

Cancer Prevention Guidelines and Risk of Postmenopausal Breast Cancer

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In 2007, the World Cancer Research Fund and the American Institute for Cancer Research published 8 recommendations, related to diet, exercise and body weight, for the prevention of common cancers. Specifically, recommendations include to be as lean as possible within the normal range of body weight, to be regularly physically active, to eat primarily plant-based foods and limit energy-dense foods, salt, and red and processed meat, and avoid moldy grains and legumes (a major cause of liver cancer in many developing countries). However, it is unclear how this set of recommendations relates to the risk of postmenopausal breast cancer.

Drs. Theresa Hastert, Shirley Beresford, Alan Kristal, and Emily White of Public Health Sciences, and Ruth Patterson of Moores Cancer Center at UCSD, addressed this question in a cohort of more than 30,000 women enrolled in the Vitamins and Lifestyle (VITAL) Study between the ages of 50-76 years. The investigators operationalized six of the eight recommendations (#1-6 in Figure), based on the data available in the VITAL study. For example, women with body mass index (BMI) of between 18.5 and 25 kg/m² were counted as meeting recommendation #1. Daily consumption of 5 or more servings of fruits and vegetables, and 1 or more servings of whole grains or legumes, was counted as meeting recommendation #4. Consuming less than 18 ounces of red or processed meat per week met recommendation #5. They then estimated the associations between meeting these guidelines and the risk of invasive postmenopausal breast cancer over almost 7 years of follow-up.

Hastert *et al.* found that the proportion of women in the VITAL cohort meeting each guideline ranged from over 70% (for limiting alcohol to 1 drink per day, and lower intake of processed and red meat) to less than 40% of the cohort (for maintaining a BMI within the normal range, regular exercise, and consumption of energy-dense foods). 899 breast cancers were identified over the follow-up period. The reduction in risk associated with each guideline individually ranged from no difference in risk for avoidance of avoiding energy-dense foods (hazard ratio (HR) 0.98, 95% confidence interval (CI) 0.84-1.15) and getting regular physical activity (HR 0.95, 95% CI 0.84-1.15), to a 37% lower risk of postmenopausal breast cancer associated with limiting alcohol intake (HR 0.63, 95% CI 0.54-0.75).

Women who met at least 5 of the 6 recommendations had a 60% lower risk of invasive breast cancer than women who met none of the recommendations (HR 0.40, 95% CI 0.25-0.65). The investigators also found that, of the 6 recommendations studied, 3 were more strongly associated with a lower risk of breast cancer: lean body weight, plant consumption, and moderating alcohol intake. Meeting these 3 recommendations was associated with a 62% lower risk of breast cancer compared to women who met none of these 3 recommendations (HR 0.38, 95% CI 0.25-0.58).

As the investigators pointed out, a possible limitation of this study is that, because VITAL recruited supplement users, cohort enrollees may be healthier than the general population. This would not be expected to bias risk estimates, but could potentially limit generalizability of findings to similar populations.

As Dr. Hastert notes, “Although these recommendations were designed to reduce risk of all of the most common cancers worldwide, they were also associated with substantial reductions in postmenopausal breast cancer risk, and ... that reduction was really driven by meeting the recommendations related to alcohol, plant foods and body weight.” This prospective cohort study provides additional evidence for the relevance of these factors to breast cancer risk, with a unique approach of quantifying the associations between breast cancer and each of these recommendations, both separately and in combination.

[Hastert TA, Beresford SA, Patterson RE, Kristal AR, White E.](#) 2013. Adherence to WCRF/AICR cancer prevention recommendations and risk of post-menopausal breast cancer. *Cancer Epidemiol Biomarkers Prev.* Jun 18. [Epub ahead of print]

Also see [WCRF/AICR Recommendations](#).

**World Cancer Research Fund, and the
American Institute for Cancer Research**

Recommendations for the Prevention of Cancer

1. **BODY FATNESS:** Be as lean as possible within the normal range of body weight
2. **PHYSICAL ACTIVITY:** Be physically active as part of everyday life
3. **FOODS AND DRINKS THAT PROMOTE WEIGHT GAIN:** Limit consumption of energy-dense foods; avoid sugary drinks
4. **PLANT FOODS:** Eat mostly foods of plant origin
5. **ANIMAL FOODS:** Limit intake of red meat and avoid processed meat
6. **ALCOHOLIC DRINKS:** Limit alcoholic drinks
7. **PRESERVATION, PROCESSING, PREPARATION:** Limit consumption of salt; avoid mouldy cereals (grains) or pulses (legumes)
8. **DIETARY SUPPLEMENTS:** Aim to meet nutritional needs through diet alone

Recommendations summarized from WCRF/AICR Report