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The food issues think tank – promoting healthy, traditional and sustainable food choices

HEALTHY PASTA MEALS

SCIENTIFIC CONSENSUS STATEMENT

Agreed in Rome, February 18, 2004

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1. Scientific Consensus Statement

1. The traditional Mediterranean diet confers greater health benefits than current Western dietary patterns.
2. This traditional Mediterranean eating pattern informs many of the nutritional principles related to good health, which state that each macronutrient (carbohydrate, fat, and protein) is essential for good health.
3. The Mediterranean diet promotes the consumption of many carbohydrate-rich foods, including fruit, vegetables, legumes, and cereals including pasta and intact and cracked grains (such as bulgar), all taken together with olive oil, and wine in moderation.
4. Many of these foods have low glycemic indices that reduce the glycemic load, and may have key roles in preventing obesity and chronic disease (diabetes, coronary heart disease and certain cancers).
5. In the Mediterranean diet, pasta meals are a vehicle for consuming other healthy ingredients. Irrespective of fiber content, pasta has a low glycemic index. As a result, consumers receive the benefits of prolonged carbohydrate absorption as well as the advantages of the other individual ingredients of a pasta meal.
6. Slow-release carbohydrates may also have benefits for healthy longevity as well as physical and cognitive performance.
7. Further research is required especially on the long-term effects of low glycemic index diets, and how best to apply them in a culturally-specific manner throughout the world.

2. Context

Weight gain has become cause for grave public health concern in populations of affluent, developed countries, and is emerging as an issue in populations of developing countries. Causes of this weight gain are a combination of increased calorie intake, changed characteristics and proportions of the dietary macronutrients (carbohydrates, fats and proteins), and reduced physical activity.

Effective remedial policies and strategies for reversing overweight and obesity are urgently sought at the highest levels of governments and in international and national health and public policy organizations.

Carbohydrates and their digestive glucose products have supplied the majority of energy to most populations for thousands of years, and recent high-level considerations of appropriate macronutrient ratios confirm the essential role of carbohydrates in healthy eating patterns. As a result, it is a public health priority to engage nutrition and related experts, especially those who are experts in carbohydrate metabolism, to develop a Scientific Consensus Statement on relationships between carbohydrates and healthy eating patterns.

A Scientific Consensus Statement will materially assist policy makers, professionals, business and consumers at all levels to:

(a) discern among responsible and irresponsible dietary advice concerning foods and drinks containing carbohydrates; and

(b) develop effective messages that will encourage and enable consumers to adopt and maintain eating patterns that promote lifelong good health.

3. Role of Carbohydrates in Healthy Eating Patterns

A half-century of population studies have made clear the characteristics of dietary patterns that promote low levels of chronic disease and extend longevity. There is broad worldwide consensus among high-level nutrition scientists and related experts concerning healthful ratio ranges among the major macronutrients: carbohydrates at 45-60% of calories; fat at 25-30% of calories; and proteins at 15-20% of calories (see Note).

As these ranges indicate, the optimal ratio of dietary carbohydrates, protein and fats for promoting lifelong good health is a subject of ongoing review and debate, because humans can maintain good health within a range of nutrients so long as adequate attention is given to macronutrient balance, energy balance, and nutrient quality. This means avoiding extreme and/or unbalanced diets and favoring macronutrient-balanced eating patterns that emphasize high-quality nutrients such as unsaturated fats, low glycemic index carbohydrates, and a combination of plant and/or animal proteins.

Over-consumption of highly-refined carbohydrates is not health-promoting. Daily consumption of whole grain products together with refined grain products represents sound dietary guidance for overall good health for general populations.

The amount and type of carbohydrates consumed in the well-studied traditional Mediterranean Diet eating pattern, described as a gold standard, is in accord with these principles.

4. Measures for Assessing Glycemic Impacts

The amount and the type of consumed carbohydrates have both independent and cumulative impacts on health.

Over-consumption of carbohydrates in any form promotes weight gain and may precipitate disease. The same is true for consumption of either of the other macronutrients (fats and proteins).

Consumption of highly-refined and/or highly-processed carbohydrates in large amounts can precipitate glycemic- and insulin-related health disorders, some of which may be irreversible. As a result, moderate consumption of such carbohydrates should be stressed in dietary guidance programs.

Increased consumption of whole grain carbohydrates is encouraged by a large majority of official and unofficial dietary guidance policies. Promotion activities to encourage consumption of foods that contain whole grains should be expanded. These activities should specifically encourage consumers to seek a balance between foods containing whole grains and refined grains, because each has a place in health-promoting eating patterns.

Assessments of glycemic impacts are essential to determining those eating patterns that promote good health and those that degrade health.

Two important assessment measures in widespread current use are the glycemic index and the glycemic load, which gauge the glycemic impacts of individual foods commonly eaten. However, promoters of unbalanced and fad diets also use these assessment measures to market and advertise their products.

In order to preserve the glycemic index and glycemic load as effective scientific measures and consumer education tools, an investigation should be undertaken of ways to discourage the misuse of these valuable scientific tools in the promotion of unsound diets.

Two additional important factors influencing glycemic impacts are: (a) rates of gastric emptying, and (b) rates of glucose absorption. These factors are important because they address the glycemic effects of the combinations of individual foods that consumers commonly eat and drink during meals.

Rates of gastric emptying impact the rate at which glucose precursors arrive in the small intestine. Gradual gastric emptying is preferable to rapid dumping, because glucose uptake is beneficial when gradual, but harmful when abrupt. Factors that modulate gastric emptying rates include the presence of fats, proteins, and alcohol.

Rates of glucose absorption in the small intestine are directly related to glycemic impacts. Gradual and sustained absorption is beneficial for health, which is the case with *lente* carbohydrates. Absorption can be modulated by the presence of fats, proteins, fiber, and alcohol consumed in meals.

While the complexities and full understandings of gastric emptying and glucose absorption are daunting, studies are emerging that provide solid evidence for assessing the differences among glycemic and insulin impacts of individual foods, dishes and meals, and the relationships of each to health.

5. Place of Pasta Meals in Healthy Eating Patterns

An abundance of studies analyzing the health of populations conclude that health correlates closely with the composition of diets – better diets are aligned with better health. This is so for the world's three principal food cultures, which are described in food-centric terminology as wheat, rice and corn cultures. The macronutrient composition of these culturally-described eating patterns is remarkably similar despite the difference in the principal carbohydrate source.

In each of these cultures, the people harvested their central grain, dried and ground it, and then reconstituted it by cooking with water in soups and stews, and to make

cakes and porridges. Both ground flour and cracked wheat grains, and a wide variety of dried shapes, are common in these cultures during the grain storage phase.

Wheat pasta is an important form of stored (or preserved) carbohydrate in Mediterranean cultures. It is called pasta on the north shores of the Mediterranean and Turkey, but trahana in Greece, and couscous on the south shores of the Mediterranean. It has other names in other languages.

To be eaten, pasta must be boiled in water. However, consumers rarely (if ever) eat pasta. They eat a "pasta meal" – pasta with other ingredients.

A pasta meal has countless variations, but it always has "partners" for the pasta: a fat (olive oil, vegetable oil, or butter); a vegetable and/or legume (tomato, zucchini, eggplant, or beans); dairy (cheese); and often an animal protein (shellfish, fish, meat or poultry).

Traditional healthy pasta meals are modest in size and thus in total calories. The "westernized" versions of pasta meals are often large in size and thus in total calories, and also often contain over-large amounts of saturated fats.

Pasta meals are usually accompanied by a glass of water, wine or juice, vegetables, bread, fruit or other sweet, and coffee or tea.

The presence of multiple ingredients in a pasta meal modulates glucose uptake by delaying gastric emptying and prolonging glucose absorption.

This offers an explanation for the central place of pasta meals in the traditional healthy Mediterranean diet, and also in other traditional dietary patterns, such as Asian, Latin American and vegetarian. The multiple ingredients carry with them their own health-promoting benefits, providing essential macronutrients in desirable forms. The carbohydrate itself is slowly digested, because it is traditionally a durum wheat pasta with a low glycemic index, and is boiled for a short time (only until "al dente").

In this respect, pasta is itself a healthy ingredient, and is also an efficient "delivery system," or "carrier," of additional health-promoting ingredients.

As such, pasta meals are not part of the problem that confronts public health officials, but part of the solution for educating consumers to adopt healthy eating patterns for lifelong good health.

6. Notes

"Slow-release carbohydrates" or (*lente* carbohydrates) are contained in foods with a low glycemic index and contribute to "prolonged carbohydrate absorption."

Credible dietary recommendations for upper limits of the percent of calories from dietary fats vary from below 15% to as high as 40%, so long as the quality of the fat is health-promoting, macronutrients are in sound ratios, and overall energy balance is maintained. An example of a healthy diet at about 40% of calories is that of a physically-active Greek population where olive oil is the principal fat. Examples of lower levels of fats recommended for healthy diets are the 2000 US Dietary Guidelines at below 30%; the 2001 WHO/FAO EURODIET at below 30% (below 35% for active persons); and a 2003 Technical Report of the WHO/FAO at between 15%-30% of fat.

8. Signatories of the Scientific Consensus Statement

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