

# Study finds risk-reducing mastectomy (RRM) may lower breast cancer mortality

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Professor Kelly Metcalfe. Credit: Horst Herget

A study co-led by Professor Kelly Metcalfe of the Lawrence Bloomberg Faculty of Nursing, and researchers at the Familial Breast Cancer Research Unit at Women's College Hospital, finds risk-reducing

mastectomies (RRM) in women with a BRCA1 or BRCA2 genetic variant, significantly reduces the risk of being diagnosed with breast cancer and lowers the probability of death.

The study, [published in the \*British Journal of Cancer\*](#), examined how RRM affects the rate of death of women with a pathogenic variant but no [cancer diagnosis](#). To date, there has been only one other study [published by researchers in the Netherlands](#) that examines the impact of RRM on mortality and quantifies the benefits associated for women.

"The decision to have a risk reducing mastectomy is often difficult for a woman to make, and the more evidence we are able to provide them with when they are making that decision, the more informed their care plan will be," says Metcalfe who is also a Senior Scientist with Women's College Research Institute.

Women who have an inherited BRCA1 or BRCA2 variant, have an 80 percent risk of developing [breast cancer](#) over the course of their lifetime. Research has shown that an RRM reduces the risk of breast cancer by 90 percent, and in Canada, 30 percent of women with a pathogenic variant opt for this surgery. It is, Metcalfe says, one of the most effective ways of preventing breast cancer in women with this risk profile.

Through a pseudo-randomized trial, Metcalfe, and her team, followed over 1600 participants from a registry of women with a pathogenic BRCA 1/2 variant from nine different countries over the course of six years, with half of the women having a risk-reducing mastectomy.

At the end of the trial, there were 20 incident breast cancers and two deaths in the group who opted for a RRM, and 100 incident breast cancers and seven deaths in the [control group](#). RRM reduced the risk of breast cancer by 80 percent, and the probability of dying of breast cancer 15 years after risk-reducing mastectomy was less than one

percent.

"Although there wasn't a significant difference in deaths between the two groups in this study, we know that a risk reducing mastectomy significantly reduces the risk of ever developing breast cancer," says Metcalfe.

Metcalfe points out that following these participants for an extended period would generate more evidence to assess the true mortality risk with precision and highlight the benefits associated with this type of surgery.

"Right now, we have good screening in place for breast cancer, including breast MRI, so surgery is only offered as an option, not a recommendation," says Metcalfe. "But with more studies being conducted to assess women's trajectory and [risk factors](#) following RRM, we will know whether these guidelines need to be changed in the future."

**More information:** Kelly Metcalfe et al, Risk-reducing mastectomy and breast cancer mortality in women with a BRCA1 or BRCA2 pathogenic variant: an international analysis, *British Journal of Cancer* (2023). [DOI: 10.1038/s41416-023-02503-8](https://doi.org/10.1038/s41416-023-02503-8)

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