

## CPH News and Views

*A semi-monthly column on emerging topics related to healthy workplaces*

### Issue #15: Promoting Healthy and Good Tasting Foods

**Contributed by Valerie B. Duffy, Ph.D., R.D., & Katryna Minski, R.D., University of Connecticut**

Effective nutrition programs are based on understanding what people eat (“dietary assessment”) and then empowering them with knowledge and ability to consume healthier diets. Often it is challenging to assess people’s diets accurately enough to design a helpful program without burdening participants or educators with excessive paperwork.

Traditional dietary assessment surveys are very detailed and difficult to complete. People may be asked to recall everything that they have eaten recently, or to count how often each of many food types is eaten in a typical week. The gold standard is the complete food record, where you write down everything you eat over a number of days. These methods assume that people a) know what and how much they are eating (nutritional content, portion sizes, etc.); b) are willing to admit to eating foods typically labeled as “unhealthy” (e.g., high fat, sweet, or salty foods); and c) are able to remember in a lot of detail at any given time. These are big assumptions – it is difficult to know what is in the food you consume, remember what you consume, and be willing to share this information. It is known that many people, especially those who are overweight, underreport what they consume, particularly foods perceived as less healthy.

We believe that asking people what they like to eat is a much simpler way to assess what people eat and reflects long-term nutrition fairly well. We also believe that positive and effective approaches for improving our diets can start from acknowledging what people like to eat, with the belief that people can enjoy a variety of healthy and good-tasting foods.

- **What people report liking correlates with what they report consuming; it's just a lot easier to recall what we like to eat.** As one assessment of validity, “food liking surveys” correlate significantly with estimates of nutrients and food groups in adults and children of different ages and ancestries. However, psychology research shows that our memory for what we like is better than our memory of behaviors (3), suggesting that dietary assessment is more accurate when based more on liking and less on factual memory. Accordingly, reporting of liking is much quicker than reporting of intake; similar sized liking surveys take less than half of the time to complete as food frequency surveys.
- **People are more willing to tell you what they like than what they actually eat.** When asked about their dietary behaviors, someone might say, “I like ice cream and sweets, but I never eat them.” This statement communicates self-control over consumption (dietary restraint). People with rigid dietary restraint who like and crave a food - but don’t satisfy their craving - are actually at greater risk for overeating and dis-inhibition (i.e., loss of control of eating) (5). From worksite health risk appraisals, we have found that both men and women who reported liking for but low consumption of high-fat foods were significantly heavier than those who reported liking and consuming these foods (1,2). This may seem surprising. However, the discrepancy between liking and eating is consistent with over-restraining one’s preferred foods, which in turn leads to overeating. A more positive dietary restraint is flexible and associated with sustained weight control, especially in people who do not eat for emotional reasons (6). A flexible restraint statement might be, “I like ice cream and sweets. Every night I really enjoy a small serving of high-quality chocolate, which satisfies my sweet tooth.”

- **Over time, we eat what we like and avoid what we do not.** Nutrition research has attempted to connect dietary behaviors with diseases that take years to develop. Unfortunately, dietary assessment measures often capture recent behaviors (e.g., what did you eat yesterday, or over the last year) and not long-term diet that would be more relevant for chronic diseases. Researchers need valid measures of habitual eating for better understanding of diet-health relationships. Food preferences correlates well - sometimes better than food frequency measures - with long-term health outcomes. For example, reported liking for high-fat and sweet foods correlates significantly with being overweight, for both men and women, whereas reported food frequencies either showed a weaker association, none at all, or even a reverse association (1,2). We suspect that higher body weight is seen in people who report more liking of high-fat and sweet foods because these individuals habitually eat those foods, even if they don't say so when interviewed.

The liking survey also gives a valid parent-reported assessment of children's fruit and vegetable intake. Children reported as having greater preference for fruits and vegetables had a better level of carotenoids in their skin (measured with a simple light source), showing greater intake of fruits and vegetables over the past number of months (4).

- **Taste is tops for food liking and choice; genetics play a role in how food tastes.** Consumers routinely report that taste or oral sensations from foods are the primary reasons they eat what they do. We don't taste all foods equally and this partially explains differences in what we like and choose to eat. Some variation in oral sensations is related to genetics (2), that are shown through response to bitter compounds (e.g., quinine, propylthiouracil) and how densely packed the taste buds are in the tongue. "Super-tasters" report these compounds as very bitter, have a lot of taste buds and live in a "neon" food world – reporting more intense bitterness and unpleasant sensations from vegetables and alcoholic beverages, greater sweetness from sugar, greater saltiness from salt, and more intense creamy/tactile sensations from fats. Not surprisingly, super-tasters have less liking for or consumption of vegetables, alcoholic beverages, sweets and fats. At the other extreme, non-tasters report these compounds as not very bitter, have few taste buds and live in a "pastel" food world—reporting greater liking for and consumption of these foods. There are other genetic influences on oral sensations and food preferences, such as differences in the ability to smell odors via the nose or mouth while eating. These genetic differences in taste influence the development of food preferences, long-term dietary behaviors, and dietary risk of chronic disease. Assessing food liking connects genetic variation, diet, and health outcomes.

**Combine health with food likes to reinforce a sustainable diet and positive food relationship.** We have translated the liking survey into opportunities for nutrition education that couple food liking with healthful eating. Below are two examples, one for an individual with a sweet tooth and one for a person who dislikes most vegetables.



Do you love sweets?	
Having a sweet tooth usually doesn't translate into wanting foods with just sugar (eg, jello, popsicle), but foods that have sugar and fat (creamy desserts, pastries).	Promote healthful relationships with these foods by indulging your cravings—moderate the amount and savor the flavor of this indulgence.
	Look for lower fat sweets with non-fat components to provide creamy mouthful and full flavor.
	Stretch the serving of high-fat sweet with a lower fat sweet (1/4 cup of ice cream with 1 cup of berries).

## **Do you dislike vegetables? They can taste good!**

Diets high in vegetables moderate your energy intake and are high in health promoting nutrients. We generalize dislike of one type of vegetables to all vegetables and disliking is often tied to bitterness or strong flavor.	Rediscover vegetables – try them prepared in new ways, added to foods, or new varieties—you maybe surprised!
	Try salads with dark green, colorful lettuces and vegetables that fill the plate with small amounts of savory meat, fish or poultry.
	Salt blocks bitterness—Cook vegetables with small amounts of low-fat salty meats (turkey bacon), sprinkle on grated cheese, or add small amounts of sauces to lessen the bitterness.
	Sweet balances the bitterness—Try putting a little sugar in the cooking water (enough to balance the bitterness, but not cause a sweet vegetable).
	Avoid developing strong flavors—Don't overcook vegetables, especially Brassica vegetables (broccoli, cabbage, cauliflower), which develop strong odors if overcooked with the cover on the pan.

[Valerie Duffy](#) is a Professor in the Department of Allied Health Sciences, College of Agriculture and Natural Resources, at the University of Connecticut. Katryna Minski is a graduate student, also in the Department of Allied Health Sciences. Both are registered dietitians.

### **For more information, please see the following cited references and reviews.**

1. Duffy VB, Lanier SA, Hutchins HL, Pescatello LS, Johnson MK, Bartoshuk LM. Food preference as a screen for cardiovascular disease risk within health risk appraisal. *J Am Diet Assoc*, 2007;107(2):237-45.
2. Duffy VB, Hayes JE, Sullivan B, Faghri P. Surveying food/beverage liking: A tool for epidemiological studies to connect chemosensation with health outcomes. *Ann N Y Acad Sci*, 2009;1170:558-68.
3. Johnson MK, Kim JK, Rissee G. Do alcoholic Korsakoff's syndrome patients acquire affective reactions? *J Exp Psychol Learn Mem Cogn*. 1985;11(1):22-36.
4. Kennedy K, Harrington H, Scarmo S, Hayes JE, Mayne S, Duffy V. Food liking surveys: Enhancing assessment of vegetable and fruit intakes among preschoolers. 7th International Conference on Diet and Activity Methods, Washington DC, June 2009.
5. Polivy J, Coleman J, Herman CP. The effect of deprivation on food cravings and eating behavior in restrained and unrestrained eaters. *Int J Eat Disord*. 2005 Dec;38(4):301-9.
6. Teixeira PJ, Silva MN, Coutinho SR, Palmeira AL, Mata J, Vieira PN, Carraça EV, Santos TC, Sardinha LB. Mediators of Weight Loss and Weight Loss Maintenance in Middle-aged Women. *Obesity (Silver Spring)*. 2009 Aug 20.



CPH-NEW is a Center for Excellence to Promote a Healthier Workforce of the National Institute for Occupational Safety and Health. CPH-News & Views is a semi-monthly column written by Center researchers on emerging topics related to healthy workplaces. These comments reflect thoughts of the individual researchers and do not represent conclusive research summaries, nor do they necessarily reflect a consensus among all Center personnel.

We welcome your responses and discussion. Please send all questions and comments to [CPHNEW@uml.edu](mailto:CPHNEW@uml.edu).