Spinach Flexes Its Mighty Nutrition Muscle

The Folklore. Early on, spinach earned a place as a superfood, thanks in part to the image of Popeye downing it to gain muscle-popping strength. And legend says eating it may make you prosperous.

The Facts. Spinach (Spinacia oleracea) offers a powerful supply of nutrients for few calories. And because it cooks down so much, it’s a more concentrated source of nutrients cooked than raw. Just a half-cup serving is an excellent source of vitamins A and K, as well as the B vitamin folate, the minerals magnesium and manganese and several carotenoids.

What Popeye didn’t know is that spinach contains phytic acid and oxalate, which bind with folate and minerals like iron and calcium. As a result, the full amount isn’t available to the body to use. Despite these detractions, spinach is still a nutrient superstar. More proof? Researchers have identified at least 18 flavonoids plus other phytonutrients in spinach, including carotenoids like beta-carotene, neoxanthin, lutein and zeaxanthin.

The Findings. Spinach’s coterie of phytonutrients has been linked to many health benefits, including anti-inflammation, promotion of eye, heart and bone health, as well as protection against age-related mental decline and certain forms of cancer.

Using data from the Nurses’ Health Study, researchers found that a high intake of kaempferol, a flavonoid in spinach, was associated with 40% less risk of ovarian cancer. Another study found that neoxanthin appears to protect against prostate cancer. And lutein and zeaxanthin protect against cataracts by decreasing damage from ultraviolet light.

The Finer Points. Spinach comes in three main varieties: savoy (curly-leaf), flat leaf and semi-savoy. When purchasing, avoid wilted, yellowing leaves. Spinach leaves hide dirt and sand, so wash and drain thoroughly before serving or cooking.

Raw spinach suits salads perfectly. Try mixing in chopped hard-boiled egg, citrus fruit, dried fruit, nuts and chilies or warm vinaigrettes. Spinach’s delicate flavor becomes more robust after cooking. You can sauté, boil or braise it as a side dish, but keep in mind that a pound cooks down to about one cup. Spinach also adds flair to dips, soups, pasta dishes, casseroles and egg dishes. With so much nutritional power to offer, you’d be wise to find a place in your menu for spinach at least once a week.

—Sharon Palmer, R.D.

Notable Nutrients
(1/2 cup boiled spinach)

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount (USDA)</th>
<th>%DV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td>89,433 IU (189% DV)</td>
<td></td>
</tr>
<tr>
<td>Folate</td>
<td>132 micrograms (33% DV)*</td>
<td></td>
</tr>
<tr>
<td>Vitamin C</td>
<td>9 milligrams (15% DV)</td>
<td></td>
</tr>
<tr>
<td>Vitamin K</td>
<td>44 micrograms (55% DV)</td>
<td></td>
</tr>
<tr>
<td>Copper</td>
<td>0.31 milligrams (16% DV)*</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>3.2 milligrams (18% DV)*</td>
<td></td>
</tr>
<tr>
<td>Magnesium</td>
<td>79 milligrams (20% DV)*</td>
<td></td>
</tr>
<tr>
<td>Manganese</td>
<td>0.8 milligrams (40% DV)*</td>
<td></td>
</tr>
<tr>
<td>Potassium</td>
<td>420 mg (12% DV)</td>
<td></td>
</tr>
<tr>
<td>Fiber</td>
<td>4.3 grams (17% DV)</td>
<td></td>
</tr>
<tr>
<td>Beta-carotene</td>
<td>5,659 micrograms</td>
<td></td>
</tr>
</tbody>
</table>

EN’s Own Oven-Baked Spinach Frittata

1 tablespoon extra-virgin olive oil
1 onion, diced
2 cloves garlic, minced or crushed
½ teaspoon paprika
½ teaspoon ground nutmeg
6 ounces fresh spinach, washed, drained
4 large eggs, beaten
½ cup reduced-fat milk
¼ cup all-purpose flour
¼ cup grated Parmesan cheese
1. Preheat oven to 350°F.
2. Heat oil in a skillet. Add onion, garlic and seasonings. Sauté for five minutes, being careful not to burn the garlic.
3. Add spinach, stir until wilted.
4. Spread spinach mixture on bottom of a casserole dish coated with cooking spray.
5. In a mixing bowl, combine eggs, milk, flour and Parmesan cheese.
6. Pour egg mixture over spinach mixture.
7. Bake for one hour.
8. Slice into 6 squares; serve immediately with a side salad and whole-grain roll.

Nutrition Information Per Serving: 129 calories, 8 grams protein, 7 grams fat, 8 grams carbohydrates, 2,877 International Units vitamin A, 137 micrograms vitamin K, 121 milligrams calcium, 271 milligrams potassium, 142 milligrams sodium.

Research Roundup

- Maintaining healthy blood sugar levels helps preserve brain function as you age, whether or not you have diabetes, according to researchers from Columbia University Medical Center in New York City. They used magnetic resonance imaging (MRI) to scan the brains of 240 people whose average age was 80. The MRIs showed that the area of the brain related to age-related cognitive decline was damaged by high blood sugar levels. The researchers concluded that lowering blood sugar might benefit cognition in older people and suggested that exercise could help.

- A high intake of meat and fat seems linked to a higher risk of ovarian cancer. That’s what Australian researchers concluded after studying the dietary habits of 1,460 women, half of whom had ovarian cancer; the other half were healthy. Women with a pattern of eating that included the most meat and fat were two and a half times more likely to have ovarian cancer than those whose eating pattern was least tied to meat and fat. Wine also was linked to much less risk, whereas fruits and vegetables seemed to offer no protection.

- Cranberry extract is almost as effective as antibiotics for delaying the recurrence of chronic urinary tract infections (UTI) in women. So Scottish researchers found, when they tested 137 women who had been treated with antibiotics for at least two UTIs in the previous year. Half the women got 500 milligrams a day of cranberry extract; the other half got the antibiotic trimethoprim (100 milligrams daily) for six months. Not only was the cranberry extract nearly as effective as the antibiotic, but it had fewer side effects.

In Coming Issues

- Silent Complications of Diabetes. What you can do to stave them off.
- Whole Is Greater Than Sum of Nutrients. Focus on whole foods.
- B vitamins. Energy boosters or hype?
- Best Margarines. EN’s picks.
Copyright of Environmental Nutrition is the property of Belvoir Media Group and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.