



# Prevention

Breast Cancer Awareness Month October 2024

## REDUCING MORTALITY FROM BREAST CANCER

**Note to Readers:** Innovation is essential to cancer prevention. Using genomic data and new analytic techniques to create precision medicine may also enable **precision prevention**. Innovation may also increase the reach and effectiveness of cancer prevention approaches. Strang will continue to highlight innovation in cancer prevention.

**Summary:** AI may permit **cheaper mammographic testing**, and **gene risk scores** may guide mammogram use, including delaying screening for very low-risk women. Technical changes can increase mammography rates, especially **self-scheduling mammograms**. **Air pollution may contribute to breast cancer disparities**.

### BREAST CANCER SCREENING

**AI MAY MAKE MAMMOGRAPHY AS GOOD AS MRI FOR BREAST CANCER SCREENING:** The **Kaiser score (KS)** is a **machine-learning derived decision rule** for characterizing breast lesions. In 275 women, **applying the KS to contrast-enhanced mammography (CEM) was as good as MRI** and better than standard mammography reports (Breast Imaging Reporting and Data System (BI-RADS)). Elements of the KI, calcification and microcalcification, but not edema, were especially helpful.<sup>1</sup> Using AI **may enable less expensive screening options**.

**POLYGENIC RISK SCORES (PRS) MAY GUIDE SCREENING:** Polygenic risk scores may identify **high-risk women without other risk factors**, such as a family history of breast cancer or a pathological gene mutation, and low-risk women who could delay starting mammograms. A **Finnish cohort study using the FinnGen PRS** identified high-risk women with a 40% risk of breast cancer with an abnormal mammogram and others who would not reach the threshold for starting mammograms until age 62.<sup>2</sup> Most PRS have used European populations and require further studies. However, gene scores may be used to enhance or deintensify mammography.

**LOWER SOCIAL SUPPORT OR LIVING ALONE REDUCE BREAST CANCER SCREENING:** Analysis of the 2021 **National Health Interview Survey** found that women with the **least social support** and women **living alone** were about 40% less likely to be up to date with breast cancer screening. **Living with children** also reduced screening.<sup>3</sup> Improving social support may increase screening for women living alone or caring for children.

**PATIENT SELF-SCHEDULING INCREASED MAMMOGRAPHY USE, NUDGES MARGINAL:** After a **self-scheduling function was added** to a health medical record, mammography completion within 6 months **more than doubled, from 22% to 50%**. After the provider ordered the mammogram, patients received an email asking them to schedule the appointment.<sup>4</sup> A trial of two electronic nudges, bulk-ordered mammograms and reminder texts improved mammography rates marginally, about 2.5%. Technical nudges may help some women complete mammograms.<sup>5</sup>

### BREAST CANCER PREVENTION

**Hormonal contraception use may increase breast cancer risk for BRCA1 but not BRCA2 carriers:** Of 3,882 BRCA1 and 1,509 BRCA2 mutation carriers in 4 cohort studies, 53% and 71%, respectively, had used hormonal contraceptives for a year or more. **For BRCA1 carriers hormonal contraception was associated with a 29% increased risk**, increasing about 3% per year of use. It did **not increase breast cancer risk for BRCA2 mutation carriers**.<sup>6</sup>

**IMPROVING AIR QUALITY MAY REDUCE BREAST CANCER:** In the **racially and ethnically diverse Multiethnic Cohort (MEC) Study** of over 58,000 California women, **breast cancer increased by 28% for every 10 micrograms/m<sup>3</sup>** of fine-particle air pollution (PM<sub>2.5</sub>). The study confirmed the risk of breast cancer from air pollution in a diverse population.<sup>7</sup> **Improving air quality may reduce breast cancer and racial disparities**, since disadvantaged populations are more exposed to pollution.

Authors: James A. Talcott MD, SM, Senior Scientist **Strang** Cancer Prevention Institute  
Michael P. Osborne MD, MSurg, FRCS, FACS President **Strang** Cancer Prevention Institute

### REFERENCES

1. Hua B, Yang G, Wang Y, Chen J, Rong X, Yuan T, et al. Diagnostic performance of the Kaiser score for contrast-enhanced mammography and magnetic resonance imaging in breast masses: A Comparative Study. *Academic radiology* 2024.
2. Mars N, Kerminen S, Tamlander M, Pirinen M, Jakkula E, Aaltonen K, et al. Comprehensive inherited risk estimation for risk-based breast cancer screening in women. *J Clin Oncol* 2024;42:1477-87.
3. Baeker Bispo J, Lee H, Jemal A, Islami F. Associations of social support, living arrangements, and residential stability with cancer screening in the United States. *Cancer Causes Control* 2024.
4. Waddell KJ, Goel K, Park S-H, Linn KA, Navathe AS, Liao JM. Association of electronic self-scheduling and screening mammogram completion. *Am J Prev Health* 2024;66:399-407.
5. Mehta SJ, Rhodes C, Linn KA, Reitz C, McDonald C, Okorie E, et al. Behavioral interventions to improve breast cancer screening outreach: Two randomized clinical trials. *JAMA internal medicine* 2024;184:761-8.
6. Phillips KA, Kotsopoulos J, Dornchek SM, Terry MB, Chamberlain JA, Bassett JK, et al. Hormonal contraception and breast cancer risk for carriers of germline mutations in BRCA1 and BRCA2. *J Clin Oncol* 2024;JCO2400176.
7. Wu AH, Wu J, Tseng C, Stram DO, Shariff-Marco S, Larson T, et al. Air pollution and breast cancer incidence in the Multiethnic Cohort Study. *J Clin Oncol* 2024;JCO2400418.

# The Strang Cancer Prevention Cookbook

**Reduce your Risk for Cancer by Eating a Healthy Diet!**

## Root Vegetable Mashed Potatoes

10 Servings

*The blend of autumn root vegetables is nutrient rich and contains only half the fat and calories of traditional mashed potatoes*

1 medium rutabaga ( about 1 ½ pounds) peeled and cut into 1-inch cubes  
3 medium turnips (about 1 pound), peeled and cut into 1 ½ -inch chunks  
¼ teaspoon salt  
4 large white potatoes ( about 2 ½ pounds) peeled and cut into 1 ½ inch chunks  
1 ½ cups warm 2% milk  
2 tablespoons unsalted butter  
Salt and freshly ground black pepper



Place the rutabaga and turnips in a large saucepan, cover with cold water and add the salt. Bring to a boil, then reduce the heat and simmer for 30 minutes. Add the potatoes and cook until the vegetables are tender when pierced with a knife, 10 to 15 minutes. Drain the boiled vegetables and transfer them to a large bowl.

Heat the milk in a small saucepan on the stove or microwave Using an electric mixer, begin creaming the rutabaga, turnips and potatoes white slowly pouring the warm milk into the bowl ( use only as much milk is needed to make the puree creamy and light). Beat in the butter and season with salt and pepper to taste. Serve hot.

Calories 174 Protein 5g Carbohydrates 30g Fat 4g Cholesterol 10mg Dietary fiber 3g Saturated fat 1g

Major sources of Potential cancer fighters: Phytochemicals: glucosinolates, plant polyphenols (flavonoids phenolic acids), allium compounds,

P. 213 Strang Cookbook

Laura Pensiero, R.D., **Strang** Nutrition Consultant  
Chef, Dietitian, Restaurateur, Author  
Owner, Gigi Hudson Valley ,Trattoria & Catering, Rhinebeck, New York



**October is Breast Cancer Awareness Month**

 **Strang** Cancer Prevention Institute

641 Lexington Avenue 15th Floor  
New York, NY 10022

**Tel: (212) 501-2111** [www.strang.org](http://www.strang.org)

© **Strang Cancer Prevention Institute**