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# FOOD FOR THOUGHT

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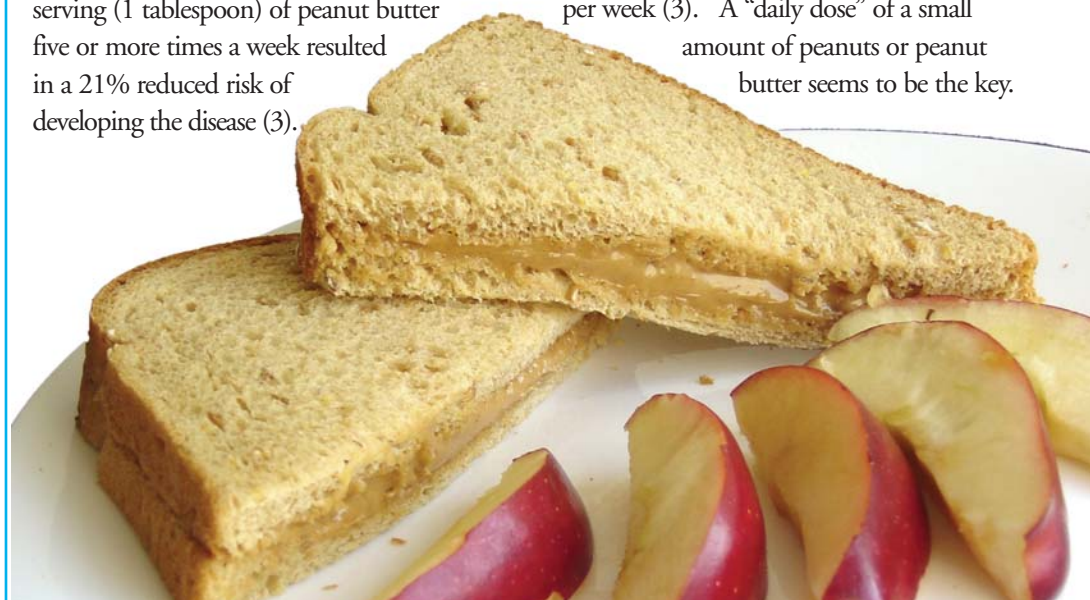
## Eating Peanuts & Peanut Butter to Prevent & Manage Type 2 Diabetes

Type 2 diabetes, or non-insulin-dependent diabetes, was traditionally known as “adult onset diabetes,” since it often appeared in older adults. But now this type of diabetes is affecting many younger adults—and even children—at alarming rates. In fact, the occurrence of type 2 diabetes continues to escalate all over the world. The disease currently affects approximately 135 million people and it is estimated that by 2025, this number will increase to 300 million people (1).

Although the occurrence of type 2 diabetes is on the rise, research shows that small behavior changes such as dieting and getting more exercise can substantially decrease the risk of developing type 2 diabetes (2). Furthermore, these same behavior changes can help people who have already developed type 2 diabetes.

Data from the Nurses’ Health Study at the Harvard School of Public Health adds to the body of scientific evidence advocating dietary changes to prevent chronic disease. A recent study reveals that the consumption of a full serving (1 ounce) of peanuts or other nuts five or more times a week is associated with a 27% reduced risk of developing type 2 diabetes in women. Similarly, eating a half serving (1 tablespoon) of peanut butter five or more times a week resulted in a 21% reduced risk of developing the disease (3).

The association between consuming peanut butter, peanuts and other nuts and type 2 diabetes risk reduction is linear—that is, the people who ate nuts more often gained the greatest protection against type 2 diabetes. Study participants who ate peanuts one to four times a week also reduced their risk, but the reduction was much greater when peanuts were consumed five or more times per week (3). A “daily dose” of a small amount of peanuts or peanut butter seems to be the key.



**It is easy** to incorporate a small portion of peanut butter or peanuts into a healthy diet each day.

- Start your day with hot or cold cereal and add chopped nuts and dried fruit.
- Spread peanut butter on half of a whole-wheat bagel or a slice of toast instead of butter.
- Snack on peanuts instead of crackers to satisfy your afternoon hunger.

# Peanuts and Peanut Butter May Prevent Type 2 Diabetes



Weekly Peanut and Peanut Butter Consumption	Change in Diabetes Risk (3)
1-4 half-servings (1 tbsp.) of peanut butter	▼ 9%
1-4 servings (1 oz.) of peanuts/nuts	▼ 16%
≥5 half-servings (1 tbsp.) of peanut butter	▼ 21%
≥5 servings (1 oz.) peanuts/nuts	▼ 27%

A second Harvard Nurses' Health Study recently identified dietary magnesium as a possible mechanism for protection against type 2 diabetes (4,5). Research has shown that low magnesium intake may impair insulin sensitivity, or function. Consuming adequate levels of magnesium helps insulin function properly in the body, which may prevent type 2 diabetes. Furthermore, research has shown that regular consumption of peanuts increases dietary magnesium to adequate levels (6).



## The Ongoing Debate: Fat versus Carbohydrate

There is still debate surrounding how much fat versus carbohydrate people should consume. For years, a low-fat, high-carbohydrate diet was recommended to prevent chronic disease. However, more recently, research supports a moderate-fat diet (25 to 35% of total calories, provided most of the fat is unsaturated) (8), which may be beneficial for both diabetes management and cardiovascular disease prevention.

Several studies have shown that a higher intake of both monounsaturated (MUFA) and polyunsaturated fat (PUFA) improves the body's ability to use insulin, thereby potentially decreasing the risk of diabetes (9,10). Conversely, a higher intake of saturated fat and trans fat adversely affects glucose metabolism and decreases the body's ability to use insulin to lower blood sugar levels (10,11). Research also supports decreasing trans fatty acids in the diet and substituting polyunsaturated fats in their place to lower risk of diabetes (12).

## The "Go-Ahead" to Eat Nuts

In the past, concerns regarding the fat content of nuts and peanut butter often have colored health professionals' attitudes towards these foods. On the concern about weight gain, a recent study showed that frequent nut-eaters do not have higher body weights than non-nut-eaters (7). This may be because peanuts and peanut butter curb hunger, allowing people to balance their intake of other foods eaten throughout the day. Although nuts are high in calories, moderate portions (a small handful, or about 40 pieces) can be included in any diet, even one for weight loss or the management of diabetes. Experts emphasize that to avoid increasing caloric intake, nuts should replace refined grain products or red or processed meats (3).

# International Guidelines for the Nutritional Management of Diabetes

Based on the available scientific evidence, various guidelines have been developed for the nutritional management of diabetes. The table contains a summary of recommendations from several different countries (13).

## CHART KEY:

CHO	Carbohydrate
MUFA	Monounsaturated fatty acids
SAT	Saturated fatty acids
PRO	Protein
GI	Glycemic Index

Organization	Recommendation	Explanation
American Diabetes Association (2002)	60-70% CHO + MUFA; 15-20% PRO; < 7% SAT; ~ 10% PUFA	Share the calories between MUFA and CHO, while decreasing SAT; No differentiation between types of CHO.
The Canadian Diabetes Association (2000) and Diabetes Australia (2001)	Canadian Diabetes Association: 50-60% CHO; 15% PRO; < 30% total fat; <10 SAT low GI  Diabetes Australia: high CHO; <30% fat; low GI	A high-CHO, low-fat, and low-SAT diet; Emphasize CHO with a low GI and high-fiber content.
European Association for the Study of Diabetes (2000)	45-60% CHO; 10-20% PRO; 25-35% total fat; also 60-70% CHO + MUFA	A combination of the two recommendations above.

## Peanuts Offer Good Balance of Nutrients

■ Peanuts and peanut butter fit well into diets that are consistent with current guidelines for diabetes management. They can also be an important part of a diet to control blood sugar and prevent cardiovascular disease.

■ Peanuts contain mostly “good,” unsaturated fat. They contain a small amount of “saturated fat” (about two grams per one-ounce serving) and no trans fat, the two “bad” kinds of fat (14).

■ Peanuts are high in plant protein and can be used to replace animal sources of protein that are higher in saturated fat such as red meat. Peanuts are also rich in arginine, a key amino acid for maintaining healthy blood vessels.

■ Peanuts are relatively low in carbohydrates (six grams per one ounce of peanuts, with 2 grams of fiber). Peanuts contain fiber and magnesium, both of which increase the body’s ability to use insulin and have been inversely associated with risk of type 2 diabetes (3,6).

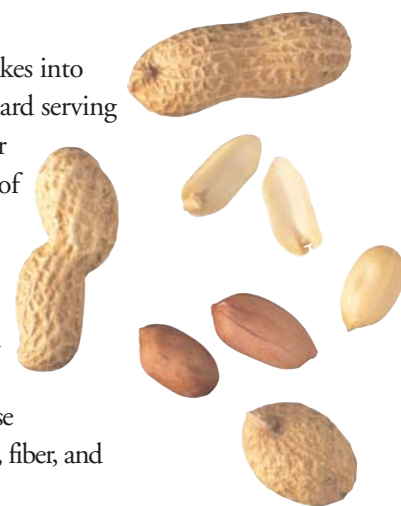


## Role of the Glycemic Index and Glycemic Load in Diabetes Management

Another area of study related to diabetes and diet involves the glycemic index (GI), which is a relative scale that ranks carbohydrate foods according to how quickly they are absorbed into the body and subsequently elevate blood sugar. The GI of a food may be affected by many variables such as each individual’s response, the nutritional profile of the previous meal eaten, and the nutritional profile of the meal (e.g., a carbohydrate meal versus a balanced meal with carbohydrate, fiber, fat and protein) (15).

Glycemic load (GL) is similar to the GI, but takes into account the amount of carbohydrate in a standard serving size of food. Therefore, GL is seen as the better measure when examining foods in the context of an overall healthy diet (15).

Research has shown that eating a low glycemic load diet may help prevent diabetes (16), although more studies are needed. Peanuts have a low GI and can form part of a low GL diet, in part because of the balance of healthful unsaturated fat, protein, fiber, and their low carbohydrate content (17).



# Eating Peanuts:

## An Easy Lifestyle Change to Prevent and Manage Diabetes

Research suggests it is possible to reduce the risk of developing type 2 diabetes by making dietary and other lifestyle adjustments. Furthermore, it is evident



that the type of fat—that is, the “good” unsaturated fat found in peanuts—is an important factor in preventing and managing type 2



diabetes as well as cardiovascular disease, which is a disease often associated with diabetes. Eating foods like peanuts that are rich in “good” unsaturated fat and other nutrients in place of those foods full of refined carbohydrates and the “bad” fats—saturated and trans fats—is one easy way to make a small change that may prevent type 2 diabetes and cardiovascular disease.

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- Peanut and peanut butter nutrition research
- Recipes
- Meal plans
- Educational materials



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Type 2 diabetes affects more than 12 million Americans and that number is expected to increase (1). But encouraging research shows that small dietary and physical activity changes like eating peanuts can substantially decrease the risk of developing diabetes.

#### Research Up-Date:

■ Data from the Harvard Nurses' Health Study shows that peanuts and peanut butter may lower risk of type 2 diabetes. Eating an ounce of peanuts or other nuts five or more times a week is associated with a 27% reduced risk of developing type 2 diabetes. Eating one tablespoon of peanut butter (or a half-serving) five or more times a week is associated with a 21% reduced risk of developing type 2 diabetes (2).

■ Harvard research from the Nurses' Health Study and the Physicians' Health Study suggests that magnesium may be a mechanism responsible for reducing the

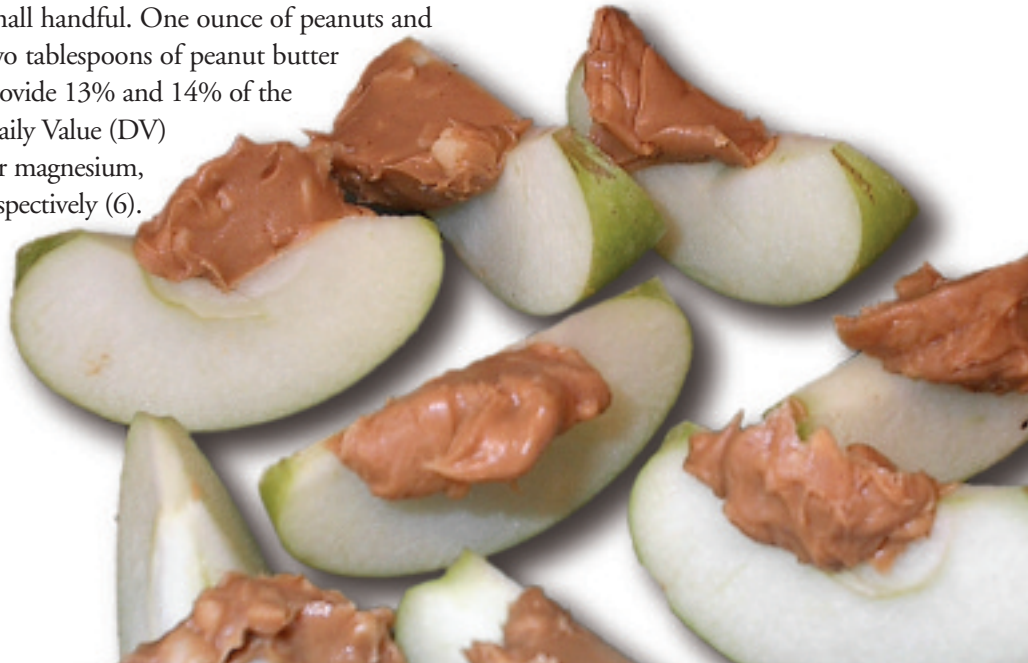


# Peanuts & Peanut Butter in Perspective: Type 2 Diabetes

risk of type 2 diabetes. The authors emphasize the importance of getting adequate levels of magnesium, which is about 400 milligrams per day, from whole grains, nuts, and green leafy vegetables (3,4).

■ Research from Purdue University showed that eating about three ounces of peanuts daily can significantly increase blood levels of magnesium (5). However, a more typical portion size is one ounce, or a small handful. One ounce of peanuts and two tablespoons of peanut butter provide 13% and 14% of the Daily Value (DV) for magnesium, respectively (6).

■ Glycemic index is a relative measure of how quickly blood sugar increases after eating a carbohydrate-rich food. Emerging research has shown that foods with low glycemic index values may keep blood sugar and insulin levels in optimal ranges. Peanuts and nuts have a very low glycemic index, especially compared to many other snack foods. The glycemic index of peanuts is 14 (7,9).



**Peanut Portion Pointers:** ■ One ounce of peanuts is a small handful, or about 40 pieces. Look for single-serving packets at the store to help with portion control. ■ Two tablespoons of peanut butter is about the size of a ping-pong ball. Keep one on your kitchen counter in your fruit bowl.

## Asian Lettuce Wraps

- 1 teaspoon peanut oil
- 1 teaspoon toasted sesame oil
- 3 boneless, skinless chicken breast halves, cut into 2-inch strips (12 ounces)
- 1 teaspoon minced garlic
- 1 teaspoon grated peeled ginger
- 1/2 cup chicken broth
- 1/4 cup smooth peanut butter
- 2 tablespoons mango chutney
- 18 large Bibb lettuce leaves, cleaned and dried
- 1 medium red bell pepper, seeded and cut into 2-inch thin matchsticks
- 1 cup snow peas, trimmed and cut into 2-inch thin matchsticks
- 4 green onions, trimmed and cut lengthwise into 2-inch thin matchsticks
- 2/3 cup honey-roasted Georgia peanuts, roughly chopped

Recipe Courtesy of the 2003 Plains Peanut Festival Recipe Contest

**Directions:** Heat oils in a wok or large skillet over medium-high heat. Stir-fry the chicken for 4 minutes. Add the garlic and ginger and saute 1 minute more or until chicken is cooked. Lower heat and add chicken broth, peanut butter and chutney; stir until smooth and heated through about 3 minutes. To assemble, lay the lettuce leaves on work surface; then place equal amounts of the bell pepper, snow peas and green onion matchsticks in the center. Next spoon the chicken mixture on top then sprinkle with peanuts. Roll each lettuce leaf up and serve 3 onto each of 6 plates.

**Per Serving:** 260 calories, 10g of carbohydrate, 3g of fiber, 17g of protein, 18g of fat (9g monounsaturated fat, 5g of polyunsaturated fat)



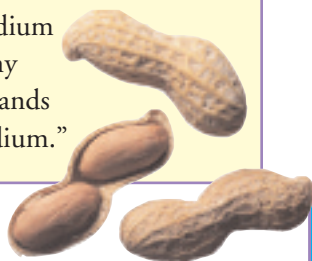
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## Quick Facts

### about Peanuts & Peanut Butter

- Commercial peanut butter brands usually contain only one more gram of sugar per serving than natural peanut butter brands.
- Unsalted or lightly salted peanuts, are considered “low sodium,” since they contain less than 140 milligrams of sodium per serving. Many peanut butter brands are also “low-sodium.”



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## American Diabetes Association (ADA) Dietary Recommendations (8)

- 60 to 70% of total calories from carbohydrate and monounsaturated fatty acids
- about 10% of total calories from polyunsaturated fat
- less than 7% of total calories from saturated fat
- 15 to 20% of total calories from protein

## Glycemic Index Values for Common Snack Foods (7,9)

Food	Glycemic Index	Glycemic Load
Crushed peanuts (similar to peanut butter)	7	0
Peanuts	14	0.7
Low-fat yogurt, sweetened	33	10
Crackers	67	12
Graham crackers	74	14
Rice cakes	82	17
Pretzels	83	16

