

Shailendra Prasad, MBBS, MPH
Department of Family Medicine and Community Health, University of Minnesota, Minneapolis

Bernard Ewigman, MD, MSPH
Department of Family Medicine, The University of Chicago

PURLs EDITOR

John Hickner, MD, MSc
Department of Family Medicine, Cleveland Clinic



Do you advise otherwise healthy patients with diverticulosis to avoid nuts, corn, or popcorn?

- Never
- Rarely
- Often
- Always

Go to www.jfponline.com and take our **Instant Poll**

PURLs methodology

This study was selected and evaluated using FPIN's Priority Updates from the Research Literature (PURL) Surveillance System methodology. The criteria and findings leading to the selection of this study as a PURL can be accessed at www.jfponline.com/purls.

Let them eat nuts – this snack is safe for diverticulosis patients

Nuts have many health benefits, and we now know there's no reason for patients at risk of diverticulitis to avoid them.

Practice changer

Tell patients with diverticular disease that they can eat nuts, corn, and popcorn without fear. There is no truth to the long-held belief that these foods increase the risk of complications.¹

Strength of recommendation

B: A large cohort study

Strate LL, Liu YL, Syngal S, et al. Nut, corn, and popcorn consumption and the incidence of diverticular disease. *JAMA*. 2008;300:907-914.

ILLUSTRATIVE CASE

John M, a 50-year-old patient, recently had a routine colonoscopy and was diagnosed with diverticulosis. Concerned because a friend has had multiple bouts of diverticulitis and a partial colectomy, John schedules an appointment to discuss management of diverticulosis. His friend has told John he'll have to follow a strict diet and avoid nuts, corn, and popcorn altogether. Anxious to avoid the complications his friend has experienced, John turns to you for dietary advice. Would you know what dietary advice is best?

Diverticulosis affects one-third of the US population by age 60; by the age of 85, two-thirds are affected.^{2,3} This common digestive disorder has been associated with a diet high in refined carbohydrates, and is less prevalent among people who follow a vegetarian diet.⁴⁻⁶ Up to 35% of patients with diverticulosis develop complications, including diverticulitis and diverticular bleeding, that frequently require hospitalization and invasive procedures.^{7,8}

■ Nuts or no nuts? In search of evidence

Biological mechanisms responsible for the development of diverticular complications are poorly understood.^{1,4} But luminal trauma has been suggested as a contributory factor and nuts, corn, popcorn, and seeds have long been viewed as likely culprits.⁸ Thus, physicians have historically advised patients with diverticular disease to avoid these foods.⁸⁻¹²

That recommendation, however, had little evidence to support it. Until the study by Strate et al that we report on here, no studies had assessed the consumption of nuts, corn, popcorn, or seeds as a risk factor for diverticulitis or diverticular

complications.^{1,13} Conversely, there was a growing body of evidence that a diet rich in nuts may provide protection against many common disorders, including coronary heart disease, diabetes, colon and prostate cancers, and gall bladder disease.¹⁴⁻¹⁹ The research by Strate et al settles the matter, but it also provides an interesting twist.

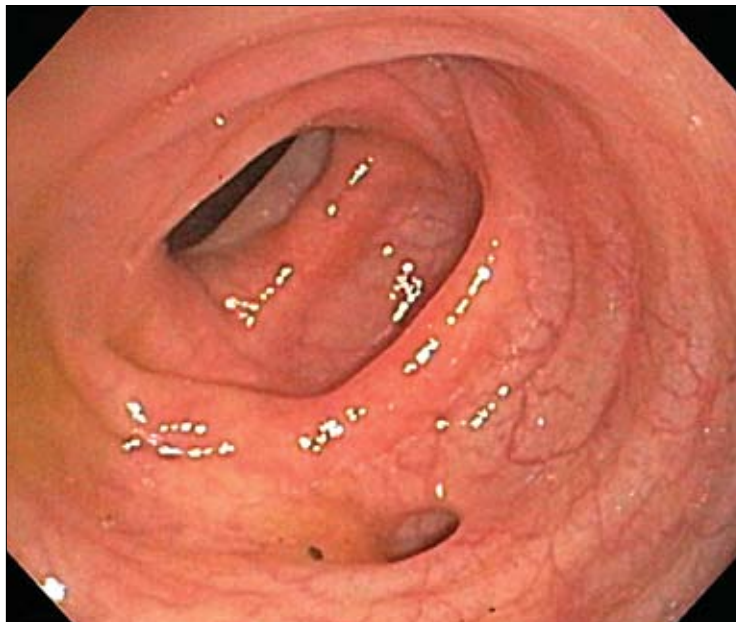
STUDY SUMMARY

■ Nuts and popcorn linked to lower risk

The Strate trial is part of the Health Professionals Follow-up Study, a prospective cohort study that followed male health professionals in the United States from 1986 to 2004.²⁰ A counterpart to the all-female Nurses' Health Study, this long-running study allowed investigators to evaluate the relationship between nutritional factors and the incidence of serious illnesses such as cancer, heart disease, and other vascular diseases. The study population was comprised of 47,228 men between the ages of 40 and 75 years who completed periodic self-administered medical and dietary questionnaires.

At baseline, all the men were free of diverticulosis or related complications, as well as cancer and inflammatory bowel disease. During the 18 years of follow-up, 801 incident cases of diverticulitis and 383 cases of diverticular bleeding occurred. After analyzing the data, the researchers reported that, not only was the consumption of nuts and/or popcorn *not* associated with an increased risk of diverticulitis, it had a protective effect. The hazard ratios for men with the highest intake of nuts and/or popcorn (at least twice a week) compared with men with the lowest intake (less than once a month) were 0.80 (95% confidence interval [CI], 0.63-1.01) for nuts and 0.72 (95% CI, 0.56-0.92) for popcorn. The researchers found no association, positive or negative, between corn consumption and diverticulitis, nor between nut, corn, or popcorn consumption and diverticular

Colonoscopy reveals diverticular disease



This colonoscopic image shows the presence of a diverticulum.

bleeding or the development of uncomplicated diverticulosis.¹

WHAT'S NEW?

■ A long-standing belief gets debunked

This study—the first to examine the relationship between a diet rich in nuts, corn, or popcorn and diverticular disease—showed that these foods did not increase the risk of developing diverticulosis, diverticulitis, or diverticular bleeding. Moreover, it found an association between a diet rich in nuts or popcorn and a decreased risk of diverticulitis. Although we can't characterize this as a cause-and-effect relationship based on this study, the evidence convinces us that, at the least, nuts, corn, and popcorn do not increase the risk of diverticular disease. We think we can confidently tell patients to enjoy these foods.

CAVEATS

■ Protective effect of nuts is tough to explain

As with all cohort studies, there is a possibility of unmeasured confounding variables which, in this case, could account

FAST TRACK

Vegetarians have a lower risk of developing diverticular disease.

for the protective effect of nuts and popcorn suggested by the decreased risk of diverticulitis. Although this was a large and carefully conducted prospective cohort study involving health professionals, we are not aware of any proven pathophysiologic mechanism by which nuts, corn, and popcorn may either increase or decrease the risk of diverticular disease or its complications.

A randomized controlled trial addressing this dietary issue is unlikely—and probably unnecessary. This study provides the strongest evidence on this topic by far. We think many patients have been unnecessarily deprived of these foods.

The study did not enroll young patients or women. However, diverticulosis is rare before the age of 40.^{2,9} And, because no clear sex difference has been observed in diverticular disease, we see no reason why this evidence should not apply equally to female patients.^{2,13}

Also of note: This study did not assess total seed intake, per se. Rather, it assessed the consumption of strawberries and blueberries, the source of the seeds. The researchers found no association between strawberries and blueberries and diverticular complications, and we see no reason to tell patients to avoid them.

CHALLENGES TO IMPLEMENTATION

■ There are no obstacles to implementation

Dietary advice is an integral part of primary care practice. We see no challenges to implementing this practice changer, which should come as welcome news to patients at risk of diverticular disease or its complications. ■

Acknowledgements

The PURLs Surveillance System is supported in part by Grant Number UL1RR024999 from the National Center for Research Resources, a Clinical Translational Science Award to the University of Chicago. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Center for Research Resources or the National Institutes of Health.

References

1. Strate LL, Liu YL, Syngal S, et al. Nut, corn, and popcorn consumption and the incidence of diverticular disease. *JAMA*. 2008;300:907-914.
2. Hughes LE. Postmortem survey of diverticular disease of the colon. II. The muscular abnormality of the sigmoid colon. *Gut*. 1969;10:344-351.
3. Bogardus ST Jr. What do we know about diverticular disease? A brief overview. *J Clin Gastroenterol*. 2006;40(suppl 3):S108-S111.
4. Floch MH, Bina I. The natural history of diverticulitis: fact and theory. *J Clin Gastroenterol*. 2004;38(5 suppl):S2-S7.
5. Nair P, Mayberry JF. Vegetarianism, dietary fibre and gastro-intestinal disease. *Dig Dis*. 1994;12:177-185.
6. Painter NS, Burkitt DP. Diverticular disease of the colon: a deficiency disease of Western civilization. *Br Med J*. 1971;2:450-454.
7. McGuire HH Jr. Bleeding colonic diverticula. A reappraisal of natural history and management. *Ann Surg*. 1994;220:653-656.
8. Horner JL. Natural history of diverticulosis of the colon. *Am J Dig Dis*. 1958;3:343-350.
9. Jacobs DO. Clinical practice. Diverticulitis. *N Engl J Med*. 2007;357:2057-2066.
10. Schechter S, Mulvey J, Eisenstat TE. Management of uncomplicated acute diverticulitis: results of a survey. *Dis Colon Rectum*. 1999;42:470-475.
11. National Digestive Diseases Information Clearinghouse. Diverticulosis and diverticulitis. Bethesda, Md: National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health; July 2008. NIH publication 08-1163. Available at: <http://digestive.niddk.nih.gov/ddiseases/pubs/diverticulosis/>. Accessed December 17, 2008.
12. Gearhart SL. Diverticular disease and common anorectal disorders. In: Fauci AS, Braunwald E, Kasper DL, et al, eds. *Harrison's Principles of Internal Medicine*. 17th ed. New York: McGraw-Hill; 2008:chap 291.
13. Stollman NH, Raskin JB. Diagnosis and management of diverticular disease of the colon in adults. Ad Hoc Practice Parameters Committee of the American College of Gastroenterology. *Am J Gastroenterol*. 1999;94:3110-3121.
14. Hu FB, Stampfer MJ, Manson JE, et al. Frequent nut consumption and risk of coronary heart disease in women: prospective cohort study. *BMJ*. 1998;317:1341-1345.
15. Blomhoff R, Carlsen MH, Andersen LF, et al. Health benefits of nuts: potential role of antioxidants. *Br J Nutr*. 2006;96(suppl 2):S52-S60.
16. Jenab M, Ferrari P, Slimani N, et al. Association of nut and seed intake with colorectal cancer risk in the European Prospective Investigation into Cancer and Nutrition. *Cancer Epidemiol Biomarkers Prev*. 2004;13:1595-1603.
17. Jiang R, Manson JE, Stampfer MJ, et al. Nut and peanut butter consumption and risk of type 2 diabetes in women. *JAMA*. 2002;288:2554-2560.
18. Tsai CJ, Leitzmann MF, Hu FB, et al. Frequent nut consumption and decreased risk of cholecystectomy in women. *Am J Clin Nutr*. 2004;80:76-81.
19. Albert CM, Gaziano JM, Willett WC, et al. Nut consumption and decreased risk of sudden cardiac death in the Physicians' Health Study. *Arch Intern Med*. 2002;162:1382-1387.
20. Harvard School of Public Health. Health professionals follow-up study. Available at: <http://www.hsph.harvard.edu/hpfs/>. Accessed December 17, 2008.

FAST TRACK

A diet rich in nuts appears to have a protective effect against heart disease and diabetes—and may decrease the risk of diverticulitis.