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Toward a New Food Guide Pyramid

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## Introduction

The Food Guide Pyramid, released by the United States Department of Agriculture in 1992, has for over ten years been the most widely used and recognized source of dietary recommendations in the United States (1). The Pyramid encourages healthy choices in total diet, rather than recommending or condemning specific foods. The Pyramid graphic survived extensive consumer testing that judged it the most effective means of conveying goals for a healthy diet: one rich in grains, fruits, and vegetables, with fewer servings of meats and dairy products and sparing use of fats, sweets, and alcohol (2).

## History of the Pyramid

The USDA's first set of dietary guidelines was published in 1916, and subsequent food buying and eating guides were developed to address nutrition in the face of shortages during the Great Depression and rationing during World War II (3). Although early guides actually differed little from later ones in terms of recommended diet composition, their primary goal was adequate nutritional intake, with little or no emphasis on preventing disease through diet (3).

During the 1950s and 60s, however, research began to establish a link between dietary fat and atherosclerosis, and the American Heart Association recommended in 1961 a reduction in caloric intake of fat (4). Thus federal nutrition policy began to include prevention of chronic disease in its goals - a shift of "eat more" to "eat less" (4).

## The controversy over "eat less"

Encouraging the public to "eat less" had potentially profound economic implications. Reduction of fat and cholesterol in the diet would necessarily entail some reduced consumption of the meat and dairy products from which much of it came. Nestle examined the various versions of federal nutrition policy up through the 1992 Pyramid, and found that in every instance, meat, egg, and dairy lobbies intervened in the development and review process to change the wording of guidelines they perceived as threatening to their industries (4). For example, Healthy People and Food, both produced in 1979 by joint effort of the USDA and what became the Department of Health and Human Services, were the last publications to use the phrases "eat less" and "cut down" in reference to meat, largely as a result of industry pressure (4). In fact, since the late 1970s, guidelines on meat consumption have evolved from "eat less" to "choose lean" to the current Pyramid's suggestion of 2-3 servings of meat - a recommendation that actually increases the dietary goal for meat (4). Such changes occurred despite evidence at the time and since that decreasing dietary saturated fat and cholesterol can help prevent coronary artery disease (5) and atherosclerosis (4).

## The case for a new pyramid

In addition to facing objections from food industries, the new Pyramid suffered from oversimplification of nutritional guidelines (6). The overall message appears to be that fats are bad and carbohydrates are good, despite important subtleties between types of fats and carbohydrates. For example, the benefit of mono- and polyunsaturated fats over saturated fats was recognized in the 1960s and 70s (6), and nutrition guidance highlighted this distinction. However, this message was judged too confusing for the public (6), leading to the Pyramid's

placement all fats at its peak, with the caution to "use sparingly". Similarly, the Pyramid's base comprises all kinds of complex carbohydrates, even though there are important metabolic and nutritional differences between whole and refined grains.

#### Separate categories for lean meats and red meats

How important are such distinctions? Recent evidence suggests they may be significant. Fish and poultry, both lean meats, can satisfy protein requirements while contributing less saturated fat and more unsaturated fat (6). Certain types of fish rich in omega-3-fatty acids may in fact confer a protective effect for many types of heart disease (7). But despite increases in consumption of lean meats, especially poultry, and decreases in consumption of red meats, the latter still account for almost half of daily meat group servings per person (8). Failure to distinguish between types of meats may be partially to blame for this continued trend.

#### Whole grains vs. refined grains

A strong case may also be made for revising the message on carbohydrates. The bread, cereal, rice and pasta group occupies the base of the Pyramid, and consumers are advised to eat 6-11 servings every day. The Economic Research Service found that Americans now not only eat more grain servings than recommended, but that most of those come from refined grains (8). Refined grains such as white bread and white rice, however, contain fewer vitamins and minerals and less fiber than whole grains (8). They can also be more easily broken down into glucose, with the resulting rapid increase in blood sugar stimulating a large release of insulin. When this occurs regularly, a person may be at increased risk for developing insulin resistance and Type 2 Diabetes (1). Additionally, the subsequent hypoglycemia following rapid insulin release may stimulate feelings of hunger even after a large meal (6).

Whole grains, on the other hand, take longer to digest and have a slower, steadier effect on blood sugar and insulin (8). They also contribute more folate, vitamin E, and magnesium to the diet, as well as more lipid-reducing soluble fiber (9). These factors appear to confer a protective effect for risk of ischemic heart disease. Data from the Iowa Women's Health Study showed that women who consumed the most whole grains had an approximately 30% lower risk of developing ischemic heart disease than did those who consumed the least amount of whole grains (10). Further study may help explain the link between carbohydrates and specific health outcomes, but for now it does seem appropriate to recommend replacing many refined grains in the diet with whole grains. Guidelines which reflect the different health "value" of these carbohydrates may also help ease some of the public confusion surrounding appropriate carbohydrate consumption.

#### These changes could have a measurable effect on health outcomes

There have been few large-scale studies in which participants are randomly assigned to one diet or another and then evaluated for disease risk over many years (6). Such studies would be ideal for examining the link between diet and disease, but a reasonable alternative can be found in large epidemiological studies that periodically assess participants' diet and track disease incidence (6). Such use was made of the Nurses' Health Study and the Health Professionals' Follow-Up Study, which included detailed questionnaires on diet and followed development of various diseases among participants. Hu and Willett calculated participants' Healthy Eating

Index - a USDA score that measures adherence to the Pyramid - and examined its relationship to risk for major chronic disease. After adjusting for factors such as smoking and exercise, they found that a high HEI did not reduce risk for chronic disease. But those who ate mainly unsaturated fat and whole grains; abundant fruits and vegetables; limited dairy; and minimal red meat, butter, refined grains, and potatoes did have a reduced incidence of cardiovascular disease. The benefits were as high as a 30% reduction for women and 40% for men (11). It is possible that several benefits of adhering to the Pyramid are negated by harmful effects: lower total fat intake may decrease levels of harmful saturated or trans fats, but it also lowers intake of healthy unsaturated fats (6).

### Halting overweight

Increased incidence of obesity and overweight is a significant public health concern because it is associated with a higher risk for developing heart disease, stroke, Type 2 diabetes, and certain types of cancer (12). In 1991, 12% of American adults were obese (defined as having a Body Mass Index >30); ten years later almost 21% were (13). Overeating and lack of physical exercise are significant contributors to overweight. A new Pyramid could address this by incorporating weight control in its "daily requirements." Willett proposes promoting daily exercise and weight control to the Pyramid's base, highlighting energy output as equal to input in staying healthy (6).

Finally, revised portion sizes could help reduce the contribution of overeating to weight gain. USDA surveys conducted in the early 1980s showed that a typical serving reported for the grains group, for example, was one cup of cooked pasta or two slices of bread (3). Despite this, serving sizes used in the Pyramid are half that - one serving equals half a cup of cooked pasta or one slice of bread. Serving sizes inconsistent with actual meal patterns reduce the current Pyramid's usefulness and may inadvertently promote overeating.

### Policy recommendations

A revised Pyramid could acknowledge information that has been delivered to consumers piecemeal by various health organizations for years: not all meats are the same, nor are all vegetables or grains. Exercise should be viewed as an important daily requirement, just like getting all one's recommended vitamins. Foods could be clustered by nutritional value (6) rather than by easily-understood groups like "meats" and "grains" which can nonetheless mask important nutritional differences.

The USDA Center for Nutritional Policy and Promotion acknowledges that the Pyramid may need to be reassessed and revised so that it continues to be "scientifically sound, appropriate, and useful to the public" (15). Advocacy of changes by the agency that first released it would reaffirm the value of a "total diet" approach and capitalize on the Pyramid's broad public recognition.

The drawbacks of continued USDA ownership, however, rest on the agency's previous inability to prevent food industry interests from influencing policy. Powerful lobbies have, in the past, successfully intervened to alter the message advocating lowered consumption of certain foods (4). Dietary Guidelines for Americans, described as the "cornerstone of Federal nutrition policy" (15), is released every five years and contains detailed recommendations more consistent with

current nutrition science. But it is not delivered in a straightforward, graphical form that can be easily understood by adults and children alike.

Nutrition policy might better be housed in an agency without such close ties to industry (4). The USDA could play a role in developing policy that ties changes in the food supply to recommended changes in consumption. For example, revised subsidies could help reduce the national supply of foods we should be eating less of - meats high in saturated fats, added sugars - rather than keeping them cheap and readily available. Such changes in policy could shift subsidies and crop acreage to whole grains, fruits, and vegetables, which are currently more expensive to produce and market (16).

Changes in nutrition guidelines will not guarantee changes in eating patterns, but they may begin to redress some of the bad habits supported by the current Pyramid. Substitution of whole grains for refined grains, for example, could have significant effects on incidence of Type 2 diabetes, while improvements in cardiovascular health can be achieved by promoting healthy fats over unhealthy ones. With the wide variety of diet information available in the popular press, the public might be forgiven for wondering whom to believe. If we are to significantly reduce the incidence and cost of chronic disease through diet modification, it is vital that reliable, scientifically-based information replace the outdated recommendations currently contained in the Food Guide Pyramid.

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