

MyPyramid perspective

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The USDA's Food Guide Pyramid was unveiled in 1992 amid both fanfare and controversy. Now, almost 15 years later, its replacement - MyPyramid.gov - has similarly generated both positive and negative responses. Is it a significant improvement? Are there missing pieces that ought to be included? In this Perspective, I will draw on my experience using the Food Guide Pyramid as a teaching tool to evaluate MyPyramid.gov.

In the beginning...

First, a little history. The federal government has been producing consumer-friendly food guides since the early 1900s. During World War II, the "Basic Seven" was designed to make practical the newly developed Recommended Dietary Allowances to help Americans defend the home front even in the face of rationing. The relatively recent discovery of the vitamins had made it clear that a variety of different foods, including the previously undervalued fruits and vegetables, were necessary for good health. Thus, there were separate categories for leafy green and yellow vegetables; citrus fruit, tomatoes, and raw cabbage; and potatoes and other vegetables and fruits. Rounding out the seven groups were butter and fortified margarine; bread, flour, and cereals; milk, cheese, and ice cream; and meat, poultry, fish, eggs, dried peas, and beans.

Too many groups

But the Basic Seven eventually gave way to the 5-group Hassle-Free Guide, which was replaced in 1956 with the even "simpler" Basic Four Food Groups. Clearly the message from a public seemingly unwilling or unable to follow such dietary recommendations was "less is more." That is, fewer groups were easier to remember, and if it was easier to remember, it would, at least in theory, be easier to follow. The recommendations for the 4 groups - meat, dairy, fruits and vegetables, and grain - were expressed as *minimum* levels of intake: at least 2, at least 2, at least 4, and at least 4 servings of each, respectively. As with previous recommendations, serving sizes were defined. For example, 1 cup of milk, a half a cup of fruit, a half a cup of grain, and 2-3 ounces of meat each represented one serving. 1

Basic Four ultimately too basic

Over time however, several limitations of the Basic Four began to emerge. First, the guide was only meant to represent minimum intake and as a result did not provide a complete picture of what one's diet should look like overall, especially across different total calorie needs. That is, how could "at least 4 servings of grain" be meaningful for both an active 20- year-old man and a relatively sedentary 45- year-old woman?

Second, an improving food supply and increasing wealth shifted public health concerns away from the deficiency diseases that threatened people in the earlier half of the century to chronic diseases like heart disease. As a result, it became clear that the eating guide needed to reflect those foods or food categories that one should *limit* - such as fats and sweets - in addition to those that one should consume.

By the 1980s, research was also reinforcing a growing belief that adequate fruit and vegetable intake was protective against a number of different diseases, especially several different types of cancer. And finally, a diet high in complex carbohydrates (and therefore grains, along with fruits and vegetables) was seen as the best way to not only ensure adequate vitamin and mineral intake, but to also limit fat and therefore reduce heart disease risk . While the Basic Four was easy to remember, its simplicity was ultimately its limitation - healthy eating could not be whittled down to bites that small.

The building of the first Pyramid

Thus was born the Food Guide Pyramid. The Pyramid separated fruits and vegetables into their own groups, increasing the minimum recommendation to five daily servings (two to four and three to five respectively), and added two additional servings to the grain group minimum as well. It also provided *upper boundaries* for each group so that they could be individualized for calorie needs. For example, the grain group ranged from six to eleven , with six for those whose daily calorie needs were around 1,600, and eleven for someone requiring approximately 2,800 calories a day. And of course it addressed the issue of excess fat and calories with the addition of the Fats and Sweets group at the top . The Basic Four groups had expanded to six .

The other important characteristic of the Pyramid - its shape - was also almost its undoing. While a typical Basic Four poster showed boxes of equal size (even though the recommended numbers of servings were different) the new Pyramid not only made the sizes *proportional* to the recommended servings, they were stacked from largest to smallest. This immediately raised the hackles of the dairy and meat industries, who were used to benefiting from government recommendations, especially those from the U.S. Department of Agriculture. Specifically, they did not appreciate being put directly underneath the new Fats and Sweets group, a group that was

to be eaten "sparingly." The USDA was forced to spend an additional million dollars testing alternative designs, but in the end, the hierarchical pyramid shape won out over bowls and other configurations in numerous focus groups.²

An improvement?

Like a lot of nutritionists at the time, I thought the Food Guide Pyramid was a huge improvement over its predecessor because it seemed to address very clearly the issues of concern in the typical American diet as outlined above. I believed, in retrospect naïvely, that this relatively simple graphic could help guide just about anyone toward a healthier diet. Unfortunately, as time passed, it became clear that the Pyramid suffered from both fatal flaws and bad timing.

Too much math

First, it required math. More problematically, it required the kind of math necessary to figure out proportions, as in the following example: if 1 serving is half a cup, how many servings is 2 cups? For years I had students in my introductory college nutrition course compare their five -day food diaries to the Pyramid recommendations. An inability to get from twelve ounces of steak to four servings of meat was, sadly, very common. More often than one would hope, four cups of spaghetti would be converted into two servings of grain. ³ [This poor understanding of proportions makes food labels significantly less effective as well.]

Super-size it

Of course most Americans were not attempting to convert their portions to servings, nor did most know that there was a difference, which was an even bigger problem. Unfortunately, just as the Pyramid was being rolled out, super-sizing was rolling in, as was the popularity of eating out - the two -ounce bagel doubled to four (as did its number of servings). Yet people happily downed their big bagels, mega muffins, and plates piled high with pasta, believing that they were following the recommendation to "build that base of grain." After all, didn't the Pyramid reinforce what they were hearing from the health care professionals - that high carb and low fat was the healthy way to eat? And shouldn't *everyone* be aiming for eleven servings of grain a day? (Few made the connection between range of intake and calorie need.) Add in the introduction of fat-free Snackwell's cookies that people ate by the box full (many assuming they fit nicely in the grain group), and you have a public that was rapidly "building" its waistline.

Too many misconceptions, too difficult to follow

That you might get as many as eight servings of grain from just the spaghetti and garlic bread you had for lunch at The Olive Garden, that not everyone should be aiming for eleven servings

of grain a day, and that doughnuts were not really members of the grain group at all was information that most people seemed unaware of. That's not to say that it wasn't available. Nutrition educators, including Extension professionals from across the country, created and disseminated scores of pamphlets and fact sheets in which these issues were addressed, and made countless presentations. But Americans tend to have short attention spans and don't always like to read or follow directions; the Pyramid required both if you wanted to know how it applied to you, which was another significant barrier. Time and again, I would hear from friends and students alike: "I don't want to have to think about it. Just tell me what to eat."⁴ It was a replay of the original "lessons learned" that saw seven food groups get pared down to four .

"The Pyramid made me fat"

By the end of the 1990s, rates of overweight and obesity were skyrocketing. The American diet had become bottom heavy with large quantities of refined grain and top heavy with super-sized buckets of sugared soft drinks. The hope that the Pyramid would boost consumption of complex carbs, fruits, and vegetables had not been realized. In fact, even the hierarchical representation that had seemed so ideal at the outset had its problems. For example, some people saw it as *sequential* instead - that one should not eat fruits and vegetables until *after* having eaten the recommended amount of grain. Many even began to blame the Pyramid for the growing obesity crisis because of the relationship between the timing of its introduction and the up-tick in the nation's body weight. In particular, its emphasis on grains was used by the Atkins-style diet promoters as evidence for their indictment of all things carbohydrate as they promoted their own "upside-down" graphic, with meat at the base.

Building a better Pyramid

Clearly the Pyramid was in need of an overhaul. But how should it be done? Even as Americans were calling for more simplicity, our understanding of diet-disease relationships was becoming ever more complex. Gone are the days when everything we thought we knew about what people should be eating could be published in a single book. In fact the 300-page 10th edition of the RDAs, published in 1989, has been replaced with a series of six books, totaling over 3,600 pages! Figuring out how much vitamin C it takes to prevent scurvy is NOT the same as figuring out how much, or even *if*, vitamin C reduces the risk for cancer; not to mention trying to factor in the contributions that might be made by other antioxidant vitamins like A and E, the mineral selenium, fiber, different types of fat, and even phytonutrients like lutein and lycopene. So how do you take this incredible amount of information and make it easily accessible *and* understandable to average people, such that it requires little effort on their part to apply it to their daily lives?

Technology to the rescue?

The Internet has provided the mechanism by which this can happen: the new MyPyramid.gov web site. Now, instead of trying to make one graphic convey information that could be applicable to anyone, users enter their age, gender, and activity level, and they get a "personalized" set of recommendations; this is considerably more meaningful than the previous range that was meant to cover all ages and activity levels. (There are a total of 12 levels of intake.) In other words, the site does what the public has been asking for - it tells them what to eat.

It's still not perfect. For example, body weight is not one of the variables that one enters, even though weight affects total calorie requirements. Instead, users are encouraged to monitor their body weights and adjust intake accordingly. A section on "discretionary calories" helps with identifying unnecessary source of extra calories.

However, other problems have been more clearly addressed - in particular the issue of "serving size." Now the recommendations themselves are given in cups and ounces, so there is no longer a need to know the serving size "rules." And if you don't know what one ounce of almonds looks like, you can click on the "What counts as an ounce?" link in the Meats and Beans section and find out that it's 25 nuts. There are even some pictures of portions for the "visual learners." 5

Finally, for the first time, the graphic itself includes an emphasis on physical activity through the image of a figure going up the stairs. The accompanying phrase, "Steps to a Healthier You" both reinforces the importance of exercise and introduces the concept that improving health can happen gradually. The original Pyramid seemed to many as an "all or nothing" set of recommendations - if you couldn't manage one piece of it then there was no sense in following any of it.

A treasure trove of information

The site also allows for a wealth of information to be presented in easily digested portions by having many layers of embedded links. For example, the My Pyramid Plan home page, which appears after entering age, sex, and activity level, provides recommended levels of intake that link to more specific suggestions regarding the intake of whole grains and varieties of vegetables, which can in turn take the user to even more specific examples. A "Tips" link next to each group on that page also has ideas for putting each of the recommendations into practice. And for those who want to know the "whys" behind the recommendations, there are links to descriptions of the nutrients in each group and their potential health benefits. This is where the user can learn, for example, about the different types of dietary fats and their sources.

Highly personalized and interactive

Finally, for the truly motivated, there are links to dietary and physical assessment tools. My experience suggests that keeping a food diary is one of the best ways for people to improve their diets - you can't know what to change if you don't know where you are to begin with. It can also be a tremendous wake-up call. Most of my students say they eat fruits "regularly," until they keep their food diaries and discover a big goose egg in the fruit column! Obviously there is still a need to read and follow directions, but it can be done at one's own pace and on one's own time. You can come back to it as often as you want and you always know where to find it, unlike that pamphlet you picked up at the health fair. More and more people are using the Internet as a source for information on a daily basis; MyPyramid.gov can easily become a routine stop as they surf the Web.

Is its strength its weakness too?

MyPyramid.gov has its critics. The most obvious issue is the need for Internet access. However, that begs the question as to how those without access would have gotten information about the original Pyramid. It likely came from print material and presentations provided by Extension educators and other health care professionals, all of which can (and does) still happen with MyPyramid.gov. In addition, with some corporate funding, there is no reason why MyPyramid.gov kiosks could not be made available in many public places. How about every McDonald's, for example?

A logo = no info

Others complain about having reduced the graphic to no more than a logo. However, it seems impossible, if not futile, to attempt to convey all the information that one needs to make healthy choices - those 3,000+ pages in the current RDAs -- in a simple graphic. Even the Healthy Eating Pyramid created by Harvard's Walter Willett (of The Nurses' Health Study fame) requires one to buy his book to fully implement the recommendations. It is true that many components of the logo are far too subtle to be practical, such as the narrowing of the vertical bands from bottom to top, which represents eating more of foods with little added sugars or fat. However, it is the absence of information on the logo that encourages (if not forces) people to take a more active role in their own health-related decisions by the very fact that they *have* to go to the web to find out more. And the web site itself provides the kind of clear, detailed information and advice that the public has said that it wants.

In conclusion, will it work?

It's too soon to know whether MyPyramid.gov will in fact be a significant improvement over the original. What hidden misconceptions are yet to be discovered? What barriers still exist to implementation? While it seems to have addressed many of the problems associated with its progenitor, we will only know what its limitations are, if any, with increased use. However, we do know that it doesn't have a chance of being successful if no one knows about it. A survey of more than 1,000 adults ages 22 and older undertaken by students in my introductory nutrition class in the fall of 2005 suggests that few people are even aware of its existence.

I encourage all Family and Consumer Science and 4-H and Youth Extension educators with health-related responsibilities to become familiar with the web site and identify ways to incorporate it into their programming. MyPyramid.gov has the potential to be a valuable resource for those interested in learning more about healthy eating, and in making changes to their diets, no matter how big or small.

1. See <http://www.nal.usda.gov/fnic/history/> for examples of early food guides.
2. It is interesting to note however, that when I tell this story, some people say they think being closer to the top of a pyramid ought to be seen as desirable. It is also interesting to note that these people are always men.
3. An additional complication was the disconnect between Pyramid serving sizes, created by the USDA, in part to make it easier to count them, and those allowed by the FDA for food labeling purposes.
4. That, sadly, is the appeal of the fad diet: breakfast, lunch, and dinner all neatly laid out - no need to think at all. It is perhaps one of the biggest battles faced by nutrition educators.
5. Unfortunately the pictures have only rulers as reference points. A standard knife and fork, or some other object with a consistent size would be a helpful addition.

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