



Strang Cancer Prevention Institute
Dedicated to Promoting Cure by Early Detection and Research to Prevent Cancer since 1933

Prevention

Breast Cancer Awareness Month October 2025

BREAST CANCER: INNOVATIONS IN DETECTION AND PREVENTION

Note to Readers: Innovation is essential for cancer prevention. New analytic, diagnostic, and treatment methods, including precision medicine and artificial intelligence, continue to transform early detection and risk reduction. The Strang Cancer Prevention Institute, whose mission since 1933 has been to promote the cure of cancer through early detection and research, will continue to highlight important advances that improve patient outcomes and expand access to life-saving care.

Summary: Breast cancer remains the most commonly diagnosed cancer among women in the United States. While screening programs such as mammography have greatly reduced mortality, many cancers are still missed in women with dense breast tissue or appear between screenings. Recent research has shown progress in utilizing artificial intelligence, genetic risk tools, and new imaging strategies to personalize cancer detection. New studies in prevention are exploring hormonal drivers and medications that may reduce the risk in certain high-risk groups. These innovations, when combined, may enhance accuracy, reduce unnecessary testing, and facilitate earlier cancer detection.

BREAST CANCER: RECENT INNOVATION IN DETECTION

1. Artificial intelligence can help predict near-term breast cancer risk

In a 2025 study, a “hybrid” artificial intelligence (AI) model was used to analyze a woman’s mammogram in conjunction with basic clinical information, such as age and family history.¹ By combining these two types of information, the model estimates the chance that a woman will develop breast cancer within the next two years. The hybrid AI model performed better than tools that relied solely on images or solely on clinical details. This approach may help doctors determine which women should receive specialized care, such as returning sooner for repeat imaging or undergoing more rigorous testing.

2. Personalized screening using polygenic risk scores (PRS)

Polygenic risk scores (PRS) estimate a woman’s inherited risk of breast cancer by examining many small genetic variations across her DNA.

Each individual genetic difference has barely an effect on risk, but when combined, they create a risk profile that can help identify women who are more or less likely to develop breast cancer over their lifetime. A 2025 analysis from the WISDOM Study showed that PRS can be used in large-scale screening programs.² Women with a higher PRS might benefit from starting mammograms earlier or screening more often, while those with a low PRS may safely have fewer tests. This type of risk-based screening shifts away from a one-size-fits-all approach based solely on age, making screening more personalized.

3. Molecular breast imaging improves cancer detection in dense breasts

Dense breast tissue can hide cancers on standard mammograms because dense tissue and tumors appear similar. The Density MATTERS Trial reported in 2025 that adding molecular breast imaging to 3D mammography more than doubled the number of cancers detected in women with dense breasts.³ Molecular breast imaging uses a small amount of injected tracer that highlights active tissue and helps doctors see cancers that may not be visible on regular images. This approach may improve early detection for women with dense breasts.

BREAST CANCER: RECENT INNOVATION IN PREVENTION

4. Blocking progesterone may help lower the risk in high-risk premenopausal women

Progesterone is a hormone that affects the growth of breast tissue. Some high-risk women may be more sensitive to its effects. A 2025 study from the University of Manchester investigated whether blocking progesterone could reduce early biological signs associated with breast cancer risk.⁴ In the BC-APPS1 study, the anti-progestin medication ulipristal acetate, taken for twelve weeks, lowered several tissue markers associated with increased risk. This early research suggests that anti-progestin medications could offer a prevention option for women at elevated risk who prefer nonsurgical approaches.

5. A treatment for menopause may reduce signs linked to invasive breast cancer

Duavee, an FDA-approved medication to treat menopausal symptoms, combines estrogen with bazedoxifene, which, according to a new study, may also help to prevent invasive breast cancer. A Phase II clinical trial presented at ASCO 2025 showed that Duavee reduced cell growth in breast tissue, a key marker of cancer progression in women diagnosed with ductal carcinoma in situ (DCIS), a non-invasive form of breast cancer considered to be a precursor to invasive breast cancer.⁵ Slower cell growth may signal a lower chance of developing invasive disease. More research is needed to confirm long-term benefits, but this medication may become another prevention tool for certain at-risk groups of women going through menopause.

Editor: Michael P. Osborne MD, MSurg, FRCS, FACS President **Strang** Cancer Prevention Institute

REFERENCES

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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 while 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,

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October is Breast Cancer Awareness Month

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Newsletter Design Merle K. Barash BFA, MA AEd, MA Psya

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