

Early menopause may occur in women with BRCA gene, study finds

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Mitchell Rosen, M.D., is the director of the UCSF Fertility Preservation Center.
Credit: Brian Auerbach/UCSF

Women with harmful mutations in the BRCA gene, which put them at higher risk of developing breast and ovarian cancer, tend to undergo menopause significantly sooner than other women, allowing them an even briefer reproductive window and possibly a higher risk of

infertility, according to a study led by researchers at UC San Francisco.

Moreover, the study showed that carriers of the mutation who are [heavy smokers](#) enter menopause at an even earlier age than non-smoking women with the mutation.

While the authors note that further research is needed, given the size and demographics of the study, women with the [abnormal gene](#) mutation should consider earlier childbearing, and their doctors should encourage them to initiate fertility counseling along with other medical treatments, the scientists said.

The study will be published online in *Cancer* on January 29, 2013.

This is the first controlled study to explore the association between [BRCA1](#) and BRCA 2 and the age at onset of menopause, the authors said.

"Our findings show that mutation of these genes has been linked to [early menopause](#), which may lead to a higher incidence of infertility," said senior author Mitchell Rosen, MD, director of the UCSF Fertility Preservation Center and associate professor in the UCSF Department of Obstetrics, Gynecology and Reproductive Sciences. "This can add to the significant psychological implications of being a BRCA1/2 carrier, and will likely have an impact on reproductive decision-making," Rosen said.

Mutations in either of the genes BRCA 1 or BRCA 2 can produce a hereditary, [lifetime risk](#) of developing [breast cancer](#) and [ovarian cancer](#). Some women decide to reduce their risk by undergoing prophylactic surgery to remove at-risk tissue, including their breasts and ovaries. The abnormal genes are the most identified inherited cause of breast cancer – carriers are five times more likely to develop breast cancer than those without the mutations, according to the National Cancer Institute.

The new study was designed to determine whether women with the BRCA1 or BRCA2 mutation have an earlier onset of menopause compared with unaffected women.

The researchers looked at nearly 400 female carriers of mutations in the [BRCA gene](#) in northern California and compared their onset of menopause to that of 765 women in the same geographic area without the mutation. Most of the women in the study were white because almost all of the BRCA1/2 carriers within the UCSF cancer risk registry are white.

The scientists found that women with the harmful mutation experienced menopause at a significantly younger age – 50 years—compared to age 53 for the other midlife women.

Heavy smokers (more than 20 cigarettes a day) with the abnormal gene had an even earlier onset of menopause—46 years. By comparison, only seven percent of white women in northern California had undergone menopause by that age, said the authors. Smoking has been shown to alter menstrual cycles and estrogen status, among other impacts.

The authors point out that while their study shows a possible increased risk of infertility for the mutation carriers, further study is needed. They also said that data regarding the age of natural menopause is limited because most women with the mutation are recommended to undergo risk-reducing surgery after they complete childbearing.

"Women with the mutation are faced with challenges in reproductive choices," said study co-author Lee-may Chen, MD, a professor in the UCSF Department of Obstetrics, Gynecology and Reproductive Services. "These data may help women understand that their childbearing years may be even more limited by earlier [menopause](#), so that they can make decisions about their reproductive choices and cancer

risk-reducing surgery."

Provided by University of California, San Francisco

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