



## NUTRIENT-RICH FOODS: A POSITIVE APPROACH TO BUILDING HEALTHIER DIETS

### SUMMARY

Concern that many Americans are overweight and undernourished has led to increased interest in developing and implementing a new course for nutrition guidance and education. After three decades of following dietary advice focused on reducing consumption of specific nutrients, it is clear that this approach has failed. A diet built on nutrient-dense (or “nutrient-rich,” a term preferred by consumers) foods can provide a solid foundation for better health. Nutrient density is a long-standing dietary principle and a cornerstone of the 2005 Dietary Guidelines for Americans and the U.S. Department of Agriculture (USDA)’s *MyPyramid*. Although there is no standard definition for a nutrient-dense food, it typically is defined as a food that provides substantial amounts of nutrients for relatively fewer calories.

To help consumers make healthier food and beverage choices, there is widespread support for the Nutrient Rich Foods (NRF) approach. This approach is designed to help Americans get more nutrition from their calories and emphasizes foods and beverages such as colorful fruits and vegetables, enriched and whole grains, low-fat and fat-free dairy foods, and lean meats and beans. The NRF approach has the potential to help consumers choose foods and beverages that are nutrient-rich first, and choose foods and beverages that are less nutrient-rich as calorie needs allow.

Health professionals are concerned that the plethora of “better for you” symbols and icons on food packages and grocery shelves may lead to consumer confusion. Such symbols are based on differing ways of ranking foods

according to their nutrient composition, making it difficult to compare with one another. This concern in part underscores the need to develop a scientifically valid definition of nutrient density to identify nutrient-rich foods and beverages. Ideally, this system should be objective, simple, balanced, validated, transparent, and consumer-driven. Ultimately it should improve diet quality and health.

Researchers working with the NRF Coalition – a partnership of leading scientific researchers, health professionals, communications experts, and 12 commodity groups representing *MyPyramid*’s five basic food groups – have developed a science-based, consumer-driven food guidance system. This approach is based on the NRF Index, which takes into account a food’s content of nine nutrients to encourage and three nutrients to limit relative to energy. To date, this is the only system that meets the criteria to establish a nutrient profile system identified above. In addition, the Coalition has designed a consumer-driven nutrition education tool called *My5™* to illustrate that the NRF approach can help people identify nutrient-rich foods and improve diet quality. *My5™* provides a comparative score for the nutrient richness of foods and beverages from the basic food groups, as well as meals or a whole day’s intake.

The shift to positive nutrition guidance and education based on a consistently determined standardized nutrient density index/score can help people implement the 2005 Dietary Guidelines and *MyPyramid* in their daily lives. Furthermore, this standardized approach may help form the basis of nutrition policy such as nutrition standards for foods offered in schools. **D**



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## INTRODUCTION

A movement in support of a shift to positive nutrition guidance and education is achieving momentum (1-6). For more than three decades, most dietary advice has focused on reducing consumption of certain nutrients such as saturated fat, cholesterol, sodium, and added sugars. But making choices based on this avoidance-based approach has the potential to limit the intake of valuable nutrient-dense foods and perpetuate the practice of avoiding foods based only on their content of nutrients to limit. Considering that many Americans are overweight or obese and many are undernourished, this avoidance approach has clearly failed to meet its objective, which is to help individuals choose and consume healthful diets and ultimately achieve better health (7).

This *Digest* provides an overview of current understanding of and support for the “Nutrient Rich Foods (NRF) approach to healthful eating, development of a scientifically valid definition of nutrient density, and efforts to make the NRF approach relevant and useful to consumers.

## TIME FOR A CHANGE

Now is the time for a change to positive nutrition education and advice, evidenced not only by the number of Americans who are overweight and undernourished, but also by their confusion about how to best achieve a more healthful diet (2,6). Two-thirds of adults 20 years of age and older are overweight or obese (8) and approximately 32% of children and adolescents aged 2 through 19 years are at risk for overweight or obesity (9). The prevalence of overweight among children, adolescents, and adults in the U.S. has increased over the past three decades (8,9). If the increase in overweight/obesity continues at its current rate, researchers estimate that by 2030, 86% of U.S. adults will be overweight or obese and that the prevalence of overweight among children will double (10).

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*The time has come for a paradigm shift in nutrition guidance and education. Instead of selecting foods and beverages based on nutrients to avoid, people need to consider foods' and beverages' total nutrient package.*

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Not only are many Americans overweight, but many also fail to meet recommended intakes for several essential nutrients such as calcium, magnesium, potassium, fiber, and vitamins A, C, and E (11,12). Evaluation of the nutritional quality of diets of children and adults using the U.S. Department of Agriculture (USDA)'s 2005 Healthy Eating Index, a tool to assess compliance with the 2005 Dietary Guidelines for Americans, revealed that on average Americans are not meeting dietary recommendations (13-15). In particular, Americans do not consume recommended amount of fruits and vegetables, whole grains, and fat-free or low-fat milk and milk products, and should choose more nutrient-dense forms of foods within the basic food groups (14-17).

Surveys reveal that Americans are confused about how to improve their diets. They are tired of negative nutrition messages that focus on foods or nutrients to avoid, rather than foods to include, select, and enjoy (1,18-21). According to a 2008 survey conducted by the American Dietetic Association, 38% of respondents strongly agreed with the statement, “It seems like I’m always hearing information about what not to eat, rather than what I should eat” (18). Another survey found that 61% of adults were interested in learning about the beneficial nutrients in foods and beverages, not just the amount of fat, sugar, and salt a food contains (22). Likewise, according to a survey of 500 registered dietitians and pediatricians, nearly all agreed that Americans need to think positively about what foods to eat, instead of what foods not to eat in order to reduce the obesity crisis (23). Ninety-nine percent of registered dietitians and 96% of pediatricians agreed that the concept of nutrient density is the best approach to help Americans build healthier diets (23).

## THE NUTRIENT RICH FOODS APPROACH

The Nutrient Rich Foods (NRF) approach to healthful eating shifts the focus from foods to *avoid* to foods to *enjoy* (24). It means considering the complete nutrient package of a food or beverage – both the nutrients

to encourage, such as vitamins, minerals, protein and fiber, as well as the nutrients to limit, such as saturated fat, added sugars and sodium.

Following the NRF approach is a positive, balanced way of eating (24). It is based on nutrient density, a long-standing principle in nutrition guidance and a cornerstone of the 2005 Dietary Guidelines for Americans and the USDA's *MyPyramid* food guidance system (1,16,25). According to consumer research, "nutrient-rich" is a term better understood and accepted by consumers than "nutrient density" or "nutrient-dense" (24). Although there currently is no standard definition for a nutrient-dense food (2), it typically is defined as a food that provides substantial amounts of nutrients for relatively few calories (7,16). Choosing a variety of nutrient-dense (or nutrient-rich) foods is a core recommendation of both the 2005 Dietary Guidelines for Americans and *MyPyramid* (16,25). Additional support for the concept of nutrient density as the basis for dietary guidance comes from the Institute of Medicine, Food and Nutrition Board's *Dietary Reference Intake: Applications in Dietary Planning*, several health professional organizations, and nutrition experts (1-7,26-28).

The NRF approach had its beginnings in 2003 when the NRF Coalition was formed (1,24). The Coalition is a public/private partnership that brings together leading scientific researchers, health professionals, communications experts, and 12 food commodity associations representing the five basic food groups in USDA's *MyPyramid* (24).

In early 2004, the NRF Coalition hosted a scientific symposium to explore various approaches to develop a nutrient density index as a tool to help consumers choose foods that are nutrient-rich first and then add less nutrient-rich foods as calorie levels allow (1). The symposium also addressed how to best communicate the concept of nutrient density (1,24). Ever since the 2005 Dietary Guidelines Advisory Committee identified the need for a scientifically valid definition of nutrient density that could




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*The Nutrient Rich Foods approach is a positive, realistic way of eating based on the concept of nutrient density to help people evaluate food and beverage choices and get more nutrition from their calories, build healthier diets, and ultimately achieve better health.*

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be used on the food label (11), the NRF Coalition has focused its efforts on advancing scientific research to meet this call-to-action.

Through scientific research, consumer research, health professional education, and communications efforts, the NRF Coalition is working to shift the way people choose foods and beverages from focusing on calories alone, "good or bad foods," or "nutrients to avoid," to understanding the complete nutrient package of foods to build better diets and improve total diet quality (24). The NRF approach means building the foundation of the diet on more nutrient-rich foods and beverages from all food groups, including brightly colored fruits and 100% fruit juices; vibrantly colored vegetables and potatoes; whole, fortified and fiber-rich grain foods; low-fat and fat-free milk, cheese, and yogurt; and lean meats, skinless poultry, fish, eggs, beans, and nuts (24).

### **DEVELOPMENT OF A SCIENTIFICALLY VALID DEFINITION OF NUTRIENT DENSITY**

Researchers have worked with the NRF Coalition to develop a scientifically valid definition of nutrient density, as called for by the 2005 Dietary Guidelines Advisory Committee (2-4,11). The NRF Index was presented at a symposium hosted by the NRF Coalition titled, "Achieve Better Health with Nutrient Rich Foods" held March 17, 2009, in Washington, DC (29). This scientific index takes into account both nutrients to encourage and nutrients to limit, and can help identify nutrient-rich foods and beverages (4,6). It considers nine nutrients to encourage (calcium, magnesium, potassium, fiber, protein, iron, and vitamins A, C, and E) as well as three nutrients to limit (saturated fat, added sugar, and sodium) (29,30). This combination of 12 nutrients per 100kcal of food provided the best profile of the nutrient density of foods based on statistical correlations with established diet quality measures (30). In order to ensure that the NRF Index

was developed objectively, NRF scientists validated it against an accepted measure of diet quality – USDA's 2005 Healthy Eating Index.

The NRF Index produces a broad range of raw scores for foods and beverages (30). Based on consumer and nutrition research, NRF scientists translated the NRF raw scores into five categories (1 to 5) for scoring calorie-containing foods and beverages, meals or a whole day's intake (29). Scoring all foods and beverages from 1 to 5 (no food receives a zero) provides an easy way to help people choose more nutrient-rich foods within food groups, and provides a flexible system to help build meals and diets. This approach allows room for all foods in the diet and helps emphasize the importance of choosing nutrient-rich foods first and including less nutrient-rich food options as calories allow.

### **Nutrient Profiling Systems.**

Nutrient profiling is described as the science of ranking foods based on their nutrient composition (3,4,31,32). A number of nutrient profiling systems have been or are in the process of being developed, validated, and/or tested (2-4,7,30,33-37). Some of these indices are based on nutrients to encourage only, others on nutrients to limit only, and others on some combination of both (3).

In recent years, a flood of symbols and icons based on different nutrient profiling systems have appeared on food packages and grocery shelves with the intention of helping consumers make healthier food/beverage choices at the point of purchase (6,33,38). This proliferation of symbols and icons, combined with a lack of standardized criteria to define the nutritional quality of foods and beverages and a failure to consider the total nutrient package of a given food or beverage, may lead to consumer misinformation and confusion (7,38). Also, these symbols rate foods in isolation without consideration of a whole meal or an entire day. Moreover, many of the scoring

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*Researchers working with the Nutrient Rich Foods Coalition have developed a scientifically valid definition of nutrient density that takes into account the total nutrient package of foods and beverages, including nine nutrients to encourage and three nutrients to limit, all in relation to energy.*

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systems are proprietary (i.e., not publicly shared/nontransparent), making it difficult to compare one with another.

There is heightened interest in nutrient profiling symbols and icons both domestically and abroad. Concern about the increasing number of them in the marketplace, each one attempting to define “better for you” foods in a different way and potentially creating consumer confusion, led the U.S. Food and Drug Administration (FDA) in 2007 to convene a public hearing on the issue, followed by a call for written comments on the topic (39). The FDA is evaluating the need for and potential effectiveness of developing a federal standard for nutrient profiling of foods. In June 2009, the FDA announced that it will conduct a web-based survey of 2,400 adults to learn how consumers interpret and use nutrition symbols on food packages (40). Also, the European Union has determined that nutrient profiles will be the formal basis for regulating future nutrition and health claims and that only foods with a “favorable nutrient profile” will be allowed to carry such claims (3,4). Potentially disqualifying nutrients include fat, sugar, and sodium, whereas the qualifying nutrients are left for researchers to define.

Clearly, there is a need for a standardized definition of nutrient density. This could help consumers understand and implement the 2005 Dietary Guidelines for Americans recommendations and provide the foundation for future nutrition guidance (1,6). The NRF approach can be a factor in guidelines for federal nutrition programs, health claims on food, fortification, and marketing or advertising to children (3,4) and the NRF Index can be a valuable resource in developing consumer education to help promote healthful dietary patterns (2,3). NRF index scores, in conjunction with food prices, may eventually help consumers identify affordable nutrient-rich foods that are part of the mainstream American diet (4,31,34,35).

**Nutrient Profiling Criteria.** Before a standardized, science-based definition of nutrient density can be established, key elements of a nutrient profiling index need to be objectively determined (4,41-43). In the January 2008 issue of *Nutrition Reviews* (4), NRF scientists outlined several criteria or guiding principles by which all nutrient profiling systems should be developed and evaluated, as follows:

- **Objective:** based on accepted nutrition science and labeling practices;
- **Simple:** based on published Daily Values of nutrients and meaningful amounts of food;
- **Balanced:** based on nutrients to encourage and nutrients to limit;
- **Validated:** against an objective measure of diet quality;
- **Transparent:** based on published formulas and open-source data; and
- **Consumer-driven:** the application is based on consumer research to help guide better food choices and help consumers build more healthful diets.

The NRF system is the only one that meets all six of these criteria and these points together set the NRF approach apart from other systems out there (4,29,30). It is:

- **Objective:** based on the 2005 Dietary Guidelines for Americans, *MyPyramid*, and other expert panel data;
- **Simple:** based on percent Daily Values for nutrients published by the FDA;
- **Balanced:** includes nutrients to encourage and nutrients to limit;
- **Validated:** against the USDA's 2005 Healthy Eating Index, a measure of compliance with the 2005 Dietary Guidelines for Americans;
- **Transparent:** algorithms published in peer-reviewed journals; based on USDA data from the Food and Nutrient Database for Dietary Studies and USDA Standard Release data set SR-20; and
- **Consumer-driven:** extensive research on how to help consumers build healthier diets is in progress (29,30).



*Choosing nutrient-rich foods first – such as fruits and vegetables, whole grains, low-fat and fat-free dairy foods, and lean meat and beans – is a positive way to help people meet their nutrient recommendations without consuming excess calories.*



## REACHING OUT TO CONSUMERS

The ultimate test is whether the NRF approach will effectively communicate nutrition information in a way that is both useful and valuable to the consumer (4,5). To serve as an effective guide for individuals to make better food choices and consume more healthful diets, educational tools are needed to help communicate the NRF approach (6).

The NRF Coalition has developed a consumer-driven nutrition education tool called My5™ to illustrate that the NRF approach can help people identify nutrient-rich foods and improve diet quality (29). My5™ was developed to demonstrate that the NRF approach can help people build healthier diets and get more nutrition from their calories. The NRF index and its corresponding education tool, My5™, are not simply a nutrient profiling system to put on the label of “better-for-you” foods. Instead, My5™ is a total diet approach in which all foods can be scored, and which can help meet the Coalition's goal to educate people about how to build healthier diets. According to a recent survey of registered dietitians and pediatricians, virtually all agreed that front-of-pack icons alone do not provide enough information for consumers to build healthier diets (23). Quantitative testing is underway to finalize the My5™ consumer-driven nutrition education system.

## CONCLUSION

To improve public health, a positive approach like the NRF approach is needed to shift people away from selecting foods based on nutrients to avoid to focusing instead on a food's total nutritional package. It is important to not lose sight of the fact that it is the total diet, not just individual foods, that influences health outcomes, and that all foods consumed in moderation can fit into a healthful diet (44). The NRF approach provides positive nutrition guidance that focuses on the complete nutrient package of foods, beverages, and ultimately eating patterns. More information about the NRF Coalition, its activities, and resources (e.g., the *Live Well! Enjoy Nutrient-Rich Foods* tool kit) can be found on the web site [www.nutrientrichfoods.org](http://www.nutrientrichfoods.org). D

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## RELATED RESOURCES

[www.nationaldairycouncil.org](http://www.nationaldairycouncil.org)

- Making Nutrient-Rich Food Choices First: Key to A Healthful Diet. Dairy Council Digest 78(5), 2007.

[www.nutrientrichfoods.org](http://www.nutrientrichfoods.org)

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Coming Next Issue:

## THE ROLE OF PROTEIN IN SATIETY & WEIGHT MANAGEMENT

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