

NUTRITION

Nutritional guidance systems: can new approaches change dietary habits?

Two new approaches to nutritional guidance aim to avoid the problems inherent in many existing systems, and hope to change the way that nutritional advice can be communicated to the public.

Improvement in diet is a key public health goal; however, nutritional guidance often fails to translate to real changes in dietary habits in countries such as the US, where overconsumption of nutrient-poor but energy-dense foods is a widespread problem. The goal of nutritional guidance systems is to communicate dietary advice to the individual in the supermarket by helping them to identify healthy, nutrient-rich food. Nevertheless, the numerous systems now seen on supermarket shelves and front-of-pack labels might instead confuse the customer.

The Overall Nutritional Quality Index (ONQI), which was developed by a multidisciplinary group of nutrition and public health experts, aims to provide universally applicable nutritional guidance, independent of the food industry. This independence is key, according to lead researcher David Katz of Yale University School of Medicine. “Imagine that some GPS systems were designed by, say, a company with something to sell you, and their system only included streets where they had a store,” points out Katz. “This is pretty much the state right now with nutrition guidance systems.”

The ONQI scores individual foods from 1 to 100 (the higher the number, the more nutritious the food) on the basis of an algorithm that includes information on the micronutrients and macronutrients of foods and associations between nutrients and health outcomes.

The *American Journal of Clinical Nutrition* article by Katz *et al.* assesses whether the ONQI stands up to scientific and customer testing, although Katz admits that applying scientific rigor is difficult.

“As of yet, no gold standard measure of the overall nutritional quality of a given food exists. So, we tested ONQI against the best available measures we currently have.”

In construct validity tests, ranking of foods by ONQI scores correlated highly with pooled, mean rankings of foods assigned by an expert panel; in addition, in a linear regression analysis, ONQI was significantly associated with the Healthy Eating Index 2005 of the US Department of Agriculture (USDA). Lastly, ONQI appropriately generated a significantly higher overall score for the health-promoting Dietary Approaches to Stop Hypertension diet than for a typical American diet. Customer testing was also positive. Katz and co-investigators are already collaborating with or have supplied the algorithm to a number of other researchers to continue to test and refine the system.

An article by Adam Drewnowski highlights another main reason why individuals might not be heeding nutritional advice. “The foods favored by some nutrient profiling models tend to be more expensive,” points out Drewnowski of the University of Washington, USA.

The Nutrient Rich Foods (NRF) Index was developed to emphasize the importance of nutrient density of foods (nutrients per calorie). The NRF9.3 algorithm takes into account nine nutrients to encourage (protein, fiber, vitamins A, C and E, calcium, iron, magnesium and potassium) and three nutrients to limit (saturated fat, added sugar and sodium). In the research, NRF9.3 was used in conjunction with information from USDA databases on nutrient composition and food price to identify healthy and affordable foods.

The best-performing food or food groups in the analyses were citrus fruit and juices, milk, fortified breakfast cereals, eggs, potatoes, legumes and beans.



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In addition to affordability, Drewnowski suggests that other factors could also be considered. “We could do this by incorporating a pleasure or acceptance measure, so that our scheme approximates what consumers do in real life,” clarifies Drewnowski. “Individuals all want foods that are healthy, good tasting and cheap. No surprises there.”

More research on the effectiveness of different nutritional profiling approaches is now needed, according to Drewnowski, who highlights that tools such as the NRF index might be better used for dietary guidance and education away from the supermarkets.

Carol Wilson

Original articles Katz, D. L. *et al.* Performance characteristics of NuVal and the Overall Nutritional Quality Index (ONQI). *Am. J. Clin. Nutr.* **91**, 1102S–1108S (2010) | Drewnowski, A. The Nutrient Rich Foods Index helps to identify healthy, affordable foods. *Am. J. Clin. Nutr.* **91**, 1095S–1101S (2010)