

COMMENTARY: A PROPOSED NEW FOOD GUIDE: WHY PYRAMIDS SHOULD STOP AT TRAFFIC LIGHTS

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Many food guides are used around the world, with most based on a graphical design to indicate how much of each food group should be eaten. However, the most recent versions of the food guides used in the United States (MyPyramid) and Canada (Eating Well with Canada's Food Guide) have moved away from using a graphical design. In this article, we evaluate the design of these various food guides and describe an alternative design for a food guide based on a traffic lights approach. Foods are classed as green (eat freely based on recommended amounts), amber (eat in limited amounts), and red (eat little or none). The food guide is accompanied by a set of simple rules for selecting an appropriate diet. This design has several advantages over conventional designs. In particular, the proposed design more closely reflects the actual composition of foods, namely that foods within each food group tend to fall into three distinct groups based on nutritional composition, a point which is much less clear with conventional food guide designs. The simplicity of the design may make it especially valuable in developing countries and among communities where educational standards are poor. Only a limited amount of research has been conducted on traffic lights food guides, mainly for its use in the treatment of childhood obesity. Further research is therefore required. (*Ethn Dis.* 2010;20:485-487)

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INTRODUCTION

Many food guides are used around the world.^{1,2} Most use a graphical design to advise people how much of each food group should be eaten. Some have shapes that are variations of a pyramid whereas others are shaped like a dinner plate. The best known graphical design is probably the Food Guide Pyramid produced by the US Department of Agriculture (USDA) and first released in 1992. In 2005, it was replaced by MyPyramid.³ This new design requires the use of the Internet to determine how much an individual should eat from each food group. Canada has also moved away from using a graphical design. Its new food guide, which appeared in 2007, is called *Eating Well with Canada's Food Guide* (CFG) and is based on a chart.⁴ It advises users on how many servings to consume from each food group, depending on age and sex. Assorted other nutrition information is also included, such as advice on physical activity, reading labels, and dietary supplements.

In this article, we present an alternative design for a food guide; this is based on a traffic lights approach (green, amber, red), together with a set of simple rules for selecting an appropriate diet. We compare the strengths and weaknesses of the proposed design with conventional designs.

THE CHALLENGE OF DESIGNING FOOD GUIDES

It is axiomatic that a properly designed food guide, if followed, should result in a person consuming a diet that not only provides all required nutrients but also minimizes risk of chronic disease. Various agencies produce di-

verse sets of dietary recommendations for the avoidance of chronic disease (food-based dietary guidelines). Unfortunately, these are often not well-integrated into the food guides. As a result, these various sets of dietary advice may be difficult to follow, especially for poorly educated people. Indeed, even well-educated people may have problems following the food guide. For example, at Athabasca University, Canada, students taking a nutrition course carry out a diet self-assessment. As part of this they assess their diet using the CFG. Although, all students have studied the CFG, they often make major errors (unpublished observations).

Within each food group, some foods are of superior nutritional value to others but the distinction is often unclear to users of the food guide. For example, the milk group includes both whole milk and skim milk, while the grains group has both whole grain bread and white bread. Both MyPyramid and CFG advises people to focus on the healthier types of food (low-fat milk, whole grain cereals, lean meat, and so forth). Separate from this, foods high in sugar or fat are excluded from the food groups. MyPyramid allows a limited quantity of these foods to be eaten as "discretionary calories," while CFG recommends "limiting" these foods. We see, therefore, that foods fall into three classes: 1) healthier types of food; 2) foods that are less healthy but still fit into the food groups; and 3) foods that are high in sugar or fat. Unfortunately, food guides fail to clearly convey the message that foods fall into these three distinct classes.

TRAFFIC LIGHT DESIGN

The food guide described here takes a radically different approach. Within

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Table 1. Traffic Light Food Guide. Eat a mixture of foods from the different food groups while carefully following the rules given below

| Food Group | Green (Eat Freely Based on Recommended Amounts) | Amber (Eat in Limited Amounts) | Red (Eat Little or None) |
|-------------------------|---|---|---|
| Fruit/vegetables | Nearly all fruits and vegetables | Potatoes, fruit juice | French fries |
| Grain products | Whole grains, such as whole wheat bread, oats, dark rye bread, and popcorn | Refined cereals, such as white rice, white bread, and corn flakes | Cookies, cakes, popcorn with salt/butter |
| Milk products | Skim and 1% milk, fortified soy milk | 2% Milk, low-fat cheese | Whole milk, regular cheese, cream cheese, ice cream |
| Meat, fish, beans, nuts | Fish, beans, lentils, nuts | Lean beef, chicken | Bacon, red meat (all beef and pork products unless labeled as lean) |
| Oils, fats | Most vegetable oils, soft margarine (preferably from canola oil or soy oil) | | Hard margarine, butter |

Key Rules for a Healthy Diet

- (1) Eat only enough to satisfy your appetite. If you are gaining excess weight or you wish to lose weight, then eat less and exercise more.
- (2) Eat 5 to 10 servings a day of grain products. Of this, at least 3 servings (preferably more) should be whole grains. One serving is a slice of bread, a cup of breakfast cereal, or half a bagel.
- (3) Eat 5 to 10 servings a day of whole fruit and vegetables. One serving is an apple, a banana, a cup of salad, or half a cup of other vegetables. In addition, up to one cup of juice (2 servings) may be consumed. Aim for a mixture of different types of fruit and vegetables. Fresh or frozen is better than canned.
- (4) Consume 2 or 3 servings a day of milk products (more for adolescents and women who are pregnant or breastfeeding). One serving is a cup of milk or yogurt, or an ounce and a half (45 grams) of cheese.
- (5) Consume 1 to 3 servings a day of meat, fish, beans, peas, lentils, and nuts. A serving is 3 ounces (90 grams) of fish or meat, or half a cup of cooked beans.
- (6) Aim for about 3 teaspoons a day of margarine, oils, and salad dressing, or double that if you eat little or no other sources of polyunsaturated fats, such as nuts or fish.
- (7) Minimize your consumption of sugar. This includes sugar in coffee and soft drinks, and drinks labeled as fruit beverage. Also, minimize your consumption of foods rich in both fat and sugar, such as cakes and donuts.
- (8) Cut down on the amount of salt in your diet. Remember: most salt in the diet comes from processed foods, such as most types of bread, margarine, and canned foods.
- (9) It is okay to consume alcohol provided that this is done responsibly. Never drink and drive, never drink if pregnant, and don't get drunk. An acceptable intake is 1 drink a day for women and 2 drinks a day for men. One drink is 12 ounces (356 grams) of beer, 4 to 5 ounces (118 to 148 grams) of wine, or 1.5 ounces (42 grams) of spirits.

each food group, foods have been categorized into one of three groups: green (eat freely based on recommended amounts), amber (eat in limited amounts), and red (eat little or none). Our proposed design is based on the formula found in Table 1.

DISCUSSION

The food guide designed with the use of traffic lights has several advantages over the designs of food guides that are now commonly used. This approach has dietary recommendations for the prevention of chronic disease integrated into it. It is therefore a merger of both a food guide and food-based dietary guidelines. Classifying foods within each food group into three sub-groups has the clear advantage that this is much more consistent with actual food composition and should therefore

facilitate the selection of a healthier diet. This, therefore, overcomes the problems inherent in other food guide designs.

The proposed food guide is simple and user-friendly. It can be easily attached to a refrigerator. As traffic lights are understood by children and are well-known around the world, the design can be used by people of all ages and all cultures in all nations. Its advantages are likely to be greatest where educational standards are low. The food guide may be especially valuable for those with language barriers, provided users have at least a minimal level of reading ability in the language of the food guide. However, for people who are functionally illiterate, a graphical design may be preferable.

The food guide may be especially valuable in developing countries. However, it would need to be adapted to

reflect foods that are commonly eaten in each country. While the emphasis here has been on the prevention of chronic disease, in many developing countries more emphasis will need to be placed on the avoidance of nutrient deficiencies.

Some research has been conducted using variations of a food guide based on traffic light images. In particular, it has been tested several times as a tool in the treatment of childhood obesity with encouraging results being reported.^{5,6} For those studies the categorization of foods is based heavily on energy content.

As with the conventional designs of food guides, such as MyPyramid and the CFG, the problem is still present that many foods belong, at least partly, to more than one food group (eg, pizza and tuna salad).

Several modifications to the food guide could be considered. It could be color-

coded for visual impact and ease of comprehension. MyPyramid and the CFG include recommendations for physical activity. Recommendations along these lines can easily be integrated with the food guide described here. Another possible addition is for dietary supplements. Such advice is included in the CFG.

In order to classify each food appropriately, it is necessary to assess its global health value. This requires a standardized methodology for nutrient profiling so as to compare foods; such systems have been proposed.⁷ A British group has developed a system based on a limited number of food components.⁸ The NuVal Nutritional Scoring System is an algorithm developed in the United States that generates a score based on more than 30 different nutrients and nutrition factors.⁹

Another potential development is to link a food guide with food labels, based on the design using traffic lights. A system of food labeling based on traffic lights has been developed in the UK by the Food Standards Agency.¹⁰ With this system, colored circles are placed on the front of the pack and show at-a-glance if the food has a high (red), medium (orange), or low (green) content of fat, saturated fat, sugars, and salt. The label also indicates the actual quantity of these substances per serving. This system is not yet in general use but has been adopted by some supermarkets and food manufacturers. Research studies have been carried out in which consumers have been asked to compare traffic lights labels with more compli-

cated systems. Traffic lights labels are generally well-liked and increase the ability of people to assess the health value of a food.¹¹⁻¹⁴ A combined system based on traffic lights for both food labeling and a food guide would greatly simplify the task of the consumer who wishes to follow dietary advice.

More research is needed to determine which food guide design is most effective for encouraging and assisting the general population to eat a healthy diet so as to minimize the risk of chronic disease.

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