

# Prophylactic surgeries associated with lower risk of cancer for women with BRCA1/2 gene mutations

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Women at increased risk of breast and ovarian cancer because of inherited mutations of the BRCA1 or BRCA2 genes who had prophylactic mastectomy or salpingo-oophorectomy (removal of the fallopian tubes and ovaries) had an associated decreased risk of breast cancer and ovarian cancer, according to a study in the September 1 issue of *JAMA*.

"[Women](#) who have inherited mutations in the BRCA1 or BRCA2 (BRCA1/2) genes have substantially elevated risks of breast cancer and [ovarian cancer](#), with a lifetime risk of breast cancer of 56 percent to 84 percent," the authors write. "Women who are mutation carriers have cancer risk-management options that include risk-reducing salpingo-oophorectomy, risk-reducing mastectomy, annual [cancer screening](#), and chemoprevention."

Susan M. Domchek, M.D., of the University of Pennsylvania School of Medicine, Philadelphia, and colleagues conducted a study that included a large group of BRCA1/2 mutation carriers to determine cancer reduction estimates following risk-reducing salpingo-oophorectomy and mastectomy, incorporating mutation type (BRCA1 vs. BRCA2), and cancer history (prior history of breast cancer vs. none). The study, which included 2,482 women with BRCA1 or BRCA2 mutations (determined between 1974 and 2008), was conducted at 22 clinical and research genetics centers in Europe and North America. The women were followed up until the end of 2009.

The researchers found that risk-reducing mastectomy was associated with a decreased risk of breast cancer in BRCA1/2 mutation carriers, with no breast cancer events occurring in women who underwent risk-reducing mastectomy during 3 years of prospective follow-up. "In contrast, 7 percent of women without risk-reducing

[mastectomy](#) over a similar follow-up period were diagnosed with breast cancer," the researchers write.

Risk-reducing salpingo-oophorectomy was associated with a decreased risk of ovarian cancer, with no ovarian cancer events seen during the 6 years of prospective follow-up in BRCA2 mutation carriers without prior breast cancer who underwent the procedure. Three percent of women without salpingo-oophorectomy over a similar follow-up period were diagnosed with ovarian cancer. No cases of ovarian cancer were diagnosed in BRCA2 mutation carriers after salpingo-oophorectomy, which was also associated with a decreased risk of breast cancer in both BRCA1 and BRCA2 mutation carriers without prior diagnosis of [breast cancer](#).

"Compared with women who did not undergo risk-reducing salpingo-oophorectomy, undergoing salpingo-oophorectomy was associated with lower all-cause mortality (10 percent vs. 3 percent), breast cancer-specific mortality (6 percent vs. 2 percent), and ovarian cancer-specific mortality (3 percent vs. 0.4 percent)," according to the authors.

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