



## FOOD FOR THOUGHT...

Vol. 1 Issue 2

# PLANT-BASED FOODS IN THE DIET

*Vegetarian cuisine has today become one of the most popular and influential culinary trends in the consumer market. Health benefits and taste preferences are reported to be the primary reasons for this growing trend. Large scale studies on populations in the Mediterranean and in China show a protective effect from their traditional plant-based diets.*

*Now, many meatless alternatives are available in mainstream supermarkets and the variety and number of items are growing at a rapid pace. Per capita consumption of fresh fruits and vegetables has been rising steadily since the 1980's. USDA reports that supermarket produce departments now carry over 400 items a 60 percent increase since the late 1980's when the average supermarket produce department stocked only about 250 items.(1)*

### A NEW ATTITUDE TOWARD VEGETARIAN MEALS

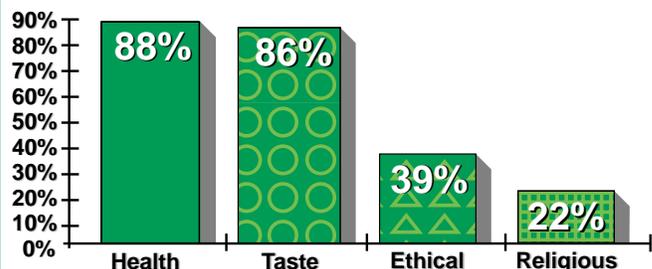
Viewed as a positive, healthful way of eating, a large majority of meat-eating Americans are now turning toward vegetarianism. According to a Gallup Poll by Yankelovich, Clancy, and Shulman the number of vegetarians in the US doubled between 1985 and 1992.

While some of this interest can be attributed to the growing number of vegetarians, another driving force behind this movement are occasional meat-eaters looking to increase their consumption of plant-based foods. Sometimes called "semi-vegetarians" these consumers have significantly reduced their intake of red meat, fish or poultry. They eat these foods only a few times per week or month or use them as condiments rather than the focus of the meal. Some may even restrict red meat altogether preferring only fish or poultry. (2,3,4)

Why is there so much interest in plant-based eating? Health is the number one reason for moving toward a vegetarian lifestyle for adult Americans, followed closely by taste preferences. (5) Reducing fat continues to be an important concern for nearly 60 percent of consumers (6).

Many organizations that make public health recommendations such as the U.S. Department of Agriculture, the Department of Health and Human Services, the American Dietetic Association, the American Heart Association, and the World Health Organization now strongly encourage consumers to incorporate more fruits, vegetables, legumes, and grains into their diet. Even the recent 1996 American Cancer Society guidelines advise consumers to "choose most of the foods you eat from plant sources," while limiting meat intake.

### Reasons Consumers Choose Vegetarian Cuisine



Source: National Restaurant Association Gallup Survey, 1991

## BENEFICIAL EFFECTS OF EATING A PLANT-BASED DIET

There are many health benefits associated with eating a vegetarian diet. Compared to nonvegetarians, studies show vegetarians have lower mortality rates and a reduced risk of developing coronary heart disease, hypertension which can lead to stroke, non-insulin dependent diabetes, and some cancers. Vegetarians also have less incidence of obesity which is linked to many other health problems. (7)

There is no single vegetarian cuisine or eating pattern. The bulk of calories for vegetarian diets usually comes from fruits, vegetables, legumes, grains, nuts and seeds. Eggs and dairy products may or may not be included. Because of their unique composition, peanuts can provide a number of nutritional benefits for both vegetarian and nonvegetarian meals.

### Valuable Plant Protein

Vegetarians are more than able to get adequate amounts of protein from plant foods, particularly if they include high protein sources like legumes in their diet. In fact, most meatless-eaters meet or exceed the Recommended Dietary Guidelines for protein. (7)

Peanuts, although nutritionally similar to nuts, are technically a legume, belonging to a single plant family called Leguminosae. Legumes are edible seeds enclosed in pods and, as a group, provide the best source of concentrated protein in the plant kingdom. Only one ounce of peanuts provides 7 grams of protein. This is twice as much protein as common cereal grains and more than the amount of protein in one boiled egg.

Plant protein may also have some added health advantages over animal protein. Studies show vegetable proteins may reduce plasma cholesterol levels. The biological mechanisms responsible for this are still unclear. Some studies suggest the amino acid arginine may have anti-atherogenic properties. Arginine is the second most abundant amino acid found in nut protein. Peanuts are particularly high in arginine, containing 3.5g/100g. Peanuts also have a low lysine content which may be advantageous since a positive arginine:lysine ratio has been associated with lower levels of cholesterol. Arginine is thought to be a dietary precursor of nitric oxide, a potent endogenous vasodilator which relaxes vascular smooth muscle. (8,9)

Scientists are also investigating the link between plant protein and certain cancers like breast cancer. Some believe it may offer a protective effect against developing the disease.

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## PROTEIN CONTENT OF VARIOUS NONMEAT FOODS

*Food	gm of Protein
Tofu - regular - 4 ounces	9
Peanuts - 1 ounce	7
Peanut Butter - 2 tbsp	6
Baked beans - 1/2 cup	6
Egg - 1 large hard-cooked	6
American processed cheese - 1 ounce	6
Whole wheat bread - 2 slices	5
Cooked spinach - 1/2 cup	3
Brown rice - 1/2 cup	2.5

\*Based on USDA data

### Monounsaturated and Polyunsaturated Fats

Not all fats are created equal. Although most Americans need to lower their total fat intake, the type of fat consumed is also important to monitor. Eating too much saturated fat and cholesterol can raise blood cholesterol levels and increase the risk for heart disease, stroke and some cancers. Nuts are high in monounsaturated and polyunsaturated fat and contain minimal saturated fat. Since they are plant foods, peanuts and peanut butter do not contain any cholesterol.

Both monounsaturated and polyunsaturated fat have been shown to decrease total and "bad" LDL-cholesterol levels when substituted for saturated fat, reducing the risk of coronary heart disease. (10) Because peanuts and nuts are composed of unsaturated fats and because they also contain a number of other beneficial nutrients, they may provide some protection from the risk of coronary heart disease.

A major epidemiological study of over 27,000 Seventh Day Adventists in California showed frequent consumption (five or more times per week) of nuts reduced the risk of developing a nonfatal or fatal myocardial infarction by 53 percent. People who ate nuts, one to four times per week lowered their risk of suffering from a heart attack by 27 percent. Upon closer examination of a subcohort, it was found that peanuts were eaten more than any other nut (32%). None of the other 65 foods studied exhibited such a strong inverse relationship.(11) A later study of postmenopausal women in the Iowa Women's Study found the same relationship with regard to nuts, but on a smaller scale. (9,12)

## High Fiber

Diets high in fiber have been shown to decrease and prevent the incidence of a number of illnesses including coronary heart disease, colon cancer and diabetes. (13) The National Cancer Institute recommends that adults consume 20 to 30 grams of fiber per day, though actual intake in Americans is much lower.

Plant foods are naturally high in fiber. Many people following a plant-based diet tend to have higher fiber intakes. Peanuts are high in fiber, providing 2 grams of fiber per ounce.

Adequate dietary fiber is important for diabetics since it helps control blood sugar levels and reduces the risk of chronic illness. Researchers now think that fiber may also help prevent the development of the disease. A newly released study published in the *Journal of the American Medical Association* concluded that women who consume diets high in cereal fiber and low in starchy, sugary carbohydrates with a high glycemic index can significantly lower their risk of developing non-insulin dependent diabetes.(14) With little starch or sugar, peanut butter has a low glycemic index. Thus, spread on whole grain bread, the quintessential peanut butter sandwich can be the ideal meal or snack for those wanting to reduce the risks of diabetes.

## An Abundance of “Hard to Get” Vitamins and Minerals

Peanuts contain a variety of vitamins and minerals that are generally low or lacking in a typical Western diet. They are one of the few foods that supply a sizable amount of vitamin E, about 25 percent of the Recommended Daily

Intake, and are an excellent source of folate.

Research shows adequate intake of vitamin E, an antioxidant, can help reduce the effects of aging on the immune system and central nervous system. Several studies have also found vitamin E to be inversely associated with the risk of coronary mortality. In fact, one study published in the *New England Journal of Medicine* concluded that getting vitamin E from natural food sources was more preferable than taking supplements for protecting against coronary heart disease. (15,16)

The vitamin folate has also been shown to reduce the risk of heart disease. Folate intake is inversely correlated with the amino acid, homocysteine. High homocysteine levels have been consistently linked with atherosclerosis. (17) Research indicates that intake of folate (found in leafy vegetables, legumes, peanuts and some fruits) can reduce serum levels of the amino acid homocysteine, which appears to be an independent risk factor for vascular disease. Adequate folate consumption has also been shown to decrease the risk of neural tube defects in pregnant women. (18)

Unfortunately, roughly one half of all adult Americans consume less than the recommended dietary allowance for folate on any given day. (18) . Just one ounce of peanuts provides 22 percent of the Recommended Daily Intake for folate.

Nuts are also a rich source of “hard to get” minerals like magnesium, zinc, selenium, phosphorous and copper. Both magnesium and copper are thought to have a protective effect on coronary heart disease and hypertension, while selenium has active antioxidant properties. (9,13).

## WHAT'S IN A NAME

*Among vegetarians there are many variations in eating patterns. Even among groups there are large differences as one lacto-ovo vegetarian may eat cheese every day, while another only eats dairy products once a month. Most people view vegetarianism as a “continuum” ranging from the traditional meat-eater to the strict vegan. Below are a list of the eating styles in which vegetarians are most often classified i*

**Semi-vegetarians or meat-restrictors** - eat fish, poultry, eggs and dairy, but avoid red meat. Some self-described vegetarians may even eat red meat on occasion.

**Pesco-vegetarian** - eat fish, eggs and dairy, but no animal flesh.

**Lacto-ovovegetarian** - eat dairy products and eggs, but no fish, poultry or red meat. The largest number of vegetarians are lacto-ovo.

**Lacto-vegetarian** - consume milk and milk products, but no eggs or animal flesh.

**Vegan** - eat no animal products or animal flesh, they rely exclusively on plant foods. Many vegans also do not eat honey.

# Interview With *Dr. Johanna*

## **Johanna Dwyer, D.Sc., R.D.**

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*Dr. Dwyer is the author or coauthor of more than 100 research articles and 200 review articles published in scientific journals. Her work centers on life-cycle related concerns such as preventing diet-related disease in children and adolescents and maximizing quality of life and health in the elderly. She also has a longstanding interest in vegetarian and other alternative lifestyles.*

### **Why do you think there has been a shift in public health policy toward encouraging the population to consume more plant-based meals?**

More and more science shows that those who eat with balance, variety and moderation, whether or not they are vegetarians, are healthier. Research indicates that vegetarians have lower mortality rates from some diseases than nonvegetarians. In fact, plant-based eaters are shown to be at a lesser risk for such diet-related problems as heart disease, cancer, hypertension, Type II

diabetes and gallstones. Other aspects of some vegetarian lifestyles involve nonsmoking, non-use of alcohol and increased physical activity. Such individuals may have lower rates of lung cancer, obesity, alcoholism and other diseases as a result of these behaviors.

### **How are plant-based diets different from typical meat-based cuisine?**

Plant based eating with animal foods in moderation, as described in the Diet And Health Report, tends to be moderate in calories and protein and lower in total fat, saturated fat and cholesterol and higher in polyunsaturated fat than most animal foods. In general, this is a healthy eating pattern, which results in good health and decreased risk for disease.

### **What research really validated the benefits of plant-based eating for the public health community?**

The results of some large-scale studies suggest that moderate use of animal foods with a plant-based diet is healthful. The Seven Countries Study looked at diet and disease in Finland, Greece, Italy, Japan, the Netherlands, the US and Yugoslavia and the China-Cornell-Oxford Project surveyed the Chinese diet.

The Seven Countries Study found men living on the Greek isle of Crete during the 1950's and 60's had the

lowest risk of heart disease in the Western world. These men followed a traditional Mediterranean diet. The data came down on the side of plant-based diets as being protective against some of the chronic diseases which seem to be plaguing modern Western cultures.

Of course, any time you compare disease rates between different cultures, diet is only one component. Elements such as physical activity, and other social and environmental factors also play a considerable role.

***“In the past decade there seems to have been a paradigm shift in the field of nutrition, from ensuring adequacy to promoting optimal health, through balance, variety and moderation.”***

### **Where is the research on the importance of plant-based diets heading in the future?**

In the past decade there seems to have been a paradigm shift in the field of nutrition research from ensuring adequacy of nutrients to promoting optimal health via balance, variety and moderation.

Consequently much current research has begun to focus on biologically active food substances which may inhibit a wide variety of diseases and contribute to better health.

### **What are some of the new up-and-coming research areas you are seeing?**

Phytochemicals and antioxidants are two of the most active areas of research in the field of nutrition today. Antioxidants include both nutrient (vitamin C and E) and non-nutrient (carotenoids and flavonoids) substances.

Plant-based eaters also consume more of the three primary antioxidants (vitamin C, E and carotenoids) from food sources than meat-eaters. This may explain why vegetarians have a lower risk for some chronic diseases like cancer and heart disease. On the other hand, when supplement intake is considered differences are not so apparent.

Phytochemicals are found only in plant foods, consequently foods like fruits, vegetables and legumes such as peanuts are rich in phytochemicals. Many of these substances are being studied for their protective roles against chronic diseases including cancer and heart disease.

There are thousands of phytochemicals and their recognition and importance to health, promises an exciting future in research.

Another new research area is the relationship between prostaglandins and leukotrienes. Leukotrienes are

biologically active hormone-like substances found in plant foods. Diets low in animal fats may promote a more favorable profile of these substances and they have been linked to lower rates of thromboembolic disease, heart attacks and possibly improved immune status.

### **Is it important to eat a plant-based diet to help prevent the development of chronic degenerative diseases later on in life?**

It can be helpful. There has been an abundance of research regarding the nutritional needs for people in their 60's, 70's and 80's. It is known that as people age they need less calories, therefore choosing a nutrient dense diet is essential. This makes it easier for the elderly to meet their nutrient needs for things such as vitamins, minerals and protein.

***“As people age they need less food energy, therefore choosing a nutrient dense diet is essential.”***

Plant based diets, which are usually low in total fat and emphasize fresh fruits, vegetables, whole grains, and legumes such as soy and peanuts, tend to be nutrient dense. It is now widely accepted that eating a diet low in total fat, replacing saturated fats and cholesterol with mono and polyunsaturated fats, increasing fiber intake and maintaining a healthy weight reduces the risk of many chronic diseases which affect the elderly.

By consuming a higher percentage of plant protein out of total protein intake, vegetarians or plant-based eaters may also decrease the loss of calcium from bone. Vegetarian diets, perhaps because of their altered fatty acid profile, have even been shown to reduce the symptoms of rheumatoid arthritis.

### **What about plant-based eating for children?**

Following a plant-based diet, with animal foods eaten in moderation, generally promotes a healthy eating pattern. This is important for children to learn. Nutritionally, they can do well on a plant-based diet if they include milk and moderate amounts of eggs.

### **What kinds of foods or eating patterns do you see becoming more prominent in the American diet in the future?**

Although there are many reasons for eating more plant-based foods, health seems to be the biggest one. So, as long as people are concerned about their health, plant-based diets will continue to be popular.

When it comes to food trends, ethnic dishes are very popular. Many of these cuisines — especially Asian, Indian, Italian and African — are plant-based, using legumes, nuts or grains as their main ingredient. Ethnic dishes have also improved the image of the plant-based diet. People no longer view vegetarianism as narrowly as eating tofu, sprouts and bland, heavy dishes. Today, plant-based cuisine is spicy, highly flavored and lighter than in the past.

## Vitamins and Minerals in Peanuts

Percent of recommended daily intake -one ounce

Folate 10%	Phosphorous 10%
Vitamin E 25%	Magnesium 12%
Niacin 19%	Iron 4%
Thiamin 8%	Potassium 10%
Copper 10%	Zinc 6%
	Calcium 2%



### The Phytochemical Advantage

Phytochemicals are unique substances found only in plant foods. Their potential benefits are still being discovered but scientists believe phytochemicals can protect against cancer, heart disease and other illnesses. Of this group of substances, peanuts have been shown to have flavonoids, isoflavonoids and phenolic compounds. (19)

Peanuts also contain resveratrol, a phytochemical typically found in grapes and red wine. Recent research shows that resveratrol acts as an anti-oxidant and has also exhibited anti-cancer properties. (20)

### GROWTH IN MEATLESS MOVEMENT ON THE RISE

There are approximately, 12.4 million self-reported vegetarian adults in the United States and their numbers are rising. Most of these people, however are “semi-vegetarians.” True vegetarians and vegans number much smaller, probably in the range of one and one-half to two million (2,4).

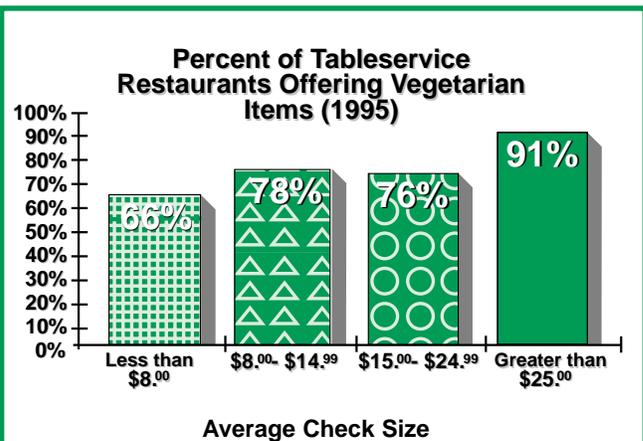
Still a large segment of the population find a vegetarian-style of eating appealing and meatless meals have become much more popular and well-accepted than in the past. In a 1996 survey, HealthFocus Inc., a research group in Des Moines, Iowa, found 21 percent of food

shoppers eat meat substitutes, soy foods or meatless main dishes twice a week or more. Furthermore, over 43 percent of shoppers believe it is not necessary to consume some red meat or poultry every day. This trend has also effected buying behaviors. The HealthFocus survey showed 66 percent of all shoppers practice some type of vegetarian behavior at one time or another. (2)

In food service, a study by the National Restaurant Association (NRA) shows one-third or more adult Americans are likely to enjoy meatless items when dining out. In fact, approximately 20 percent of all adults are likely to choose a restaurant based on its vegetarian choices. (5)

As a result, many restaurants now include vegetarian entrees like salads, stir-fries and sandwiches on their menu. Some even offer entire vegetarian sections. Consumer response to these meatless offerings has been very good. Just in the last two years, nearly half of food service operators surveyed by the NRA, noticed a significant increase in vegetarian orders. (21)

The type and style of vegetarian entrees vary tremendously from establishment to establishment. The “vegetarian platter” appears to be the most popular. From 1990 to 1995, research shows restaurant orders for vegetarian platters more than tripled. Other favorite meatless food service meals are main-dish fruit salads, main-dish vegetable salads and vegetable stir-fries. (5,1)



*In food service, the proliferation of plant-based meals is also evident. According to a 1996 National Restaurant Association survey nearly eight out of ten table service establishments now offer vegetarian entrees and that number jumps to nine out of ten for upscale dining eateries.*

## VEGETARIANISM APPEALS TO THE YOUNGER GENERATION

As interest grows in vegetarian eating, more youngsters are turning away from red meat, poultry and fish. A Roper poll by the Vegetarian Resource Group found that 11 percent of American girls aged 13 to 17 said they do not eat red meat. This is 4 percent higher than the estimated 7 percent of adult females not eating meat.

Other countries whose cuisines focus on meat, are also seeing a shift toward plant-based eating, particularly among young people. In England, 12 percent of girls aged 11 to 16 and 11 percent of all 15 to 19 year olds describe themselves as vegetarians. (22)

Consequently, schools have been the first to adopt the vegetarian trend. In the United States alone, nearly 15 percent of the nation's 15 million college students choose a vegetarian option on any given day. That's two to three times more than the overall adult, general population. (3) Thus, it comes as no surprise that colleges are adapting their menus to cater to these meatless tastes. According to a 1993 survey of 200 food service directors, conducted by the National Restaurant Association and the National

Association of College and University Food Services meatless options were offered at every meal in nine out of every ten colleges. Furthermore, 86 percent of school food service operators are planning to expand their vegetarian options within the next five years.(3)

What motivates these young people to leave meat behind and pursue a plant-based diet? Concern for the environment and animals are two reasons, but peer pressure may also play a role. Vegetarianism is a "chic" new trend on college campuses. In fact, a 1992 study showed 40 percent of students to consider vegetarianism, "in" on campus. (3)

## SUMMARY

More and more Americans are turning toward plant-based eating in order to reduce their saturated fat and cholesterol intake as they eat lighter and healthier. De-emphasizing meat means consumers must focus on other foods such as vegetables, fruits, grains and legumes. Peanuts, a complex plant food, offer numerous health benefits and can easily be incorporated into meatless meals. In addition, they add flavor, texture and variety to any meal.



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*The Peanut Institute is a non-profit organization dedicated to expanding state-of-the-art knowledge regarding peanuts and peanut products. A special emphasis is placed on establishing sound science as the basis for food, nutrition, and health discussions about peanuts.*

*The Peanut Institute pursues its mission through research programs, educational initiatives, and the promotion of healthful lifestyles to consumers of all ages. As an independent forum, The Peanut Institute is uniquely positioned to work with all segments of the food industry, the research community, academia, consumer organizations and government.*



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