Nuts were considered unhealthy due to their high fat content. However, this perception has changed over the past decade. Nuts are now often recommended because they have a healthy fatty acid profile and are high in protein, vitamins, minerals.

Nuts consumption has been associated with a decreased risk of heart disease, lower Body Mass Index (BMI) and has been advocated in weight and diabetes management diets.

Nuts are included in the meat and beans groups in 2005 MyPyramid. Interestingly, up to 60% of the nuts consumed in the states are eaten as snacks.
Nut consumptions are associated with a lower risk of CHD due to the high content of:

<table>
<thead>
<tr>
<th>Nut Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsaturated fats, dietary fiber, plant sterols</td>
<td>Helps lower low density lipoprotein (LDL) cholesterol accumulations which associated with artherosclerosis and heart disease.</td>
</tr>
<tr>
<td>Omega-3 fatty acids</td>
<td>Help prevent dangerous heart rhythms that can lead to heart attacks.</td>
</tr>
<tr>
<td>L-arginine</td>
<td>Improves the health of artery walls by making them more flexible and less prone to blood clots that can block blood flow.</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>May help to stop plaques development in arteries which can cause narrowing and lead to chest pain, heart disease or heart attack.</td>
</tr>
<tr>
<td>Magnesium</td>
<td>May help prevent ventricle arrhythmia.</td>
</tr>
<tr>
<td>Copper</td>
<td>Reduces blood cholesterol and blood pressure.</td>
</tr>
<tr>
<td>Folic acid</td>
<td>Decrease blood homocysteine levels.</td>
</tr>
</tbody>
</table>

**EXPERTS say… …**

- Consumed at least 5 serving of nuts (28 gram or 1 ounce per serving) or peanut butter (16 grams or 1 tablespoon) per week significantly decrease the risk of cardiovascular disease in women with type 2 diabetes. *(Journal of Nutrition)*
- Consuming >4 servings of nuts per week lowered the risk of nonfatal myocardial infarction by 51% and decreased the risk of fatal CHD by 48% when compared with consumption of <1 serving per week. *(Adventist Health Study)*

**Weight Management**

**EXPERTS say… …**

- People who eat nuts at least twice a week are much less likely to gain weight that those who almost never eaten nuts. *(Obesity)*
- Eating nuts ≥2 times/week was not associated with greater body weight gain during 8 years of follow-up in healthy middle-aged women. *(The American Journal of Clinical Nutrition)*

**EXPERTS say… …**

- Individuals who ate nuts ≥5 times per week reduce the risk of developing type 2 diabetes by 27%, compared with those who rarely or never consumed nuts. *(JAMA)*
Heart Healthy
- High in monounsaturated fats.
- Salt free (if purchased without added salt).
- Cholesterol free.
- Good source of antioxidants: Vitamin E
  - According to the 2010 Dietary Guidelines for Americans, almonds is ranked second among food containing vitamin E with 35% Daily Value for vitamin E provided in a 1-ounce serving.

Nutrients Dense
- High in protein, fiber, vitamin E, calcium, magnesium and potassium.
- Low in sugars.

Lower Glycemic Index (GI)
- A study published in Metabolism showed that eating almonds along with a high GI food significantly lowers the GI of the meal and lessens the rise in blood sugar after eating.

FUN FACT
Japanese teenagers enjoy snacking on a mixture of dried sardines and slivered almonds.
Nutrient Dense

- Excellent source of Vitamin E
- High quality source of protein and fiber
- Highest concentration of folate among tree nuts
- Contains blood pressure-lowering minerals calcium, magnesium and potassium

Antioxidants

- According to a study published in the Journal of Nutrition, hazelnuts have the highest proanthocyanidins (PACs) content.
  - PACs are a subset of polyphenols that give an astringent mouth feel to nuts, red wine, and dark chocolate.
  - Studies show that antioxidant capabilities of PACs are 20 times more potent than vitamin C and 50 times more potent than vitamin E.
  - PACs may help strengthen blood vessels, suppress platelet stickiness in arteries, reduce the risk of cardiovascular disease, lower blood pressure, and delay onset of dementia.

- According to another research, hazelnuts with skins intact had approximately 10 times higher phenol content and approximately three times higher in the PACs content if compare with hazelnuts without skin.

Heart healthy

- One of the lowest percentages of saturated fat (along with pine nuts and almonds)

- According to a study published in European Journal of Clinical Nutrition, a hazelnut-enriched diet decreased VLDL cholesterol, triacylglycerol, the ratio of total cholesterol to HDL, and the ratio of LDL to HDL while it increased HDL cholesterol.

FUN FACT

The hazelnut is also known as the filbert. It is Oregon’s official state nut and Oregon is the only state that has an official state nut.
Heart Healthy

- No trans fat.
- Lower cholesterol levels.
  - According to a study published in the *Journal of Nutrition*, pecan-enriched diet lowered total cholesterol by 11.3% and LDL cholesterol by 16.5%.

Weight Control

- According to a research published in the *American Journal of Clinical Nutrition*, nuts like pecans may aid in weight-loss and maintenance by increasing metabolic rates and enhancing satiety. In addition, nuts can also increase flavor, palatability and texture that can lead to greater dietary compliance.

Antioxidants (Vitamin E)

- “Pecans rank highest among all nuts and are among the top category of foods to contain the highest antioxidant capacity.” (Journal of Agriculture and Food Chemistry)
- May help delay the progression of age-related motor neuron degeneration from diseases like amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig’s Disease.
- May protect against cell damage, may decrease the risk of cancer, heart disease, Alzheimer’s disease and Parkinson’s disease.
- “Adding just a handful of pecans to your diet each day may help inhibit unwanted oxidation of blood lipids, thus helping prevent coronary heart disease.” (Nutrition Research)

Nutrient Dense

- Provides more than 19 vitamins and minerals including vitamin A, vitamin E, folic acid, calcium, magnesium, phosphorus, potassium, several B vitamins and zinc.
- Provides 2.7 gram of fiber per serving, which is 10% of recommended Daily Value.
- High quality source of protein.
- Sodium free (if purchased without added salt), which makes them an excellent addition to reduced sodium diet.

FUN FACT

Can you imagine a pecan skyscraper? It would take 11,624 pecans, stacked end to end, to reach the top of the Empire State Building in New York City.
Antioxidants
* Provides 464 mg GAE (Gallic Acid Equivalents) of Phenolic in 1 ounce of pistachio nuts, which ranked second after pecans among all nuts. Phenolic is believed to account for a major portion of the antioxidant capacity of many plants foods.

Weight control and maintenance
* A research from University of California, Los Angeles showed that patients who substitute pistachio nuts for food such as candy bars, dairy products, microwave popcorn, buttered popcorn, and potato chips with pistachios accounting for 20% of total calories for three weeks, did not gain body weight.
* Significant amount of protein, healthy fat and dietary fiber in pistachios promote feeling of fullness and help people maintain their weight by keeping hunger at bay.

Nutrient dense
* Carotenoids
  ✤ ONLY nut that contain significant amounts of the lutein and zeaxanthin, which has been associated with a reduced risk of age-related macular degeneration (AMD). AMD is the most common cause of irreversible blindness in Americans over 65.
  ✤ Highest fiber content (3 g/oz.). Provide 12% of Daily Value which puts it on par with oatmeal.
  ✤ Highest protein compared with other nuts (6 gram/oz).
  ✤ Excellent sources of copper, manganese and vitamin B6.
  ✤ Copper is a major component of many important proteins and enzymes in the proper development of connective tissues, nerve coverings and skin pigment. Is also important in heart health.
  ✤ Manganese is important for bone formation and nutrients metabolism.
  ✤ Vitamin B6 plays an important role in the immune system, red blood cell metabolism and hemoglobin productions, and nerve cell communication.
* Good source of phosphorus, thiamin.

Heart health
* No trans fat.
* Very rich in phytosterols (plant sterols that compete with dietary cholesterol for absorption in the body). Plant sterols occur naturally in a variety of foods such as fruits, vegetables, grain products, vegetable oils and nuts such as pistachios.
* According to a study from Harran University, Turkey, groups who replaced 20% of their calorie intake with pistachios for three weeks showed a decrease in total cholesterol, the total cholesterol to HDL ratio, and the LDL to HDL ratio.

**FUN FACT**

* In America, pistachios were once dyed red to disguise shell imperfections and make the nuts stand out in vending machines.

* February 26th is recognized by pistachio lovers as World Pistachio Day; a day to honor the historical nut.
Nutrients dense
- HIGHEST in folate, niacin, pantothenic acid and many amino acids (including arginine).
- VERY HIGH in fiber, magnesium, phosphorus, potassium, zinc, thiamin, vitamin E, and choline.
- HIGH in calcium, iron, copper, manganese, selenium, riboflavin, and vitamin B6.

Heart health
- May help to lower serum triglycerides, total and LDL cholesterol levels.
- High in plant protein which may help reduce the risk of heart disease and to lower blood pressure.

Weight control and weight loss
- High protein and fiber content promotes a feeling of fullness more than high carbohydrate snacks.
- Harvard researchers have shown that it may be easier to lose weight on a moderate fat diet that included peanuts and healthy oils versus a low-fat diet.

Diabetes
- Low glycemic index
  - Emerging research has shown evidence that foods with low glycemic index values may keep blood sugar and insulin levels in optimal ranges and may be beneficial in reducing the risk of obesity, type 2 diabetes, and heart disease.

Cancer
- Contain cancer-fighting compounds such as resveratrol and beta-sitosterol
  - Beta-sitosterol has been shown to inhibit breast, prostate, and colon cancer cell growth.

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FUN FACT

Peanuts account for two-thirds of all snack nuts consumed in USA. Americans consumes more than 6 lb. of peanuts and peanut butter products each year.
**Bone Health**

- The **ONLY** nut that contains a significant amount of alpha-linolenic acid (ALA), a plant-based omega-3 fatty acid. One ounce provides >100% of the recommended intake for both men and women.

- A recent study showed that a diet high in ALA has a protective effect on bone metabolism. (*Nutrition Journal*)

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**Heart health**

- **NO** trans fat, cholesterol or sodium (unless choosing salted nuts)

- A meta-analysis concluded that walnuts can help improve cardiovascular risk factors, decreasing inflammation and oxidative stress due to their high antioxidant content. This review also showed that following a diet supplemented with walnuts resulted in a significantly greater decrease in total cholesterol and LDL cholesterol. (*American Journal of Clinical Nutrition*)

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**Type 2 Diabetes**

- A Yale University study found that adding 2 ounces of walnuts each day into a normal diet for eight weeks improve blood flow in individuals with type 2 diabetes. (*Diabetes Care*)

- Another study of adults with non-insulin treated diabetes that provided 1 ounce of walnuts daily for a year concluded that walnuts improve metabolic factors significantly in overweight individuals with type 2 diabetes. (*European Journal of Clinical Nutrition*)

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**Nutrients and Antioxidants**

- Good source of magnesium, phosphorus, and melatonin

- A handful of walnuts has more antioxidants than a glass of apple juice, a milk of chocolate bar, or a glass of red wine. (*Journal of Nutrition*)
# Nutrient Comparison Chart for 1 Serving of Tree Nuts

<table>
<thead>
<tr>
<th>Nuts</th>
<th>Almond</th>
<th>Brazil</th>
<th>Cashew</th>
<th>Hazelnut</th>
<th>Macadamia</th>
<th>Pecan</th>
<th>Pistachio</th>
<th>Walnut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>163</td>
<td>186</td>
<td>157</td>
<td>178</td>
<td>204</td>
<td>196</td>
<td>159</td>
<td>185</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>6.0</td>
<td>4.1</td>
<td>5.2</td>
<td>4.2</td>
<td>2.2</td>
<td>2.6</td>
<td>5.8</td>
<td>4.3</td>
</tr>
<tr>
<td>Total fat (g)</td>
<td>14.0</td>
<td>18.8</td>
<td>12.4</td>
<td>17.2</td>
<td>21.5</td>
<td>20.4</td>
<td>12.9</td>
<td>18.5</td>
</tr>
<tr>
<td>Saturated Fat (g)</td>
<td>1.1</td>
<td>4.3</td>
<td>2.2</td>
<td>1.3</td>
<td>3.4</td>
<td>1.8</td>
<td>1.6</td>
<td>1.7</td>
</tr>
<tr>
<td>Polyunsaturated Fat (g)</td>
<td>3.4</td>
<td>5.8</td>
<td>2.2</td>
<td>2.2</td>
<td>0.4</td>
<td>6.1</td>
<td>3.9</td>
<td>13.4</td>
</tr>
<tr>
<td>Monounsaturated Fat (g)</td>
<td>8.8</td>
<td>7.0</td>
<td>6.7</td>
<td>12.9</td>
<td>16.7</td>
<td>11.6</td>
<td>6.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Carbohydrates (g)</td>
<td>6.1</td>
<td>3.5</td>
<td>8.6</td>
<td>4.7</td>
<td>3.9</td>
<td>3.9</td>
<td>7.8</td>
<td>3.9</td>
</tr>
<tr>
<td>Dietary fiber (g)</td>
<td>3.5</td>
<td>2.1</td>
<td>0.9</td>
<td>2.7</td>
<td>2.4</td>
<td>2.7</td>
<td>2.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Potassium (mg)</td>
<td>200</td>
<td>187</td>
<td>187</td>
<td>193</td>
<td>104</td>
<td>116</td>
<td>291</td>
<td>125</td>
</tr>
<tr>
<td>Magnesium (mg)</td>
<td>76</td>
<td>107</td>
<td>83</td>
<td>46</td>
<td>37</td>
<td>34</td>
<td>34</td>
<td>45</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>0.9</td>
<td>1.2</td>
<td>1.6</td>
<td>0.7</td>
<td>0.4</td>
<td>1.3</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Copper (mg)</td>
<td>0.3</td>
<td>0.5</td>
<td>0.6</td>
<td>0.5</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Vitamin B6 (mg)</td>
<td>0</td>
<td>0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Vitamin E (mg)</td>
<td>7.7</td>
<td>1.6</td>
<td>1.9</td>
<td>4.3</td>
<td>0.1</td>
<td>7.6</td>
<td>7.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Folate (mcg)</td>
<td>14</td>
<td>6</td>
<td>7</td>
<td>32</td>
<td>3</td>
<td>6</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Riboflavin (mg)</td>
<td>0.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Niacin (mg)</td>
<td>1</td>
<td>0.1</td>
<td>0.3</td>
<td>0.5</td>
<td>0.7</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>alpha-tocopherol (mg)</td>
<td>7.4</td>
<td>1.6</td>
<td>0.3</td>
<td>4.3</td>
<td>0.2</td>
<td>0.4</td>
<td>0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>75</td>
<td>45</td>
<td>10</td>
<td>32</td>
<td>2.4</td>
<td>20</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>1.1</td>
<td>0.7</td>
<td>1.9</td>
<td>1.3</td>
<td>1.1</td>
<td>0.7</td>
<td>1.1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

The red number indicates the highest value.
1 SERVING IS:

Nutrition in Every Handful

1 SERVING = 1 OUNCE
**Easy Ways to Incorporate Nuts into Daily Diets**

### SNACKS AND SIDE DISHES

1. **Eat nuts straight out of the package or use them to create simple snacks:**
   - Making healthy trail mixes snacks with nuts unsweetened cereal and dried fruit.
   - Buy plain nuts and sprinkle with your favorite spices to avoid added sugar, salt, and saturated fats.

2. **Add nuts to side dishes:**
   - Cook brown rice in a skillet with nuts, ginger, and raisins to enhance flavor.
   - Add almonds to green beans dish for a crunchy texture and extra protein.
   - Sprinkle potato soup with mixes pecans or hearty split pea with hazelnut for added flavor and texture.

### ENTRÉES/MAIN COURSES

1. **Turn a salad into a meal with nuts:**
   - Add pecans and/or walnuts with blue cheese to a spinach salad or garnish chicken salad with slivered almonds.

2. **Incorporate nuts into main courses:**
   - Top a salmon fillet with almonds and bake or broil it until browned.
   - Add toasted cashews to stir-fry dishes.
   - Sprinkle chopped mixed tree nuts on casseroles.
   - For a light breakfast, prepare rolled oats and sprinkle in a handful of walnuts.

### DESSERT

1. **Enjoy frozen desserts with nuts:**
   - Top ice-cream or frozen yogurt with pecans or macadamia. For an easy and inexpensive alternative, blend frozen bananas with cream and natural peanut butter in a food processor.

2. **Bake with nuts:**
   - Add walnuts to brownies or pecans to chocolate chip cookies.
   - Make healthy muffins using whole wheat flour, skim milk and almonds.
**Mocha Walnut Pie**

Yield: 8 servings

**Ingredients:**
- 1 - 9 inch single crust pie
- 2 - (1 ounce) squares unsweetened chocolate
- 1/4 cup butter or margarine
- 1 tablespoon instant coffee powder
- 1 (14 ounce) can sweetened condensed milk
- 2 eggs, beaten
- 1 teaspoon vanilla extract
- 1 cup walnuts

**Directions:**
1. Preheat oven to 350° F.
2. In a medium saucepan, melt chocolate and butter/margarine over low heat.
3. Dissolve coffee in 1/4 cup hot water, then stir it into saucepan with sweetened condensed milk, eggs, and vanilla. Mix well.
4. Pour filling into pastry shell. Top with walnuts.
5. Bake for 40 to 45 minutes, or until center is set. Cool before serving.

**Nutrition Information per Serving:**
- Calories: 459
- Total Fat: 30.5g
- Cholesterol: 85mg

**Holiday Chicken Salad**

Yield: 12 servings

**Ingredients:**
- 4 cups cubed, cooked chicken meat
- 1 cup mayonnaise
- 1 teaspoon paprika
- 1 1/2 cups dried cranberries
- 1 cup chopped celery
- 2 green onions, chopped
- 1/2 cup minced green bell pepper
- 1 cup chopped pecans
- 1 teaspoon seasoning salt
- ground black pepper to taste

**Directions:**
In a medium bowl, mix together mayonnaise with paprika and seasoned salt. Blend in dried cranberries, celery, bell pepper, onion, and nuts. Add chopped chicken, and mix well. Season with black pepper to taste. Chill for 1 hour.

**Nutrition Information per Serving:**
- Calories: 253
- Total Fat: 16.5g
- Cholesterol: 42mg

**To lower calorie and fat content, substitute fat-free condensed milk for regular.**
WIN A PRIZE

Visit the Healthy Eating Tip of the Month bulletin board located in the U of M cafeteria to pick up additional educational brochures on healthy NUTS!

While you are there, enter your name to a drawing to win the recipe book “Nuts in the kitchen” by Susan Herrmann Lommis.

The book has more than 100 easy to make recipes for small plates, salads, main course, side dishes and desserts. It also provides nutritional information and menu ideas.
References

Research Articles/Journals


Website

www.allrecipes.com
www.almondboard.com
www.americanheart.org
www.eatright.org
www.hazelnutcouncil.org
www.ilovepecans.org
www.mayoclinic.com
www.nationalpeanutboard.org
www.nuthealth.org
www.peanut-institute.org
www.pistachiohealth.com
www.balnuts.org
www.whfoods.com

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