Putting Nutrition News Into Practice

A Resource for FNP/EFNEP Agents and Program Assistants

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Consumption of Food Group Servings: People's Perception vs. Reality

Connie Betterley, MS, RD, LD

Can people remember what and how much they eat on a typical day? This study used food diary data from the Market Research Corporation of America to find out the answer. Data from 5,752 adults were used to compare the average number of servings people estimate usually eating from the five major food groups with the average number of servings actually consumed over a 14-day period. The study also compared the number of servings actually consumed from each food group with the serving recommendations from the Food Guide Pyramid.

Results

Food Group	Number of Servings* Consumed	
	Estimated	Actual
Grain	2.5 - 3.2	4.2 - 6.2
Vegetable	2.2 - 2.6	1.7 - 2.7
Fruit	2.1 - 2.6	0.8 - 1.5
Meat	2.7 - 3.7	1.6 - 2.5
Milk	2.1 - 3.2	1.0 - 1.6
Fats, oils, sweets	1.6 - 2.2	4.0 - 4.5

*Fats, oils, and sweets "servings" defined as 1 teaspoon of sugar or 1 tablespoon of fat.

Adults *underestimated* their consumption of grains, and both perceived and actual consumption of grains were below the Food Guide Pyramid recommendations based on age and gender. Adults also *underestimated* their consumption of fats, oils, and sweets; it appears that adults are not following the Pyramid recommendation to eat these foods sparingly. Adults *overestimated* their consumption of the fruit, milk, and meat groups. Actual consumption in all three of these food groups were below their perceptions as well as the Food Guide

Pyramid recommendations based on age and gender.

Perceptions about vegetable consumption varied by gender. Adult females estimated consuming about 2.5 to 2.6 servings, while they actually consumed only 1.7 to 2.2 servings. Adult males estimated consuming 2.2 to 2.5 servings, while they actually consumed 2.3 to 2.7. Actual consumption for both groups was well below the Food Guide Pyramid recommendations.

Implications for EFNEP/FNP Programming

The study found that people's perceptions of what they ate were quite different from their actual consumption. The study's authors concluded that the difference between what adults thought they ate and what they actually ate may be the result of not understanding what a serving is. Nutrition educators not only need to inform individuals of the number of servings they need from each food group, but also what constitutes a serving for each food group. Nutrition educators can help individuals better understand the concept of serving sizes by using food models and other visuals to show actual serving sizes when discussing the Food Guide Pyramid. In addition, educators can provide individuals with tips on how to visually estimate servings sizes.

Source: Basiotis PP, Lino M, and Dinkins JM. Consumption of food group servings: people's perceptions vs. reality. *Family Economics and Nutrition Review.* 2002;14(1): 67-69.

Expanding Portion Sizes in US Marketplace

by Jennifer Hillan, MSH, RD, LD/N

Larger portion sizes have become typical at restaurants, grocery stores, and at home. These portion sizes often differ from the serving sizes from both the Food Guide Pyramid and the Nutrition Facts label. And while portion sizes have been growing in recent years, so have America's rates of overweight and obesity.

Researchers recently examined restaurant portion sizes of several commonly consumed foods and compared them to the standard servings from the Food Guide Pyramid and the Nutrition Facts label. They sampled at least 4 restaurants for each food, and measured at least two samples of each food from each location.

Results

With the exception of sliced white bread, marketplace portions exceeded the Food Guide Pyramid and the Nutrition Facts label serving sizes. In the case of pasta and some bagels, the portions were 6 times the size of the Food Guide Pyramid servings.

	Marketplace Portions (measured weight)		Federal Standard Serving Sizes	
Food	**Mean**	**Range**	**Food Guide Pyramid**	**Nutrition Facts Label**
Sliced white bread	1.0 oz	0.9-1.2 oz	1.0 oz	1.8 oz
Bagel				
Chain store	4.4 oz	3.9-5.0 oz	1.0 oz	2.0 oz
Independent store	5.9 oz	4.9-6.7 oz	1.0 oz	2.0 oz
Muffin	6.5 oz	4.1-12.0 oz	1.5 oz	2.0 oz
Hamburger[1]				
Fast-food outlet	3.9 oz	1.2-9.0 oz	2-3 oz	-
Chain restaurant	5.3 oz	3.8-6.0 oz	2-3 oz	-
Steak[1]	8.1 oz	6.0-10.5 oz	2-3 oz	-
Soda				
Fast-food outlet	23.0 fl oz	12.0-42.0 fl oz	12.0 oz	8.0 oz
Chain restaurant	16.0 fl oz	16.0-16.0 fl oz	12.0 oz	8.0 oz
French fries				
Fast-food outlet	5.3 oz	2.4-9.0 oz	1 oz (10 fries)	2.5 oz
Chain restaurant	6.7 oz	4.0-12.4 oz	1 oz (10 fries)	2.5 oz
Cooked pasta, without sauce	2.9 cups	2.6-3.3 cups	0.5 cup	1.0 cup

[1] Cooked weight

Implications for FNP/EFNEP Programming

Since large marketplace portion sizes are common, and differ from federal standard serving sizes, many clients may be confused about how much they should be eating. It's important to teach clients about these differences and to also explain that larger portion sizes mean more calories.

Rather than just teaching the number of servings recommended by the Food Guide Pyramid, educators need to specify serving sizes, relate number of servings to energy needs, and explain the difference between serving and portion sizes. Otherwise, clients may envision one grain serving as the size of pasta they have at their favorite restaurant (which may actually be 3 cups, or 6 Food Guide Pyramid servings).

Educators can also explain that serving sizes from the Food Guide Pyramid and Nutrition Facts label differ because the Pyramid and the food label serve different purposes. The Pyramid helps people choose a healthful diet by giving serving sizes for each food group that are easy to

remember and that equal a specific amount of a key nutrient (e.g., 1 cup milk and 1 ½ ounces cheese have the same amount of calcium). The food label serving sizes are specific for each food product category and are designed to help clients compare nutrient information for similar food products.

Nutrition educators have several tools available to teach clients about serving and portion sizes: the Food Guide Pyramid, the Nutrition Facts label, the Dietary Guidelines for Americans, food models, and the USDA Home and Garden Bulletin No. 267-1 "How Much are You Eating." This publication is available online at: http://www.nal.usda.gov/fnic/dga/index.html.

Source: Young LR and Nestle M. Expanding portion sizes in the US marketplace: Implications for nutrition counseling. *J Am Diet Assoc*. 2003;103:231-234.

Portion Size Affects Energy Intake

by *Jennifer Hillan, MSH, RD, LD/N*

If portion sizes are getting larger, is this contributing to excess energy intake? Researchers in Pennsylvania asked this question when they studied 51 normal-weight and overweight men and women aged 21 to 30. In addition to determining if portion size affected the amount of food eaten, they also determined if the serving method affected intake.

The subjects were served lunch one day a week for four weeks. Lunch included an entree of macaroni and cheese, which was a different amount each week (500, 625, 750, or 1000 grams).

One group of subjects was given the macaroni and cheese on a plate, and the other group was given the macaroni and cheese in a serving dish. The serving dish group was told to serve the food from the dish to their plate before eating, and to serve themselves as many times as they wished. Immediately before and after eating lunch, the subjects rated their hunger and satiety levels.

Results

Both groups of subjects ate significantly greater amounts of macaroni and cheese as portion sizes increased. The subjects ate 30% more food (and consumed 30% more calories) when given the largest portion than when given the smallest portion.

Portion Size	Amount Eaten	Calories Eaten
	Both Subject Groups Combined	
500 g	335±15 g	544±25 kcal
625 g	374±19 g	608±30 kcal
750 g	400±22 g	650±35 kcal
1000 g	434±26 g	705±43 kcal

There was no interaction between serving method on portion size. So with each portion size, the subjects ate a similar amount of food regardless of whether they served the food themselves or were given a plateful of food.

In addition, there were no significant differences in hunger or satiety ratings before or after lunch, with either group, and across all portion sizes. So even though the subjects ate more when they were offered more, their hunger and fullness ratings after lunch did not differ. This suggests that the portion size influenced their development of hunger and fullness. When offered a larger portion, the subjects ate more before they felt full.

Implications for FNP/EFNEP Programming

Educators can help clients recognize appropriate portion sizes for their energy needs. Encourage clients to read food labels and measure foods they commonly eat at home, so they will become familiar with the size and calorie content of typical portions. If clients do not have measurement tools, they can use other visual aids to estimate portion sizes. For example, a tennis ball is about the size of one cup of cereal, rice, or pasta.

Educators can also give clients tips for handling large restaurant portions, such as sharing a meal with a friend or putting part of the food in a take-home container at the beginning of the meal.

Even though the subjects in this study were adults, studies with children showed similar results. A 2000 study found that 5- and 6-year-olds ate more macaroni and cheese when they were given a larger portion. However, 3- and 4-year-olds listened to their internal hunger cues and ate about the same amount, regardless of portion size (Rolls et al, 2000).

The adults in this study ate more regardless of serving method. However, young children in a recent study ate more macaroni and cheese when it was served on their plates than when they served themselves (Fisher et al, 2001). When serving themselves, children may pay more attention to internal hunger cues.

Educators can encourage parents to let children determine portion size. Teach parents about the division of responsibility: Parents are responsible for offering nutritious foods and children are responsible for determining how much and what foods they eat.

Sources:
Rolls BJ, Morris EL, Roe LS. Portion size of food affects energy intake in normal-weight and overweight men and women. *Am J Clin Nutr*. 2002;76:1207-1213.

Rolls BJ, Engell D, Birch LL. Serving portion size influences 5-year-old but not 3-year-old children's food intakes. *J Am Diet Assoc*. 2000;100(2):232-234.

Fisher JO, Rolls BJ, Birch LL. Effects of repeated exposure to a large portion-sized entree on children's eating. *Obes Res*. 2001;9:76S(abstr).

Family Meal Patterns

Jennifer Hillan, MSH, RD, LD/N

With today's busy lifestyles, many families may find it difficult to eat meals together. What effect does this have on dietary quality?

Researchers in Minnesota recently studied the associations between family meal patterns and dietary intake among 4,746 middle and high school students (aged 11 to 18 years) with diverse racial and socioeconomic backgrounds. The students completed surveys to determine frequency of family meals and sociodemographic characteristics. They also completed food frequency questionnaires.

Results

The youth reported eating meals with all or most of their family an average of 4.5 times in the previous week.

Number of Family Meals in Past Week	% of Youth
None	14%
1-2	19%
3-4	22%
5-6	19%
7 or more	25%

Characteristics associated with more frequent family meals included gender (boys), school level (middle school), race (Asian American), mother's employment status (not working), and socioeconomic status (high).

In addition, frequency of family meals was positively associated with fruit, vegetable, grain, and calcium-rich food intake, and it was negatively associated with soft drink intake. The study also found the frequency of family meals was positively associated with intakes of energy, calcium, iron, fiber, folate, and vitamins A, C, E, and B6, as well as percentage of calories from protein.

Implications for FNP/EFNEP Programming

The results of this study show a strong association between frequency of family meals and dietary quality among adolescents. Educators can encourage parents and youth to eat together as a family as often as possible.

Since school schedules, work schedules, and other activities may make family meals a challenge, parents may need help planning meals that are quick to prepare as well as nutritious. Educators can also help parents and youth determine healthy food choices for eating on the run or away from home.

Educator resources include:

- *Say 'Yes' to Family Meals*, Iowa State University Extension. www.extension.iastate.edu/publications/PM1842.pdf

- *Eating on the Run*, by Evelyn Tribole, RD. (A web search on 03/14/03 found new and used copies of this book selling for less than $4.00.)

- *Eating on the Run*, University of Illinois' McKinley Health Center fact sheet. Available at: http://www.mckinley.uiuc.edu/health-info/nutrit/hlthdiet/eat-run.html. (Note: this list suggests adding sprouts to sandwiches. For food safety concerns, raw sprouts should not be eaten.)

- Eating on the Go!, Louisiana State University FNP. Available at: http://www.agctr.lsu.edu/Inst/Extension/Departments/fcs/Nutrition/FNP/pdf/Eatgoless.pdf

- Healthy Eating on the Run: A Month of Tips, American Dietetic Association. Available at: http://www.eatright.org/pr/2003/nnmtips.html.

Source: Neumark-Sztainer D, Hannan PJ, Story M, Croll J, and Perry C. Family meal patterns: Associations with sociodemographic characteristics and improved dietary intake among adolescents. *J Am Diet Assoc*. 2003;103:317-322.

Daily Physical Movement and Bone Mineral Density

Jennifer Hillan, MSH, RD, LD/N

Researchers in Connecticut recently studied 151 premenopausal and postmenopausal women to determine the effect of everyday physical movement on bone health. The subjects had an average age of 52 years, and 58% were Hispanic, 17% African American, and 25% white. Most of the subjects were also poor, with 77% at or below the poverty level.

The women reported their menopausal status, ethnicity, and intake of foods, drink, and medications known to influence bone health. They reported how many flights of stairs they climbed up daily and how many hours a day they moved around doing activities such as light housekeeping, cooking, grocery shopping, and leisurely walking. The researchers measured waist circumference, determined BMI, and estimated bone mineral density (BMD), a measure of bone strength.

Results

Postmenopausal women had lower estimated BMD than premenopausal women. Nonwhite postmenopausal women had higher BMD than white postmenopausal women, while nonwhite and white premenopausal women had similar BMD.

Adjusting for age, adiposity, nutrient intake, and medication use, the premenopausal women had similar BMD estimates regardless of lifestyle physical activity level. However, the postmenopausal women with higher levels of lifestyle physical activity had higher estimated BMD than those with lower levels.

Postmenopausal Hispanic and black women who reported moving more or climbing up more stairs daily had higher estimated BMD than those moving less or climbing less stairs. Among the white postmenopausal women however, estimated BMD did not differ between levels of stair climbing or daily movement.

The results of this study suggest that postmenopausal Hispanic and black women can positively affect their bone health and decrease the bone loss that accompanies aging simply by regular lifestyle physical activity, such as stair climbing, leisurely walking, or light housekeeping. (The authors suggest several reasons why no differences were seen for postmenopausal white women or premenopausal women of any race, which merit further studies.)

Implications for FNP/EFNEP Programming

Regular physical activity has many benefits and is one of the messages in the Dietary Guidelines for Americans. In addition to sports or structured exercise, physical activity includes moderate lifestyle activity. As part of FNP and EFNEP nutrition lessons, educators can and should encourage physical activity for program participants of all races and ages.

Four physical activity publications (FCS8753, FCS8754, FCS8755, and FCS8758) are available for your use through EDIS (http://edis.ifas.ufl.edu/). In addition, several websites have useful information, including:

- The President's Council on Physical Fitness and Sports (http://www.fitness.gov)
- American Heart Association's Fitness Center (http://www.justmove.org)
- CDC's Physical Activity page (http://www.cdc.gov/nccdphp/dnpa/physical/index.htm)

Source: Pescatello LS, Murphy DM, Anderson D, Costanzo D, Dulipsingh L, De Souza MJ. Daily physical movement and bone mineral density among a mixed racial cohort of women. *Med Sci Sports Exerc*. 2002;34(12):1966-1970.

Latina Women's Perceived Benefits and Barriers to Physical Activity

Jennifer Hillan, MSH, RD, LD/N

What do Latina women know about physical activity and what influences their level of physical activity? Researchers in California recently interviewed 143 women, ages 40 to 79, to learn their perceptions about physical activity benefits and barriers.

The women were from Mexico, Central and South America, Puerto Rico, and Cuba. Most were low income, married or living with a partner, and without college degrees. Most were housewives, volunteers, or worked in low-paid positions. Only 7% worked in a professional occupation.

The women were asked open-ended questions about the benefits of being physically active and the barriers encountered in staying physically active. They also completed a physical activity recall questionnaire and a general health and sociodemographic section.

Results

Most of the women in this study were physically inactive (76%) and overweight (64%). A large number of women had one or more chronic health conditions such as

arthritis (32%), hypertension (26%), and diabetes (11%).

The researchers found no differences in perceptions of benefits or barriers by socioeconomic status, education level, or by acculturation. They did find that women who described health-specific barriers were more likely to be older, and women who reported time and role constraint barriers were more likely to work outside the home and be of slightly higher educational and income level.

The women described many physical activity barriers, categorized into four areas: time constraints and women's roles, personal health, internal factors, and external factors.

Perceived Barrier	Number of times mentioned	Description and Characteristics
Time constraints and women's roles	46	Caregiving (for partners, other family members); occupational, spousal, and maternal roles
Personal health	41	Chronic illnesses (including diabetes, hypertension, arthritis, back injury, peripheral vascular disease)
Internal factors	36	Lack of determination: *flojera* (sluggishness), *desidia* (neglect), *pereza* (laziness), and *haraganeria* (idleness) Lack of motivation: tiredness, lack of energy, chronic health problems, lack of family and spousal support
External factors	13	Transportation, community safety, cost of and distance to fitness facilities, weather

Some of the comments about personal health barriers reflected a lack of understanding about the role of physical activity and medical conditions; many women believed they should not be physically active due to their medical conditions.

Women named many physical activity benefits, which fell into three categories: health promotion, improved gender roles, and physical fitness.

Benefit	% of Women	Description and Characteristics
Health promotion	91	Improved heart health, quality of life, quality of sleep, longevity, reduced signs of aging, increased energy, disease management and prevention, improved mental health
Improved roles	14	Improved family and work roles; benefits extended to their children and families
Physical fitness	15	Weight management and improved physical stamina, strength, agility, endurance, and mobility.

Latina women who were regularly physically active did so to gain more energy to meet their responsibilities and to improve their quality of work as caregivers, working women, spouses, and mothers. They focused on improved family roles rather than health promotion or physical fitness as a personal gain.

Implications for FNP/EFNEP Programming

The results of this study suggest that even though most older Latina women are inactive, they know the benefits of regular physical activity. Many of the benefits they mention are focused on improved family roles. However, the benefits of physical activity compete with the perceived barriers of time constraints and women's roles; personal health; and internal and external factors.

When encouraging physical activity, educators need to address perceived barriers. If your participants are not regularly physically active, ask them why they aren't. Discuss and help participants problem solve about ways to overcome their barriers.

For example, if time constraints are a barrier, ask the participants to make a schedule of what they do in a typical week. Help them find time to be active. Remind the participants that several short bouts of activity are effective and are easier to fit into a busy schedule than one long period of activity.

If your participants mention personal health barriers, ask them to discuss physical activity with their physicians. Many people with chronic health conditions can benefit from physical activity, and their physicians can help them develop a safe physical activity plan.

Source: Juarbe T, Turok XP, Perez-Stable EJ. Perceived benefits and barriers to physical activity among older Latina women. *West J Nurs Res*. 2002;24(8):868-886.

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