (Baltimore, older male)

Some cited positive effects of fats or that it was good to have some fat in the diet, though they could not specify why. However, a number found changing nutritional advice about fats to be confusing.

I have heard there are certain fats you really have to have. But I don't know what they are. (Chicago, older female)

One day you will hear that this is good for you; the next day you will hear that it's not so good for you. So it's like a big circle. (Baltimore, older male)

On a handout listing specific foods and types of fats, participants were asked to identify which type(s) of fats they believed each food contained. Many had difficulty identifying which types of fat were found in some foods, especially in processed meats, margarines, nuts, and dairy products. Participants stated that *trans* fats, hydrogenated fats, and omega-3 fats were the most difficult to link with specific foods.

[The difficult ones] were mainly the processed foods, like the margarine and bologna. One of them has a little bit of everything shoved in them. (Baltimore, younger male)

I had a question mark on most of them. (Baltimore, older male)

Not knowing what trans fat or hydrogenated fats were, I had no idea if they belonged in anything. (Baltimore, older female)

There was strong agreement across all groups that it was easier to understand advice about solid fats versus oils in contrast to advice about saturated versus unsaturated fats. Many participants cited the fact that there was a visible difference between solid fats and oils; some noted this visible difference made it easier to understand the difference and their relative effects on the body.

You can visualize with your solids. You can't visualize saturated and unsaturated. (Baltimore, older male)

I think solid fats versus oils is easier to understand. I don't quite get the difference between saturated and unsaturated fats. (Chicago, older female)

Most participants were familiar with advice to lower the amount of solid fats in their diets by substituting oils for solid fats. They were able to identify a number of ways in which they could follow that advice, such as cooking with oil instead of butter or lard, trimming fat off of meat, and baking or grilling meats instead of frying them. However, some men did not understand this advice.

Terminology used in making recommendations about fat intake was also explored, including participants' understanding of advice to eat a "moderate amount" of fat was, as well as perceptions of how "moderate" compared with terms such as "use sparingly," "low-fat," or "limit." Participants interpreted advice to eat a moderate amount of fat to mean that it was acceptable to eat some fat, but not too much, using expressions such as "don't overdo it" or "use common sense." However, many participants stated that the term "moderate" was too vague to serve as a useful guideline.

There are no guidelines as to what is moderate and what is small. It's not quantified in any way. What could be moderate and small to one person could be an excess to another. (Baltimore, older male)

Many thought that advice about fats should state a specific amount. Some suggested that the advice should be expressed in terms of household measures, such as teaspoons.

It's like going down the road. If it says, "limit," it means "Speed limit 55." "Moderate," it doesn't say—I can go 100 miles an hour, or not. But the limit says it right there: if you go past it in your car, you know you are going to get a ticket. If it says "moderate 55," that means I can go a little bit above, a little bit below. (Baltimore, younger male)

I like the tablespoon idea, because you can visualize what a tablespoon is. So at least you would have some sort of guideline versus moderate or small. (Baltimore, older male)

Understanding of physical activity levels. Participants' understanding of physical activity levels was explored, to obtain input that could be used in developing messages about physical activity for the new food guidance

system. The most common terms participants used to describe their own level of physical activity were “moderate” and “active.” Some used variations of the term active, such as “overactive,” “underactive,” “moderately active,” “highly active,” “very active,” and “not very active.”

Various ways that might be used to express physical activity levels were presented and discussed. First, participants were asked for their definitions of the terms sedentary, low active, and active, which had been used to describe varying levels of physical activity by the Institute of Medicine.²¹ Then, they were asked what terms they would use to identify someone at each of 3 levels of physical activity defined by descriptive phrases and identified as “Level 1,” “Level 2,” and “Level 3.”

“Sedentary”: Terms such as “couch potato,” “lazy,” or “unmotivated” were used to describe this level of activity. A sedentary person was seen as someone with little or no physical activity beyond going to work and coming home. Some associated this level of activity with illness or physical handicap; others associated it with an office job.

I would define [it] as somebody who sits in the office all day and doesn't really exercise at all. (Baltimore, younger male)

Get up, go to the washroom, come back, eat, sit and watch TV. (Chicago, older male)

That is most likely needing a home care worker, something like that. (Chicago, older female)

“Low Active”: A low-active person was seen as someone who got occasional exercise such as going to work, mowing the lawn, cleaning, and cooking.

Drive to work, park the car, get out and walk, come back out and drive again. That is me. (Chicago, older female)

(Participant 1): About once or twice a week. (Participant 2): Ten, fifteen minutes. (Participant 3): Maybe taking a long walk or something, but nothing really strenuous. (Chicago, older male)

Low active would be, I guess, under 30 minutes. Because now they talk about you have to have at least an hour a day. (Baltimore, younger female)

“Active”: An active person was described as someone with a regular exercise routine that involved a conscious effort. Some specified an amount of exercise or number of times per week; others mentioned heart rate when describing levels of activity. Others, however, described an active person as someone who was “always on the go” and was “active” in their church, on the job, or with their family.

Active would be someone who has a regular exercise routine each week. (Baltimore, younger female)

Active I would think maybe running, you know, raising your heart rate up. You know, physically exerting yourself 3 to 5 times a week. (Chicago, younger female)

I'd say a regular routine workout schedule, always on the go, upbeat kind of person. (Chicago, younger male)

“Level 1—Only the activities of daily independent living.” Participants used terms such as “sedentary,” “couch potato,” and “lazy” to describe this level of activity. Some young women thought it might reflect health conditions, age, or obesity. A number of participants stated that it would depend on the nature of the person’s daily activities.

That means they have to get up, if they are lucky, and wash. . . and brush their teeth and they feed themselves. That is the only activity somebody is doing at that level. (Baltimore, younger male)

Getting up in the morning, eating breakfast, making phone calls, going to the store. And coming home, eating dinner, watching TV. (Baltimore, older male)

Health conditions. You know, maybe elderly or ill. Obese. (Chicago, younger female)

“Level 2—Physical activity equivalent to walking at least 1½ miles (about ½ hour) per day in addition to the activities of independent living.” This level of physical activity was seen as low to moderately active, and was considered a typical amount of physical activity. Many women stated that this would be the normal level of activity for mothers with children, and many men thought it would describe the “average guy.” However, some considered this level to be moderately to highly active.

I'd say active. (Chicago, older male)

I would call that low activity. (Baltimore, older male)

Average. Normal. (Chicago, younger female)

I think that's low active and I think that it's probably very standard for most working adults, anyway. (Baltimore, younger female)

“Level 3—Physical activity equivalent to walking more than 3 miles (about 1 hour) per day in addition to the activities of independent living.” Someone at this level was perceived as active to highly active. Some considered it to be “overactive” or “hyper.” Many described this person as a fitness buff who worked out on a daily basis. Men tended to think that it would require a significant amount of conscious effort, plus a health club membership, to maintain this level of activity. However, a number of women stated that this level of activity would be easy to achieve on an average day.

That's a conscious effort there. (Chicago, older male)

With that [level] of activity. . . I think I'd be dead. (Chicago, older male)

You have to be in a health club or something to do something like that. You're talking about a physical regimen of daily exercising. (Chicago, younger male)

When asked which of the 3 levels of activity best represented them, most participants placed themselves at

Level 2 or Level 3. A few of the older adults placed themselves at Level 1.

Many participants made a distinction between “exercise” and “physical activity.” They associated “exercise” with intentional activity over and above their normal, daily routine, whereas they considered “physical activity” to be the necessary activities of daily living. Many women considered household activities and caring for children to be forms of exercise. A number of participants noted that activity levels varied with age.

I'd say exercise is what you're doing in addition to your normal routine. (Chicago, older male)

Exercise is more regimental—you're going to do it maybe twice a day, 3 times a week, or every day you will do some part of it. Activity level is your basic living. (Chicago, younger male)

Some of your activities are exercise. You don't think of them that way, but they are. If you are washing the floor or you are vacuuming. Hanging clothes outside when it's beautiful—you are stretching, you are bending. (Chicago, older female)

Summary of Phase II findings. The Phase II focus groups revealed the need to present advice about food using terms that are clear and concrete. In some cases, doing so meant using descriptions that can be visually differentiated (eg, solid fat vs. oil). In other cases, it meant using specific amounts (eg, minutes of physical activity or cups of vegetables) rather than less precise descriptors (eg, “sedentary” or “servings”). In addition, consumers expressed that examples and more detailed information would help them understand and perhaps find ways to implement the nutritional advice.

DISCUSSION

The findings from Phase I and Phase II of the consumer research were used by USDA staff as important components in developing the consumer presentation of the new MyPyramid Food Guidance System. This information drawn from consumers was considered along with other sources of information, especially responses to 2 Federal Register notices, published in 2003 and 2004, to describe the revision of the original Pyramid and the plan for development of a new food guidance system.^{22,23} Several issues will be highlighted here to describe how CNPP staff used the consumer research findings along with other information sources to guide the developmental process for MyPyramid.

Presentation of “How Much” To Eat

The Phase I focus groups revealed that although the original Pyramid enjoyed a high level of recognition, consumers viewed it as a general guideline and had difficulty under-

standing many of its specific nutrition messages. One area of particular concern was how much food the Pyramid recommended from each food group. Both the amount that was considered a “serving” and the range of servings presented on the graphic were widely misinterpreted. Some Phase I respondents suggested that household measures be used as an alternative to “servings.”

USDA also raised the issue of how recommended amounts to eat should be presented with the professional community and the public at large as part of a Federal Register notice on the revision of the Pyramid in September 2003.²² Comments were requested on a proposal to use household measures such as cups and ounces as an alternative to servings in describing recommended amounts to eat. There was widespread support for the use of household measures rather than servings in the new food guidance system.²⁴ As a result of the findings from the Phase I consumer research and feedback from professionals in response to the Federal Register notice, we tested the concept of food group recommendations expressed as daily total amounts in household measures in the Phase II focus groups. When presented without examples, participants were somewhat confused by the recommendations for grain intake expressed in ounces, but less so by the fruit recommendations expressed in cups. However, household measures were well understood when they were accompanied by concrete examples. As has been noted by previous researchers,²⁵ educators need to provide specific, concrete examples of abstract concepts in order to make the advice most useful. For advice concerning amounts of food, it is important to give these examples in common units that consumers use for each food, such as whole fruit or slices of bread. Of course, consumers also saw the same issues that serve as barriers in applying any nutritional guidance as barriers to using this new approach, such as a lack of time and children not liking a variety of foods.

An additional source of confusion about use of the term “servings” that was raised in responses to the Federal Register notice was the discrepancies for some food products between “Pyramid servings” and “Nutrition Facts Label servings.” In some cases, the amount of a food identified as a serving for the original Pyramid differed from the amounts considered a serving on the food label. One example is pasta, where 1 ounce (dry) was considered a Pyramid serving, whereas 2 ounces (dry) is the serving size listed on labels. Using cup and ounce equivalents for describing amounts of food in MyPyramid may help eliminate another source of confusion for consumers over the term “servings.” Use of this new terminology for nutritional guidance will help consumers to compare the amount they consume, as determined from the label, directly to the MyPyramid amounts recommended in cups or ounce equivalents. Of course, a necessary step will be making sure that consumers have access to ounce equivalent translations for as many food items as possible. (One ounce-equivalent of pasta is one ounce of dry pasta or ½ cup of cooked pasta.)

Terminology Used in Dietary Guidance

A number of nutrition recommendations included in the 2005 *Dietary Guidelines for Americans*⁹ contained terms and concepts that were not well understood by consumers in these focus groups. These included the Guidelines' recommendations to:

- Consume at least 3 ounce equivalents of whole grains daily.
- Select from all 5 vegetable subgroups several times a week.
- Limit intake of fats and oils high in saturated and/or *trans* fatty acids, and choose products low in such fats and oils.
- Select most fats from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.

The findings from this research suggest that most consumers will not be able to implement these recommendations without a great deal of additional information. Therefore, the MyPyramid.gov Web site incorporated specific advice for consumers that was translated into terms they understand. For example, consumers have a better understanding of terms such as “solid fats” and “oils,” which have physical properties they can visualize, than of the more abstract terms “saturated fats” and “unsaturated fats.” Although the term “saturated fats” has appeared on Nutrition Facts labels for over 10 years, many consumers still are not sure which foods contain saturated fats, and some are even confused about its relationship to health. In addition, these findings suggested that consumers needed as many specific examples as possible, so that they understand how the guidance messages apply to their food choices. For example, advice to eat “whole grains” or “dark-green vegetables” is not useful to consumers who do not know what foods are considered part of these groups. The MyPyramid.gov Web site provides detailed information, including lists and examples of foods as well as pictures of some foods, to help consumers identify foods they could select to follow this advice.

Web site information for each food group was organized in the following format to provide consumers with ready access to these details and examples:

- Foods included in the group or subgroup;
- How much is recommended per day;
- Foods that count as an ounce or cup equivalent in each group;
- Health benefits and nutrients in the group; and
- Practical tips related to the food group.

This organizational structure was designed to help consumers to find the specifics they need in order to understand and apply nutrition guidance messages.

Clear explanations, definitions, and examples are also needed in guidance related to physical activity. Participants in these focus groups had varying perceptions of some commonly used terms, such as “sedentary.” Many partici-

pants seemed to perceive that a sedentary person was someone who was less physically active than themselves. Additionally, most participants put themselves at a level of physical activity that was higher than would probably be justified if they completed a detailed physical activity assessment. They related the activities of daily living and general “busy-ness” as contributing to their accumulation of moderate physical activity. Therefore, the descriptions of physical activity on the Web site used numbers of minutes of moderate or vigorous activity per day, with examples of what was considered at this intensity level, rather than descriptive terms such as “sedentary” that have a likelihood of being misinterpreted.

Purpose and Use of the Pyramid's Graphic Symbol

Results from Phase I of this research suggested that the original Pyramid graphic had served well as a general image for healthy eating and a reminder of some key messages, but that the more specific information it contained was not apparent to consumers. Given the widespread awareness of the Pyramid, it was surprising to learn that few consumers could place food groups into the correct tier of the Pyramid graphic. This finding helped to shape the decision to simplify the graphic symbol for a new food guidance system rather than increasing its complexity by adding more concepts, as had been proposed by various stakeholders in response to the September 2003 Federal Register Notice.²⁴ The revised food guidance system was developed as a system of tools, with a simplified graphic used as a symbol, to “brand” food guidance messages and materials and to remind consumers to make healthy food choices. The development of this new graphic symbol is described in an accompanying article.²⁶

Other Possible Misperceptions

Some professionals have informally expressed concern about 2 additional topics related to the original Pyramid—placement of mixed dishes into multiple food groups and misunderstanding of the Pyramid's “tip.” The findings from these focus groups suggest that placing common mixed dishes into multiple food groups was not as challenging as had been thought. Consumers appeared to have little concern about mentally “deconstructing” their foods and assigning multiple food group placements. These results suggest that continued use of the current food grouping system in MyPyramid is justified. However, efforts are needed to help consumers identify which foods fit into specific subgroups such as whole grains and dark-green vegetables.

Concern about potential misunderstanding of the Pyramid's tip as the foods to strive for or the most important foods was not supported by this research. In a paper and pencil exercise, few consumers could place all of the food groups in the correct tier, but over half placed “fats, oils,

and sweets” in the tip. These findings suggest that consumers identify the small top of the Pyramid as representing the foods to limit and the broad base as being those to consume more of. The new graphic symbol continued to use the concept that the broad base of the Pyramid represents foods to eat more often, and the smaller, top portion of each food group band represents foods to eat less often.²⁶

Limitations of the Research

The analyses and conclusions presented in this report are based on the opinions and views of at least several participants in the focus groups. Care was taken in the analysis of the results to accurately depict the degree to which opinions were shared both within and across participant groups. However, as with all focus group research, the findings are qualitative rather than quantitative in nature, and they are based on a relatively small sample of purposively selected respondents in a limited number of locations. In addition, qualitative research methods are by nature subjective. The characteristics of researchers shape their interactions with participants and their understanding of the data. Although several members of the research team reviewed the coding of the transcripts, the original coding was completed by 1 individual. Other researchers may have interacted with participants somewhat differently and identified other themes in the data. These results, therefore, should be interpreted as suggestive and directional rather than definitive.

IMPLICATIONS FOR RESEARCH AND PRACTICE

The findings from both Phase I and Phase II focus groups helped to inform the development of the MyPyramid Food Guidance System, including the [MyPyramid.gov](http://www.mypyramid.gov) Web site. They can also be used in the development of other nutrition education materials and programs to help consumers implement the Dietary Guidelines. For example,

- Nutrition educators may want to focus on providing concrete and specific examples for the overarching themes or recommendations in materials and programs that they provide for their target populations. Consumers need specific and detailed guidance on topics such as how to select foods that are whole grains and how to choose a variety of types of vegetables.
- Manufacturers may want to provide additional information on food packaging to help consumers identify which food group(s) and subgroups the food provides and the amounts for each in 1 label serving.

Further consumer research is needed to help identify specific nutrition and physical activity messages that are understandable and actionable. This research is especially important for audiences whose food choices may differ

substantially from typical American choices, as different issues may arise in their understanding or ability to apply nutrition education messages. Research is also needed to identify concepts that can be used to help consumers more accurately assess their own eating and physical activity-related behaviors.

By working together to develop more understandable and actionable nutrition and physical activity messages, nutrition educators, researchers, industry partners, advocacy groups, and governments can help Americans implement the 2005 Dietary Guidelines to close the gap between recommendations for food intake and physical activity and their actual practices.

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All of the figures in this article have also been compiled into an online slideshow. See www.JNEB.org, under supplementary material for this article.

SUPPLEMENTARY DATA

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.jneb.2006.08.006](https://doi.org/10.1016/j.jneb.2006.08.006).

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