FIBER AND CANCER

HEALTHY EATING TIP OF THE MONTH
APRIL 2017
Dietary fiber is a type of carbohydrate found in plant foods. However, unlike other carbohydrates, such as starch, dietary fiber cannot be digested in the small intestine by human digestive enzymes.

Types of Fiber:
Fiber is classified as either soluble or insoluble.

**Soluble Fiber:** Dissolves in water, forming a gel-like substance in the stomach that is able to be broken down by the bacteria in our intestines.

**Insoluble Fiber:** Does not dissolve in water and therefore passes through our intestines largely intact.

Best Food Sources:

**Soluble Fiber**
- Fruit
- Nuts
- Seeds
- Vegetables
- Beans
- Peas
- Oats such as oat-bran and oatmeal

**Insoluble Fiber**
- Fruit
- Nuts
- Seeds
- Vegetables
- Wheat bran
- Whole grain foods: brown rice and whole grain breads, cereals, and pasta

Find It on the Label:

```
Nutrition Facts
Serving Size 1 bagel (142g)
Servings Per Container 1

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>% Daily Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories 370</td>
<td>3%</td>
</tr>
<tr>
<td>Calories from Fat 20</td>
<td>3%</td>
</tr>
<tr>
<td>Total Fat 2g</td>
<td>3%</td>
</tr>
<tr>
<td>Saturated Fat 0.5g</td>
<td>3%</td>
</tr>
<tr>
<td>Trans Fat 0g</td>
<td>0%</td>
</tr>
<tr>
<td>Cholesterol 0mg</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 820mg</td>
<td>34%</td>
</tr>
<tr>
<td>Total Carbohydrate 74g</td>
<td>25%</td>
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<tr>
<td>Dietary Fiber 4g</td>
<td>16%</td>
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<tr>
<td>Sugars 2g</td>
<td></td>
</tr>
<tr>
<td>Protein 15g</td>
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The Dietary Guidelines for Americans recommends consuming a variety of "nutrient-dense" foods that are good sources of dietary fiber, such as beans and peas, fruits, unsalted nuts and seeds, vegetables, and whole grains. The guidelines also recommend consuming at least half of total grains as whole grains and limiting the intake of refined grains and products made with refined grains.

### Health Benefits of Fiber

<table>
<thead>
<tr>
<th>Soluble Fiber</th>
<th>Insoluble Fiber</th>
<th>Both Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interferes with the absorption of dietary fat and cholesterol</td>
<td>Can help prevent constipation</td>
<td>Helps keep you full longer</td>
</tr>
<tr>
<td>Lowers LDL (bad) cholesterol levels in the blood</td>
<td>Speeds up the movement of food and waste through the digestive system</td>
<td>Helps to control weight. Foods high in fiber are often naturally low in calories</td>
</tr>
<tr>
<td>Controls blood glucose (blood sugar) levels by controlling the rate of carbohydrate absorption</td>
<td>Passes through the intestines largely intact, providing “bulk” to stool</td>
<td>Are fermented by bacteria in the gut to produce Short Chain Fatty Acids which provide healthful effects on the colon and reduce the risk of many diseases and cancers like colon cancer</td>
</tr>
<tr>
<td>Acts as a prebiotic for the bacteria in the gut helping to increase the amount of healthy bacteria</td>
<td>Reduce risk of cardiovascular disease</td>
<td></td>
</tr>
<tr>
<td>Increases absorption of minerals like calcium, magnesium, and iron</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DIETARY REFERENCE INTAKE

<table>
<thead>
<tr>
<th>Age</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>50+ years</td>
<td>21 grams</td>
<td>30 grams</td>
</tr>
<tr>
<td>19-50 years</td>
<td>25 grams</td>
<td>38 grams</td>
</tr>
<tr>
<td>14-18 years</td>
<td>26 grams</td>
<td>38 grams</td>
</tr>
<tr>
<td>9-13 years</td>
<td>26 grams</td>
<td>31 grams</td>
</tr>
<tr>
<td>4-8 years</td>
<td>25 grams</td>
<td>25 grams</td>
</tr>
<tr>
<td>1-3 years</td>
<td>19 grams</td>
<td>19 grams</td>
</tr>
</tbody>
</table>

The *Scoop on Fiber Supplements*: The difference between fiber supplements and whole foods is simple. Supplements do **not** provide you with the cancer-fighting antioxidants, phytochemicals, vitamins, and/or minerals like plant foods do. Eating a mostly plant-based diet will allow you to meet your fiber needs.
FIBER AND CANCER
QUICK FACTS

1. High intake of foods high in fiber like grains, fruits, and vegetables significantly reduces the risks of colon cancer and breast cancer.

2. Insoluble grain fiber is more strongly associated with decreased risk of cancer than soluble fiber.

3. Fiber can draw water into the intestines and dilute carcinogens.

4. Fiber binds to bile acids for elimination in the stool. This is protective because bile acids and bacteria together can form carcinogenic chemicals.

5. A diet that is low in fat and high in fiber is the best diet for cancer prevention.

6. Antioxidants are powerful cancer fighters and are found in many fiber-filled fruits and vegetables.

7. Diets high in fiber and low in fat reduce the amount of estrogens in our blood. This helps to limit the likelihood that cancer cells will multiply and spread.

8. Fiber increases satiety, helping us to stay full longer and control appetite. Overweight and obesity are significant risk factors for many cancers.
Eat More Fiber
Here’s How...

✔ Start your day with a bowl of whole grain breakfast cereal like oatmeal or bran. Top it with fresh fruit for sweetness and even more fiber!

✔ Choose fruit as a side, a salad, or a dessert and remember the peel contains most of the fiber!

✔ Keep raw, cut-up vegetables handy for a quick snack. Choose dark green, orange, and red vegetables such as broccoli, carrots, and red peppers.

✔ Add beans, lentils, or peas to salads, soups, and side dishes.

✔ Use unsalted nuts and seeds in place of some meats and poultry.

✔ Read the Nutrition Facts Label as a reference tool.

✔ Choose the foods with a higher Percent Daily Value (%DV).

   Remember: 5% DV per serving is low
   20% DV per serving is high

   Read the Ingredient List to look for whole grains.

   Examples are: barley, brown rice, buckwheat, bulgur, millet, oatmeal, quinoa, rolled oats, whole grain corn, whole grain sorghum, whole oats, whole rye, and whole wheat.

✔ Switch from refined (white) to whole grain versions of foods that are commonly consumed like bread, cereal, pasta, and rice.

✔ Limit refined grains such as white bread, as well as products made with refined grains such as cake, chips, cookies, and crackers. These foods are high in fat, added sugars, and/or sodium and low in healthful vitamins and minerals.
**Oatmeal With Fresh Fruit**

**Ingredients:**
- 1/2 cup old fashioned rolled oats
- 1 1/4 cups almond milk, divided
- 1 tsp. ground flaxseed
- 1/8 tsp. cinnamon
- 2 Tbsp. chopped walnuts
- 1 tsp. honey
- Fresh fruit of choice

**Directions:**
- Cook oatmeal with 1 cup milk according to package directions. Put in serving bowl.
- Pour 1/4 cup milk over oatmeal. Sprinkle on flaxseed and cinnamon.
- Top with fresh fruit, walnuts, and honey.

**Calories:** 371  **Fiber:** 9 grams

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**Whole-Wheat Pasta with Ricotta, Garlic, and Walnuts**

**Ingredients:**
- 1/4 cup chopped walnuts
- 8 oz. whole-wheat fusilli, rotini, or pappardelle
- 1 cup reduced-fat ricotta cheese
- 6 tsp. minced garlic
- 1/2 cup shredded parmigiana-reggiano cheese
- 4 tsp. extra virgin olive oil
- Freshly ground black pepper
- 4 Tbsp. chopped flat-leaf parsley

**Directions:**
- Preheat oven to 350°
- Spread walnuts on small baking sheet and toast 5 minutes, stir, toast 5 more minutes. Set nuts aside
- Cook pasta according to package
- In bowl, combine ricotta and garlic and mix until creamy. Mix in Parmigiano cheese. Set aside.
- Drain pasta. In mixing bowl, combine pasta with oil and cheese mixture. Garnish with pepper, toasted walnuts, and parsley.

**Calories:** 430  **Fiber:** 6 grams

(Per 1/2 cup)

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**Fennel and Mushroom Soup**

**Ingredients:**
- 2 Tbsp. canola oil
- 1 onion, chopped
- 1 red pepper, diced
- 2 white potatoes, peeled and cubed
- 1 celery stalk, thinly sliced
- 4 cloves fresh garlic, thinly sliced
- 1 medium bulb fennel, chopped
- 2 cups sliced crimini mushrooms, including stems
- 1 tsp. dried basil
- 1 tsp. lemon pepper seasoning
- 4 cups low-sodium chicken broth
- 1 Tbsp. apple cider vinegar
- Salt
- 2 Tbsp. finely chopped fresh parsley

**Directions:**
- Heat oil over medium heat in saucepan.
- Add onion, red pepper, potatoes, celery and garlic. Sauté 5 minutes, stirring often. Add fennel, sauté 6 minutes. Add mushrooms, sauté 5 minutes stirring occasionally.
- Add basil and lemon pepper. Stir. Add broth, vinegar and salt to taste.
- Reduce heat and simmer for 25-30 minutes, stirring occasionally.
- Garnish with parsley when served.

**Calories:** 216  **Fiber:** 5 grams
**Strawberry Chia Smoothie**

**Ingredients:**
- 3/4 cup skim milk
- 4 tsp. chia seeds
- 1 cup fresh strawberries
- 1 Tbsp. strawberry fruit spread, or to taste
- 2 tsp. orange zest
- 1/2 tsp. chopped fresh ginger
- 1/2 tsp. vanilla extract

**Directions:**
- Put milk and chia seeds into blender and let sit while measuring remaining ingredients.
- Add strawberries, preserves, orange zest, ginger and vanilla to blender. Whirl on high speed until smoothie is blended and creamy, about 1 minute. Pour smoothie into tall glass and serve immediately.

**Calories:** 250  **Fiber:** 9 grams

**Lentil Salad**

**Ingredients:**
- 2 cups dried green or brown lentils
- 1 red onion, diced
- 1/4 cup capers (diced if large)
- 2 cups fresh arugula
- 1 medium cucumber, chopped
- 1/2 cup chopped walnuts
- 1/4 cup feta cheese

**Vinaigrette Ingredients:**
- 1/3 cup olive oil
- 1/4 cup lemon juice
- 1 Tbsp. maple syrup
- 1 Tbsp. dijon mustard
- 1 tsp. salt
- 2 tsp. pepper
- 1 tsp. ground cumin
- 1/2 tsp. turmeric
- 1/4 tsp. ground cinnamon
- 1/4 tsp. cayenne pepper

**Directions:**
- Rinse lentils, drain. Place in pot. Cover with 3-4 inches of water, bring to boil and reduce to simmer for 15-20 minutes.
- While the lentils are cooking, make vinaigrette by whisking all ingredients together.
- Remove lentils from heat when done. Drain and rinse under cold water.
- Add lentils to a large bowl and toss with the vinaigrette. Mix in the onion and capers.
- Add arugula, cucumber, walnuts and feta just before serving.

**Calories:** 220  **Fiber:** 5 grams  
(Per 1/2 cup)

**Want more recipes?**
Check them out online at [www.aicr.org/healthyrecipes](http://www.aicr.org/healthyrecipes)
Choosing whole-grain foods

Whole grains are important sources of nutrients such as zinc, magnesium, B vitamins, and fiber. There are many choices available to make half your grains whole grains. But whole-grain foods should be handled with care. Over time and if not properly stored, oils in whole grains can cause spoilage. Consider these tips to select whole-grain products and keep them fresh to eat.

1. Search the label
   Whole grains can be an easy choice when preparing meals. Choose whole-grain breads, breakfast cereals, and pastas. Look at the Nutrition Facts labels and ingredient lists to find choices lower in sodium, saturated fat, and added sugars.

2. Look for the word “whole” at the beginning of the ingredients list
   Some whole-grain ingredients include whole oats, whole-wheat flour, whole-grain corn, whole-grain brown rice, and whole rye. Foods that say “multi-grain,” “100% wheat,” “high fiber,” or are brown in color may not be a whole-grain product.

3. Choose whole grains at school
   Prepare meals and snacks with whole grains at home so your kids are more likely to choose whole-grain foods at school.

4. Find the fiber on label
   If the product provides at least 3 grams of fiber per serving, it is a good source of fiber. If it contains 5 or more grams of fiber per serving, it is an excellent source of fiber.

5. Is gluten in whole grains?
   People who can’t eat wheat gluten can eat whole grains if they choose carefully. There are many whole-grain products, such as buckwheat, certified gluten-free oats or oatmeal, popcorn, brown rice, wild rice, and quinoa that fit gluten-free diet needs.

6. Check for freshness
   Buy whole-grain products that are tightly packaged and well sealed. Grains should always look and smell fresh. Also, check the expiration date and storage guidelines on the package.

7. Keep a lid on it
   When storing whole grains from bulk bins, use containers with tight-fitting lids and keep in a cool, dry location. A sealed container is important for maintaining freshness and reducing bug infestations.

8. Buy what you need
   Purchase smaller quantities of whole-grain products to reduce spoilage. Most grains in sealed packaging can be kept in the freezer.

9. Wrap it up
   Whole-grain bread is best stored at room temperature in its original packaging, tightly closed with a quick-lock or twist tie. The refrigerator will cause bread to lose moisture quickly and become stale. Properly wrapped bread will store well in the freezer.

10. What’s the shelf life?
    Since the oil in various whole-grain flours differs, the shelf life varies too. Most whole-grain flours keep well in the refrigerator for 2 to 3 months and in the freezer for 6 to 8 months. Cooked brown rice can be refrigerated 3 to 5 days and can be frozen up to 6 months.
REFERENCES


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