



Publications Highlights

Since 2004, 23 articles have been published in scientific journals that support the Nutrient Rich Foods (NRF) approach, the NRF Index and/or the broader concept of nutrient density. Additional articles are planned or pending for 2010. Below is a summary of notable published research articles that provide guidance for creating a uniform nutrient profiling system, describe the development and validation of the NRF Index, highlight how using the NRF Index together with a food prices database can help identify affordable, nutrient-rich foods, and outline extensive consumer research conducted by the NRF Coalition.

Nutrient Profiling

In today's marketplace, there are many nutrient profiling systems aimed at helping consumers identify healthy foods. Most of these systems are based on reducing nutrients to limit such as saturated fat, sodium and added sugar, but do not consider the total nutrient contribution that foods and beverages make to diets. In contrast, the NRF approach is a positive, total diet approach that considers the complete nutrient package of foods and beverages as a way to educate people about how to build healthier diets.

Miller G, Drewnowski A, King J, Gibney M, Clemens R. Nutrient profiling: global approaches, policies and perspectives. *Nutrition Today* Jan/Feb 2010;45(1):6-12.

- The article discusses science-based approaches to nutrient profiling from a global policy perspective and details how the development of a science-based system of nutrient profiling can help people clearly identify nutrient-rich foods. It also emphasizes the importance of identifying a uniform, science-based nutrient profiling system that can be integrated into the 2010 *Dietary Guidelines for Americans* to provide health professionals and nutrition educators with a tool to help consumers achieve more healthful diets.

Drewnowski A, Fulgoni VL III. Nutrient profiling of foods: creating a nutrient-rich food index. *Nutrition Reviews* Jan 2008;66(1):23-39.

- Nutrient density is a long-standing dietary principle, but there is a lack of consensus for criteria to define the concept or how best to use it in nutrition guidance. This article presents criteria to consider when developing a standardized definition of nutrient density. Six guiding principles to develop and evaluate nutrient profiling systems, based on the authors' findings, are outlined below:
 - **Objective:** based on accepted nutrition science and labeling practices.
 - **Simple:** based on published Daily Values and meaningful amounts of food.
 - **Balanced:** based on nutrients to encourage and nutrients to limit.
 - **Validated:** tested against an objective measure of a healthful diet.
 - **Transparent:** based on published formulas and open-source data.
 - **Consumer-driven:** based on consumer research to help guide better food choices and help people build more healthful diets.

The NRF Index meets all six of these criteria.

The NRF Index

In response to the 2005 Dietary Guidelines Advisory Committee's call for the development of a scientifically valid definition of nutrient density,¹ the NRF Coalition created the NRF Index, a science-based definition of nutrient density validated against the U.S. Department of Agriculture's (USDA) 2005 Healthy Eating Index (HEI), an accepted, objective measure of diet quality.²

Fulgoni VL III, Keast DR, Drewnowski A. Development and validation of the nutrient-rich foods index: a tool to measure nutritional quality of foods. *J Nutr Aug 2009;139(8):1549-54.*

- The article indicates that nutrient profiling indices must be science-based and validated against an accepted measure of diet quality. It validates several different nutrient profiling indices with varying combinations of nutrients and selects the final NRF Index based on the nutrient combination that best correlates with the USDA's HEI. The article also provides scientific evidence that the total nutrient package approach is a better determinant of the HEI score rather than nutrients to limit alone.

Drewnowski A. Defining nutrient density: development and validation of the Nutrient Rich Foods Index. *J Am Coll Nutr Aug 2009;28(4):421S-426S.*

- The article reviews the comprehensive development and validation of the NRF Index, which followed scientific guidelines for nutrient profiling and was accompanied by extensive testing. The author recommends applying some basic scientific principles to the development of any nutrient profiling system and emphasizes the importance of consumer research in the development of any model.

Drewnowski A. The Nutrient Rich Foods Index helps to identify healthy, affordable foods. *Am J Clin Nutr Apr 2010;91(4):1095S-1101S.*

- The study outlines how the NRF Index can help identify foods that are both nutritious and affordable when used in conjunction with a food prices database. It also highlights the implications of nutrient profiling models that identify affordable nutrient-rich foods across and within food groups can have on nutrition education, food policy and public health.

NRF Consumer Research

The NRF Coalition has conducted several in-depth qualitative and quantitative research studies with more than 3,000 people to understand consumer views about healthful eating, the nutrient-density concept, and facilitators and barriers people encounter when making food decisions to improve health. Findings indicated that people understand and embrace the concept of "nutrient richness"³ and are ready for a nutrient rich foods approach to healthful eating.⁴

Mobley A, Kraemer D, Nicholls J. Putting the Nutrient-Rich Foods Index into practice. *J Am Coll Nutr Aug 2009;28(4):427S-435S.*

- The article outlines extensive consumer research used to create a consumer-driven, science-based educational tool to communicate the concept of nutrient density to Americans, based on the NRF Index. A key finding of this research was that consumers have a more complex approach to choosing foods than simply looking at a front-of-pack label at the grocery store. The Food Decision Cycle was developed to describe how consumers make food decisions, and it revealed that a broader educational approach may be more likely to result in behavior change than a single communication venue.

Visit www.NutrientRichFoods.org for more on these studies and other information, including a food groups weekly checklist, nutrient-rich shopping list, and nutrient-rich recipes and meal ideas to help build a healthier diet.

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¹ The Report of the Dietary Guidelines Advisory Committee on Dietary Guidelines for Americans, 2005, www.health.gov/dietaryguidelines/dga2005/report/ (Accessed February 8, 2010).

² Healthy Eating Index—2005. <http://www.cnpp.usda.gov/Publications/HEI/healthyeatingindex2005factsheet.pdf> (Accessed February 8, 2010).

³ IA Collaborative. *NRFC Functional Requirement Focus Groups*, 2008. Copyright Nutrient Rich Foods Coalition, Oakbrook Terrace, IL, 2008.

⁴ IPSOS Public Affairs. *Online Survey*, 2008. Copyright Nutrient Rich Foods Coalition, Oakbrook Terrace, IL, 2008.