

# Fill 'em Up *With* Fiber

**W**hile many health professionals often criticize TV advertising for not promoting enough healthful foods, we can be glad that current ads for high-fiber cereals and cultured yogurt are getting people talking about bowel function and the importance of colon health. Increased awareness of the need for more dietary fiber in the diet is sorely needed since the average intake in the United States is only 15 g/day, a level that falls far short of the recommended Dietary Reference Intakes of 14 g per 1,000 kcal, or 25 g/day for women and 38 g for men.<sup>1</sup>

Consuming adequate amounts of fiber has demonstrated benefits. Fiber maintains colon health by promoting regularity, bowel integrity, and lowering the risk of colon cancer. But one ailment in particular that fiber may help prevent is diverticular disease, a condition that affects the large intestine, which is responsible for removing waste from the body.

Diverticular disease consists of two conditions: diverticulitis and diverticulosis. This article will define diverticular disease and discuss its prevalence, who's at risk, and how nutrition can play a role in its prevention and treatment.

## **Diverticular Disease**

Diverticulosis occurs when pockets called diverticula, develop in the colon wall—usually in the sigmoid or left colon although they may develop along the entire colon. Diverticula are

## Healthful Eating Advice for Patients With Diverticular Disease

**By Carol Meerschaert, MBA, RD**



## Fiber Content of Selected Foods

Grains	Amount	Total Fiber (g)
Bran, wheat, dry	¼ cup	6
Spaghetti noodles, whole wheat	1 cup	6
Bulgar, cooked	½ cup	4
Wheat germ, ready-to-eat	¼ cup	4
Pearl barley, cooked	½ cup	3
Cracked wheat, cooked	½ cup	3
Multigrain or granola bread	1 slice	2
Rice, brown, cooked	½ cup	2
Spaghetti noodles	1 cup	2
Bread, whole wheat	1 slice	2
Bread, white	1 slice	1
Legumes and Nuts	Amount	Total Fiber (g)
Navy beans	½ cup	10
Lentils, cooked	½ cup	8
Lima beans	½ cup	7
Beans, baked	½ cup	7
Kidney beans	½ cup	6
Pigeon peas, cooked	½ cup	6
Green peas, cooked	½ cup	4
Peanuts, dry roasted	¼ cup	3
Walnuts, pieces	¼ cup	2
Filberts, raw	10 nuts	1
Fruits	Amount	Total Fiber (g)
Pears, fresh	1 large	7
Plums, fresh	5 small	5
Apples, fresh	1 medium	4
Blueberries, fresh	1 cup	4
Strawberries, fresh	1 cup	3
Bananas, fresh	1 medium	3
Naval oranges	1 medium	3
Apricots, fresh	3 fruits	2
Cherries, fresh	10 fruits	2
Deglet noor dates	3 fruits	2
Peaches, fresh	1 medium	2
Plums, dried	3 fruits	2
Raisins, seedless	¼ cup	2
Apricots, dried	5 halves	1
Cantaloupe	¼ medium	1
Grapefruit	½ medium	1
Grapes, seedless, fresh	20 fruits	1
Pineapples, fresh	½ cup	1
Vegetables	Amount	Total Fiber (g)
Parsnips, cooked	½ cup	3
Potato, baked with skin	1 medium	3
Broccoli, cooked	½ cup	3
Winter squash, cooked	½ cup	3
Carrots, cooked	½ cup	2
Brussels sprouts, cooked	½ cup	2
Spinach, cooked	½ cup	2
String beans, cooked	½ cup	2
Savoy cabbage, cooked	½ cup	2
Corn, cooked	½ cup	2
Sweet potato, cooked	½ medium	2
Turnips, cooked	½ cup	2
Cauliflower, cooked	½ cup	1
Kale, cooked	½ cup	1
Summer squash, cooked	½ cup	1
Tomato, raw	1 medium	1
Zucchini, cooked	½ cup	1

— Source: USDA

herniations of the mucosal layer through weak regions in the colon. The term diverticulosis describes the presence of these herniations, or pockets. Diverticulitis describes the inflammation of the diverticula.<sup>2</sup>

Diverticulosis was first discovered in the United States in the early 1900s, around the time processed foods were introduced into the American diet. Diverticular disease is common in industrialized countries where low-fiber diets are consumed, particularly in the United States, England, and Australia. The disease is rare in Asia and Africa, where most people eat high-fiber foods. Lack of exercise also may be associated with a greater risk of diverticula formation, possibly because inactivity slows stool transit time in the colon.<sup>3</sup>

Furthermore, the prevalence of diverticulosis increases with age. About 10% of Americans older than the age of 40 have diverticulosis; almost one-half have the condition by age 60; and most people have it by age 80.<sup>3</sup> About 10% to 25% of individuals with diverticular disease will develop diverticulitis. An American Gastroenterology Association report stated that it costs \$2.66 billion each year to treat this condition.

Only a small percentage of those with diverticulosis have symptoms. Symptoms related to diverticular disease include bleeding, abdominal pain, chills, fever, and a change in bowel habits. More intense symptoms are associated with serious complications such as perforation or fistula formation. A fistula is an abnormal connection between the colon and another organ (eg, bladder, small intestine). The most common type of fistula occurs between the bladder and the colon and affects men more often than women. It can result in a severe, long-lasting infection of the urinary tract. The problem can be corrected with surgery to remove the fistula and the affected part of the colon. Perforated diverticular disease is a serious emergency.

### Causes of the Disease

The cause of diverticulosis and diverticulitis isn't precisely known, but it's more common in people who eat a low-fiber diet. An adequate intake of dietary fiber may prevent the formation of diverticula because fiber stays in the colon and absorbs water, making bowel movements easier to pass. Less forceful contractions are needed to propel stool through the colon. It's thought that a low-fiber diet over the years causes constipation and hard stools that are difficult to pass, increasing colon pressure and creating pockets or diverticula. If stool or bacteria get trapped in the pockets, diverticulitis can occur. However, according to the American Dietetic Association position paper on fiber, this hasn't been clinically proven even though it's conventional thinking.

What's more, overweight and obesity increase the odds of developing diverticulitis and diverticular bleeding. In the Health Professionals Follow-Up study, a prospective cohort trial, researchers followed 47,228 male health professionals

for 18 years to determine relationships between diverticulitis, obesity, and diet. They found that men with a BMI of 30 or more were 78% more likely to develop diverticulitis than men with a BMI of less than 21.<sup>4</sup> Total dietary fiber intake was inversely associated with the risk of diverticular disease after adjustments for age, energy-adjusted total fat intake, and physical activity. The researchers concluded that the data support the hypothesis that a diet low in total dietary fiber increases the incidence of symptomatic diverticular disease. They also showed that the combination of high total fat intake, or red meat, and a diet low in total dietary fiber particularly augments the risk. After adjusting for confounding variables, the study showed that vegetarians had a 31% lower risk of diverticular disease compared with meat eaters.<sup>5</sup>

### Treatment Options

Treatment of diverticular disease varies depending on how serious symptoms are and whether the patient has diverticulosis or diverticulitis. However, most people get better by eating a more healthful diet rich in fruits and vegetables. Increasing the amount of dietary fiber and sometimes restricting certain foods reduces the pressure in the colon and may decrease the risk of complications. Small seeds or husks often are restricted because they might not be fully digested in the upper gastrointestinal tract, and it's thought that these small food items may become lodged in a diverticulum. This is controversial because many studies have shown there's no risk from the intake of small seeds or foods containing them, such as strawberries.<sup>6</sup>

Probiotics have been found to have some benefit in the treatment of diverticulosis. Because these good bacteria colonize the gut and inhibit the growth of pathogenic bacteria, they improve the intestinal epithelial layer, thus improving its barrier function and discouraging the transmigration of bacteria. Since there may be an alteration of the intestinal flora in and around diverticula that can result in chronic inflammation, using probiotics for the prevention of diverticulitis is under investigation. By discouraging the growth of pathogenic microbes in the diverticula and the adjacent area, probiotics may play a beneficial role in tempering the inflammation associated with diverticulitis.<sup>7</sup> There are limited data supporting this theory; therefore more studies are needed.

Diverticulitis is usually treated with oral antibiotics. Patients are given dietary restrictions and possibly stool softeners. Anti-inflammatory drugs, 5-aminosalicylic acid medications in particular, may benefit patients with chronic low-level diverticular symptoms. There's strong evidence that mesalamine taken with rifamixin (an antibiotic) improves the severity of symptoms for patients with diverticular disease. The combination also prevents recurrence of diverticulitis episodes in patients with complicated diverticulitis.<sup>8</sup>

Surgery is reserved for patients with recurrent episodes of diverticulitis, complications, or severe attacks when there's little or no response to medication. Surgery also may be

required in individuals with a single episode of severe bleeding from diverticulosis or with recurrent episodes of bleeding. Surgical treatment for diverticulitis removes the diseased part of the colon, most commonly the left or sigmoid colon. Normal bowel function usually resumes in about three weeks. In emergency surgeries, patients may require a temporary colostomy.

### Ways to Help Clients

Since nutrition plays a role in preventing and treating diverticular disease, here's what you can suggest to clients who must adopt more healthful eating habits.

- **Chow down on fiber.** Excellent fiber sources include wheat bran cereals, which have as much as 10 g of fiber per serving; legumes such as lentils and kidney beans, which have 8 g and 6 g per ½ cup, respectively; and whole grains, including brown rice and whole wheat pasta, which have 4 g and 6 g per cup, respectively.

- **Eat fruits and veggies.** Fresh fruits such as apples (4 g), pears (7 g), and strawberries (3 g per cup) are great sources of fiber, as are parsnips (3 g per ½ cup), carrots (2 g per ½ cup), and Brussels sprouts (2 g per ½ cup).

- **Consider functional foods.** Functional foods such as the Fiber One brand of cereals, muffins, snack bars, and cottage cheese, as well as probiotic-containing yogurts, including Activia and other cultured dairy products, can add fiber to the diet. Functional foods on the market, often promoted as good-tasting, high-fiber foods, are often fortified with resistant starch. Resistant starch is the sum of starch and starch-degradation products not digested in the small intestine. These carbohydrates reach the large intestine and function as dietary fiber. Legumes are a great source of resistant starch because as much as 35% of legume starch isn't digested. The processing and baking of cereal and grain products produce small amounts of resistant starch.

- **Try fiber supplements.** Benefiber, Citrucel, Metamucil, Konsyl, and others can help patients who find it difficult to get the fiber they need from their diet. These products are available in powder, capsules, or wafers; they provide 2 to 3.5 g of fiber per serving; and are taken with at least 8 oz of liquid.

A healthy colon is generally found in a healthy person who not only pays attention to his or her fiber intake but also to the overall diet. The most nutritionally minded consume a plant-based diet and pay attention to not only adequate fiber intake but to disease-fighting vitamins, minerals, and phytochemicals.

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For references, view this article on our website at [www.TodaysDietitian.com](http://www.TodaysDietitian.com).

