

# Increased Fiber Intake Decreases Premenopausal Breast Cancer Risk

Kathleen K. Harnden, MD, Kimberly L. Blackwell, MD

There is growing interest in the relationship between dietary habits and cancer. Dietary fibers are a complex group of oligosaccharides, polysaccharides, resistant starch, and resistant dextrins. There is longstanding evidence that dietary fibers may reduce circulating estrogen levels through changes in the gut microbiome and increased excretion of estrogens in the gastrointestinal tract. Soluble fibers are believed to decrease intestinal cholesterol absorption, and there is emerging evidence that cholesterol byproducts may have estrogenic effects.<sup>1</sup> Fiber intake would be an easily modifiable risk factor to reduce the development of breast cancer.

Until recently, there have been no studies showing a clear relationship between dietary fiber and breast cancer risk. In addition, there has been no significant evaluation of the short- and long-term impact of fiber intake during breast development in the adolescent years. However, in recent months, several new studies have suggested a protective effect of fiber in the risk of breast cancer.<sup>2-4</sup>

Farvid et al<sup>5</sup> evaluated >44 000 women in the ongoing NHSII (Nurse's Health Study II) prospective cohort study and found that increasing adolescent and early adulthood fiber intake was associated with significantly lower risk of invasive breast cancer. The women reporting the highest quintile of fiber intake had an impressively lower risk of breast cancer compared with the lowest quintile (relative risk, 0.75), and this finding was stronger in premenopausal breast cancer (relative risk, 0.68). However, the women were surveyed about their adolescent diet when they were in their 30s and 40s. Although the

investigators discuss the validation of the dietary survey, the recollection of dietary habits more than a decade earlier must be questioned. They used rigorous methodology to attempt to control for confounding factors, and although there may be confounding dietary or lifestyle factors also contributing to these findings, the associations are interesting and deserve further study. In particular, the association between dietary fiber and weight must be examined prospectively to understand the clinical impact of the authors' findings. It is reasonable for pediatricians to encourage a high-fiber diet and include decreasing breast cancer risk as one of the potential benefits.

## REFERENCES

1. Nelson ER, Wardell SE, Jasper JS, et al. 27-Hydroxycholesterol links hypercholesterolemia and breast cancer pathophysiology. *Science*. 2013;342(6162):1094–1098
2. Chhim AS, Fassier P, Latino-Martel P, et al. Prospective association between alcohol intake and hormone-dependent cancer risk: modulation by dietary fiber intake. *Am J Clin Nutr*. 2015;102(1):182–189
3. Mourouti N, Kontogianni MD, Papavagelis C, et al. Whole grain consumption and breast cancer: a case-control study in women [published online ahead of print April 27, 2015]. *J Am Coll Nutr*.
4. Tajaddini A, Pourzand A, Sanaat Z, Pirouzpanah S. Dietary resistant starch contained foods and breast cancer risk: a case-control study in northwest of Iran. *Asian Pac J Cancer Prev*. 2015;16(10):4185–4192
5. Farvid MS, Eliassen AH, Cho E, Liao X, Chen WY, Willett WC. Dietary fiber intake in young adults and breast cancer risk. *Pediatrics*. 2016;137(3):e20151226

FREE

Department of Medicine, Duke University Medical Center, Durham, North Carolina

Opinions expressed in these commentaries are those of the author and not necessarily those of the American Academy of Pediatrics or its Committees.

DOI: 10.1542/peds.2015-4376

Accepted for publication Dec 16, 2015

Address correspondence to Kimberly L. Blackwell, MD, Box 3893, Duke University Medical Center, Durham, NC 27710. E-mail: kimberly.blackwell@dm.duke.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2016 by the American Academy of Pediatrics

**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** No external funding.

**POTENTIAL CONFLICT OF INTEREST:** The authors have indicated they have no potential conflicts of interest to disclose.

**COMPANION PAPER:** A companion to this article can be found online at [www.pediatrics.org/cgi/doi/10.1542/peds.2015-1226](http://www.pediatrics.org/cgi/doi/10.1542/peds.2015-1226).

**To cite:** Harnden KK and Blackwell KL. Increased Fiber Intake Decreases Premenopausal Breast Cancer Risk. *Pediatrics*. 2016;137(3):e20154376

## Increased Fiber Intake Decreases Premenopausal Breast Cancer Risk

Kathleen K. Harnden and Kimberly L. Blackwell

*Pediatrics* 2016;137;

DOI: 10.1542/peds.2015-4376 originally published online February 1, 2016;

### Updated Information & Services

including high resolution figures, can be found at:  
<http://pediatrics.aappublications.org/content/137/3/e20154376>

### References

This article cites 5 articles, 3 of which you can access for free at:  
<http://pediatrics.aappublications.org/content/137/3/e20154376#BIBL>

### Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):  
**Hematology/Oncology**  
[http://www.aappublications.org/cgi/collection/hematology:oncology\\_sub](http://www.aappublications.org/cgi/collection/hematology:oncology_sub)  
**Cancer/Neoplastic**  
[http://www.aappublications.org/cgi/collection/cancer:neoplastic\\_sub](http://www.aappublications.org/cgi/collection/cancer:neoplastic_sub)

### Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:  
<http://www.aappublications.org/site/misc/Permissions.xhtml>

### Reprints

Information about ordering reprints can be found online:  
<http://www.aappublications.org/site/misc/reprints.xhtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



# PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

## **Increased Fiber Intake Decreases Premenopausal Breast Cancer Risk**

Kathleen K. Harnden and Kimberly L. Blackwell

*Pediatrics* 2016;137;

DOI: 10.1542/peds.2015-4376 originally published online February 1, 2016;

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/137/3/e20154376>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2016 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

