

PEANUTS

A SUPERFOOD
FOR ALL AGES



White Paper

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THE Peanut Institute
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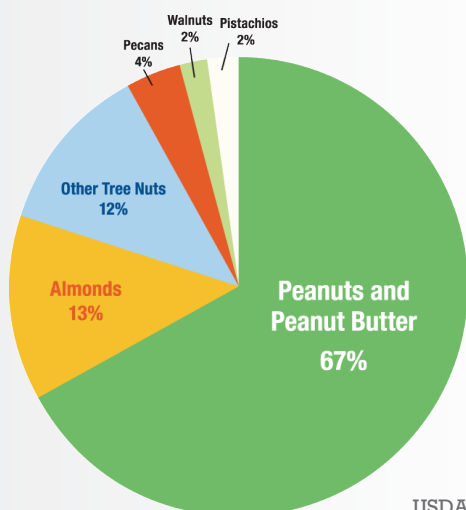
EXECUTIVE SUMMARY

Research shows that peanut products, when eaten in small amounts daily, can significantly decrease the risk of heart disease and diabetes. They also satisfy hunger, help manage weight, and promote health.

Peanuts account for about 2/3 of all nuts eaten in the U.S. They are enjoyed by all age groups and the research shows that all age groups benefit from eating them. Peanuts are a whole food that pack in a lot of nutrition into just one serving and can be included in a variety of diets.

There is a large amount of consistent evidence indicating peanuts significantly reduce the risk of heart disease. They are packed full of the same heart-healthy fats as olive oil, and contain essential nutrients, which have been shown to be heart protective. The more frequently you eat peanuts, the lower your risk of heart disease; just a handful a day can decrease the risk of heart disease by over 50%. Research also shows peanuts play a role in reducing risk factors associated with heart disease by improving lipid profiles, decreasing blood pressure, and decreasing inflammation.

NUT CONSUMPTION IN THE U.S.



USDA-ERS, 2009

Studies show that peanuts and peanut butter might decrease the onset and assist with managing the complications of diabetes; they have been shown to keep blood sugar stable and improve cholesterol in both healthy individuals and ones with type 2 diabetes. Peanuts are very low on the glycemic index (GI) scale and have a low glycemic load (GL) due to their high fiber, high protein, and healthy fat content. Research shows peanuts can help keep blood sugar even after meals as well as throughout the day. And low GI foods have been shown to reduce long-term blood glucose levels, also known as Hemoglobin A1C, as much as prescribed medication.

Eat a small amount of peanuts and peanut butter every day.



Living a healthy lifestyle or trying to lose weight may seem challenging at times. Even though it is often thought a low-fat diet is the best approach, it has been shown that people are more successful on diets that incorporate healthy-fat options like peanuts due to their satiating high-fat content which can make them feel more satisfied. In addition, frequent peanut consumption is not associated with a higher BMI. In fact, eating peanuts is associated with better weight maintenance and may also assist with weight loss. Weight loss has been shown in both adults and children consuming a diet that includes peanuts or peanut butter. This may be due to the role of satiety. Peanuts and peanut butter have been shown to help decrease appetite as well as the desire to eat when included with snacks or meals.

From the healthy fats, protein, and fiber in peanuts to their micronutrients and bioactive components, peanuts can help improve how you perform each day. Many healthy diet patterns such as the DASH diet, plant-based diets, the Mediterranean-style diet, the USDA MyPlate, and U.S. Dietary guidelines all include peanuts as a nutrient-dense protein option. Peanuts, peanut butter, and peanut oil can be a great addition to any diet because they are affordable, enjoyed by all age groups, and can easily be included in almost any meal or snack.

HEART-HEALTHY

A handful of peanuts a day can cut the risk of heart disease in half! Research shows the more frequently you consume peanuts or peanut butter, the lower your risk of heart disease.

Peanuts are Heart Healthy

Numerous studies have shown that nuts and peanuts have heart health benefits, and there is consistent evidence supporting a correlation with peanuts and the decreased risk for heart disease.

Due to the strength of evidence of peanuts and heart-health, the FDA released a qualified health claim in 2003 that states "Scientific evidence suggests but does not prove that eating 1.5 ounces of most nuts, such as peanuts, as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease."

In addition to the FDA health claim, certain types of peanuts were recently certified by the American Heart Association (AHA) as heart-healthy and allowed to use the Heart-Check Mark logo on their packages.

To get the Heart-Check Mark, nuts must meet certain nutritional levels and oil roasted salted peanuts meet this criteria (1). A 1 ounce serving of oil roasted salted peanuts contains only 119mg of sodium, which is less than one slice of bread (1 ounce) which contains roughly 170mg (2). Peanuts are naturally low in sodium and most of the salt is surface salt, which can rub off in the package or on your fingers. Also, peanuts are high in protein, heart-healthy oils, fiber, and many important nutrients shown to benefit heart health.

Just a Handful a Day Can Reduce Risk

Four large studies showed that the more frequently you eat peanuts, the more you decrease your risk for heart disease (3). Results indicated that consuming 1 to 1.5 ounces of peanuts 1 to 2 times a week reduced a person's risk by over 25% and 5 or more times cut the risk by half.

Peanuts are an important source of healthy fats and protein for vegetarian diets, and research shows that replacing red meat intake with plant proteins, like peanuts, may reduce the risk of heart disease by 19% (4).

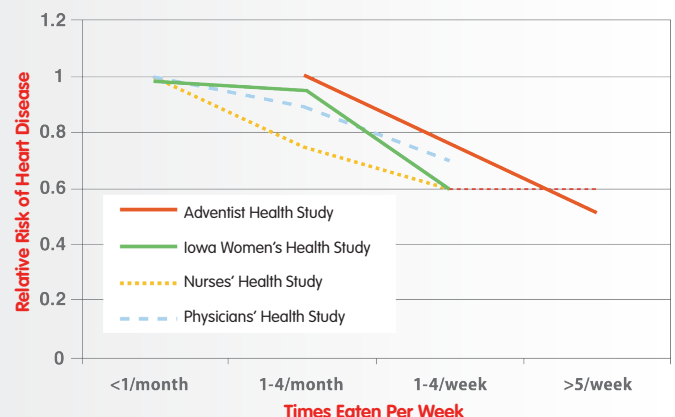
A recent large, long-term, nutrition intervention study showed a 30% decrease in cardiovascular events and mortality with a Mediterranean diet enriched with nuts compared to a low-fat diet with people at risk for heart disease (5). This study also showed significant reductions in blood pressure with the nut supplemented diet compared to the control.

Peanuts contain mostly monounsaturated fats, the same fat found in olive oil, which helps to decrease bad LDL cholesterol and increase good HDL cholesterol. One study with peanuts showed a 7.2% decrease in LDL cholesterol and total cholesterol among healthy adults with regular peanut intake (6). In addition, increased HDL cholesterol was seen in a study with short-term peanut consumption in men with high cholesterol (7).

Peanuts are naturally trans-fat free and a study done by the USDA found that levels of trans fats are non-detectable in all types of peanut butter, even the creamy versions manufactured with a small percentage hydrogenated oils used as an emulsifier (8).

Peanuts contain more arginine than any other whole food. Arginine has been shown to help open up blood vessels and improve circulation (9,10). Peanuts are an excellent source of niacin, a vitamin often prescribed by doctors for its heart protective qualities (11), and a good source of vitamin E, which may also reduce heart disease risk (2). They also are a good source of magnesium and potassium, which help to maintain normal blood pressure (12).

RISK OF HEART DISEASE DECREASES THE MORE FREQUENTLY YOU EAT PEANUTS



Sabate and Ang. *AJCN*, 2009

REDUCES RISK OF DIABETES

Peanuts and peanut butter can help keep your blood sugar even throughout the day and reduce the risk of developing type 2 diabetes by about 25%.

A major study by Harvard School of Public Health showed that the risk of type 2 diabetes decreases the more frequently peanuts and peanut butter are consumed. Participants who consumed a 1-ounce serving of peanuts or peanut butter 1 to 4 times a week saw about a 10% reduction in risk, whereas those consuming 1 ounce 5 or more times a week decreased their risk by 25% (13). Another large study suggested that replacing a serving of red meat with a serving of peanuts daily decreased type 2 diabetes risk by 21% (14).

Magnesium has also been shown to play a role in risk reduction for diabetes due to its positive effects on the release and effectiveness of insulin in the body (15,16). Peanuts are a good source of magnesium. In one study, individuals fed peanuts on a daily basis for three weeks, not only had a higher intake of magnesium, but blood magnesium also improved to above recommended levels (17).

Blood Sugar Control

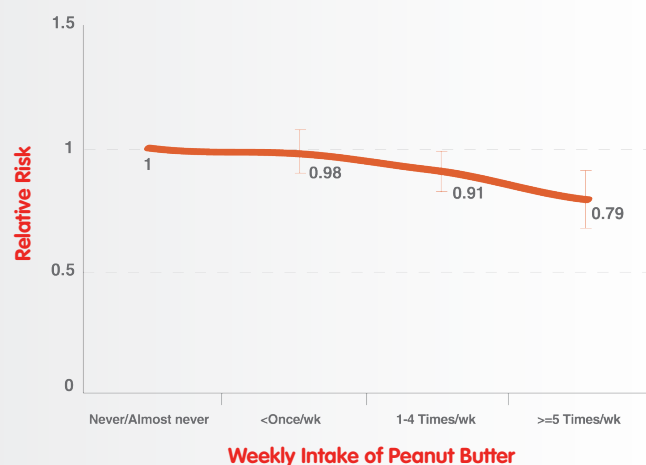
Peanuts have been shown to help keep blood sugar stable and improve cholesterol in both healthy individuals and those with type 2 diabetes (18,19).

Peanuts and peanut butter have a very low glycemic index (GI) and glycemic load (GL) due to their high content of healthy fats, fiber, and protein. Glycemic index is a point scale used to compare how high your blood sugar and insulin spike after eating the same amount of carbohydrates from different foods. Foods that are digested more slowly and release sugar gradually into the blood stream have a lower GI. Glycemic load also measures blood sugar spikes, but uses the typical serving size of each food item instead of a standard carbohydrate amount, making it an even better tool to show how different foods eaten can affect blood sugar (20).

Foods with a higher GL can cause blood sugar and insulin to spike soon after eating, followed by a drop in blood sugar to levels lower than before consumption. This crash in blood sugar can make a person feel tired and hungry for more food, and the rollercoaster cycle of highs and lows can contribute to the development of pre-diabetes and diabetes (21).

Foods with a low-GL, like peanuts and peanut butter, keep your blood sugar levels more even after eating. Research has even shown that adding peanuts or peanut butter to a meal with highly refined carbohydrates or high-GL foods, helped to lessen the spike in blood sugar (17). Snacking on peanuts can also help to maintain blood sugar in between meals. One study showed that snacking on peanuts in place of high carbohydrate foods improved blood sugar control and lowered cholesterol in type 2 diabetic men and women (18,19). Another study showed that low-GI diets can significantly improve long-term glucose control in people with diabetes, similar to the amounts achieved with medication (22).

THE RISK OF DIABETES DECREASES THE MORE FREQUENTLY YOU EAT PEANUTS AND PEANUT BUTTER



Jiang, et al. *JAMA*, 2002

A recent study showed that peanuts and peanut butter eaten in the morning have an effect on blood sugar throughout the day in women at high risk for type 2 diabetes. Not only did consuming 1.5 ounces of peanuts or peanut butter at breakfast help to decrease blood sugar spikes early in the day, effects were also seen hours later when participants showed more even blood sugar control following a high carbohydrate lunch in the absence of peanuts or peanut butter (20).

MANAGES WEIGHT & SATIETY

Peanut eaters have lower BMIs and eating peanuts or peanut butter for breakfast can help control hunger for up to 8 to 12 hours.

Although peanuts are high in nutrition, many avoid them for fear of weight gain. However, research has shown that eating peanuts is not associated with weight gain or a higher BMI. Two large studies (23,24) indicated that men and women who ate more peanuts were leaner and less obese than individuals who rarely consumed peanuts, and a survey by the USDA showed that children and adults who reported eating peanuts had lower BMIs (25).

Peanuts can also be beneficial for maintaining weight. Researchers found that those who consumed peanuts at least two times per week were 30% less likely to gain weight (26). Also, Harvard researchers have shown that a moderate fat diet incorporating peanuts, peanut butter, and peanut oil as healthy fat options was easier to stick with and resulted in better weight maintenance over time compared to a traditionally recommended low-fat diet (27). And a recent study showed that nut consumption was inversely associated with body fat (5).

Weight maintenance was also seen in children. Data from an ongoing study to find effective nutrition programs for child weight loss showed that 12-year old children who ate peanuts as a snack on a daily basis lost a significant amount of weight over six months. In addition, follow-up research on all study participants showed that the children who consumed peanuts as a snack had continued to lose or maintain their weight loss for a total of two years, whereas two-thirds of the children not receiving peanuts as a snack ended up gaining weight at two years (28).

Peanuts and peanut butter having an enjoyable flavor makes diets that include them easier to adhere to. One study found that peanut-eaters were more likely to continue with the diet because they enjoyed their food versus participants on a low-fat diet (27).

It has also been shown that peanuts can increase metabolic rate by 11% after consumption, and 5-10% of calories from peanuts are excreted in fecal waste, which might account for why peanut eaters have leaner bodies even though they consume more calories (29).

Hunger Buster

Appetite control is a major obstacle in the fight against weight loss. Foods high in protein, fiber, and healthy fats, such as peanuts, have been shown to help reduce appetite and promote satisfaction after eating (30).

It is the complete package of nutrients in peanuts, including the high amounts of protein and fiber, that make peanuts unique and help to control appetite. Research indicates that those who eat peanuts naturally compensate for up to 3/4 of the calories consumed from the peanuts because they do not add additional calories to their daily diets (32).

Researchers at Purdue University found that peanut butter and peanuts included at breakfast can decrease hunger throughout most the day. The study showed an increase in the secretion of the hormone Peptide YY, which helps promote fullness and satiety. In addition, participants reported a lower desire to eat for 8 to 12 hours after breakfast (20).

WEIGHT MAINTENANCE PROGRAM FOR MEXICAN-AMERICAN CHILDREN; 1 YEAR RESULTS

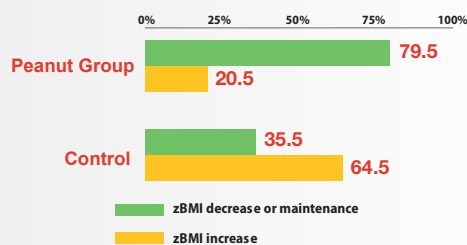
At Year 1

- 80% of **Peanut Group** (treatment group at one serving of peanuts/PB 5 times/week) **LOST** or **MAINTAINED** weight
- 65% of control group **GAINED** weight



4 out of 5
decreased or maintained

Baseline to 1 Year



Johnson, et al. *Obesity*, 2009

NUTRIENT-DENSE FOOD

Peanuts contribute essential nutrients to the diet to benefit overall health, and research shows that people who eat peanuts regularly have higher intakes of fiber, vitamin E, folate, iron, and zinc.

Macronutrients

Peanuts are packed full of beneficial nutrition to provide healthy energy. They are full of healthy fats, protein, and contain the healthiest form of carbohydrates, fiber. At least half of the fat in peanuts is heart-healthy monounsaturated fat and over 30% is polyunsaturated fat, making them very low in saturated fat, and they contain significant amount of protein and fiber even in small doses (2). In fact, they contain more protein than any other nut.

Micronutrients

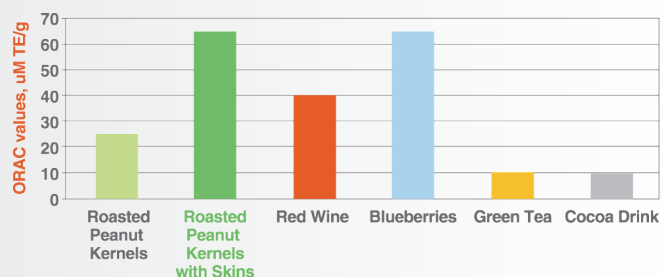
Peanuts are also a good or excellent source of nine vitamins and minerals, making them the most nutrient dense nut. Research shows that people who eat peanuts regularly have diets with higher nutrient quality. Consuming peanuts offers more key nutrients critical to health. In a study looking at more than 15,000 people who consumed peanuts and peanut products, it was found that levels of vitamin A, vitamin E, folate, magnesium, zinc, iron, calcium, and dietary fiber were higher than those who did not consume peanuts (33).

Bioactives

Peanuts contain bioactives, which are plant substances found to offer health benefits beyond vitamins and minerals (34). The known bioactives in peanuts include arginine, phytochemicals, phytosterols, phenolic acids, and flavonoids, all of which contribute to peanuts antioxidant capacity.

Peanuts have been shown to have a higher antioxidant capacity than green tea and red wine (35), and when peanuts are consumed with their skins, their antioxidant capacity doubles. Roasting peanuts can increase their antioxidant potential even further, and roasted peanuts with their skins have a higher antioxidant capacity than blueberries (36).

TOTAL ANTIOXIDANT CAPACITY HIGHER THAN OTHER RECOGNIZED FOODS



Resurreccion, 2008

Arginine is a super protein found at very high levels in peanuts. It helps with the production of nitric oxide in the body which inhibits blood clotting, may help to decrease blood pressure, maintain muscle mass, aid in liver detoxification, reduce alcohol toxicity levels, and improve wound healing (9).

Resveratrol is a phytochemical found in red wine, grapes and peanuts. Almost a decade of research provides strong evidence that resveratrol plays a role in reducing body weight, decreasing the risk of cancer and diabetes, and prolonging life (37,38). It has also been shown to have possible protective effects against hearing loss and Alzheimer's (39). Most of the resveratrol in peanuts is found in the skins, and Southern-style boiled peanuts and peanut butter contain very high amounts (40,41).

Peanuts, peanut butter, and peanut oil all contain phytosterols that block the absorption of cholesterol from your diet and may decrease inflammation and reduce the growth of various cancers (42). It has also been shown that phytosterols can reduce tumor growth (43).

The skins of peanuts are high in phenolic acids that have been shown to have antioxidant function and a protective role against oxidative damage diseases like coronary heart disease, stroke, and various cancers (44).

Flavonoids are in all parts of the peanut plant, and a high intake is thought to be protective against heart disease and cancer. They may also play a role in circulation soon after we eat (45).

VITAMIN E

New research shows that peanuts contain 26.7% more vitamin E than previously thought. According to study results, a 1-ounce serving of peanuts provides 15% of the daily value for vitamin E for both children and adults (47).

HEALTHY EATING PATTERNS

Peanuts come in a variety of forms that are all affordable and accessible. All parts of the peanut contain beneficial nutrients and can be included in any healthy lifestyle or diet.

Plant-Based Eating

Research shows that plant-based diets are associated with lower BMIs as well as reduce the risk of cardiovascular disease, cancer, and diabetes. A more recent study shows that vegetarian diets can cut the risk of heart disease by one third (47).

Peanuts fit perfectly into this diet and can add lots of plant-based nutrition and protein to any snack or meal. They contain 8g of protein per 1 ounce serving, more protein than any other nut, and are high in essential nutrients (2). Peanuts paired with a whole grain creates a complete protein that is both affordable and well liked. A peanut butter sandwich fits this model perfectly.

**1 ounce of nuts or seeds =
2 ounce protein equivalent**

Not only can eating a handful of peanuts a day reduce the risk of many chronic diseases, but an ounce of peanuts provides about 1/3 of the USDA daily protein requirements for most children and adults.

US Dietary Guidelines

The 2010 the Dietary Guidelines recommends a plant-based diet with good sources of plant protein and encourages a healthy eating pattern that emphasizes nutrient-dense foods like nuts and peanuts (48). It also highlights healthy unsaturated fats, such as those found in peanuts, peanut oil, and peanut butter, to reduce disease risk. Fiber, healthy fats, and healthy protein are also recommended for weight management, all of which can be found in peanuts.

MyPlate

The new food guide pyramid, known as MyPlate, shows that peanuts and peanut butter can fit into any healthy diet. Peanuts are considered part of the protein group, which should make up roughly a quarter of your plate and 15-35% of your daily calorie intake. Peanuts contain more protein than any other nut and are a great vegetarian protein source. Nuts are highlighted as a great source of protein for vegetarian diets and non-vegetarian diets, and are also considered a healthy fat for weight management and reduced disease risk (49).

Mediterranean-Style Diet

A meta-analysis of 600 studies showed that the Mediterranean-style diet, based of eating patterns of people bordering the Mediterranean Sea, showed to be one of the most beneficial diets in improving the risk of heart disease (50). Peanuts are a great fit with this diet as it emphasizes a higher intake of healthy fats and protein from foods like nuts. Nuts have been a part of the Mediterranean lifestyle since pre-historic times and have been used in the past by different civilizations as medicine to prevent or treat certain diseases (51). A recent study using the Mediterranean diet and nuts showed a decrease in blood pressure, cholesterol, and insulin resistance among participants, as well as an inverse relationship with metabolic syndrome (5).

DASH Diet

Research scientists developed the Dietary Approaches to Stop Hypertension (DASH) eating plan as an effective dietary pattern for reducing blood pressure by including whole foods such as fruits, vegetables, nuts, seeds, and grains (52). A 1 ½ ounce serving size of peanuts is included in the DASH eating plan four to five times per week. Peanuts are significant to this diet plan because they contribute rich sources of magnesium, potassium, fiber and plant protein – all of which may play a role in improving blood pressure.

Quality of Calories Count

Peanuts come in a variety of forms that are both affordable and accessible. All parts of the peanut contain beneficial nutrients and can be included in any diet. Research has shown that peanuts, peanut butter, peanut oil, and peanut flour reduced the risk of heart disease (53). The skins of peanuts are also packed full of bioactive compounds (36). As an American favorite, it is easy to incorporate all forms of the peanut into meals and snacks throughout the day to add nutrition and decrease disease risk.

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