

# Number and timing of pregnancies influence breast cancer risk for women with BRCA1 or BRCA2 mutation

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Micrograph showing a lymph node invaded by ductal breast carcinoma, with extension of the tumour beyond the lymph node. Credit: Nephron/Wikipedia

Researchers at Columbia University Mailman School of Public Health and the Institut National de la Santé et de la Recherche Médicale in Paris confirm the lower risk of breast cancer from multiple pregnancies and from breast feeding seen in average risk women extends to those at the highest risk of breast cancer, according to the largest prospective study of BRCA1 and BRCA2 mutations carriers to date. Women with BRCA1 mutations who had two, three or four or more full-term pregnancies were at 21 percent, 30 percent, and 50 percent decrease risk of breast cancer compared to women with a single full-term pregnancy. Breastfeeding also reduced risk in BRCA1 mutation carriers. The results are published online in the *Journal of the National Cancer Institute Cancer Spectrum*.

In contrast, women with BRCA2 [mutations](#) did not have a decrease in risk from multiple pregnancies except if they had four or more pregnancies. Women with BRCA1 mutations who had only one full-term [pregnancy](#) were at an increased risk of [breast cancer](#) as were women with BRCA2 mutations who had fewer than four pregnancies.

"What we have learned is that timing really matters for many risk factors and the dual effect of pregnancy we see in non-mutation carriers with a long term protection but short term increase following a pregnancy may not extend to all women with BRCA1 and BRCA2 mutations as the short-term increase and long-term protection may relate much more to the timing of when these pregnancies occur," said lead author Mary Beth Terry, Ph.D., Professor of Epidemiology and Environmental Health Sciences at the Mailman School of Public Health at Columbia University and the Herbert Irving Comprehensive Cancer Center.

"Moreover, the hormonal upheaval that occurs during the first pregnancy may have a more or less important impact on the risk of breast cancer depending on whether the first pregnancy occurs during periods of life at higher risk of developing a breast cancer or at less high risk, periods

shifted by about ten years between BRCA2 and BRCA1 mutation carriers, with a later peak for BRCA2 mutation carriers," said senior author Nadine Andrieu, Ph.D., Director of research at the Institut National de la Santé et de la Recherche Médicale and at the Institut Curie, Paris, France.

The study followed 5,707 BRCA1 and 3,535 BRCA2 mutation carriers using a retrospective cohort analysis and 2,276 BRCA1 and 1,610 BRCA2 mutation carrier. The cohort known as IBCCS (International BRCA1/2 Carrier Cohort Study) includes data from 21 national or center-based prospective follow-up studies whose the national EMBRACE cohort from UK, the national GENEPSO cohort from FR and the national HEBON [cohort](#) from NL, the Kathleen Cuninghame Foundation Consortium for Research into Familial Breast Cancer Followup Study, and the Breast Cancer Family Registry.

**More information:** Mary Beth Terry et al, The Influence of Number and Timing of Pregnancies on Breast Cancer Risk for Women With BRCA1 or BRCA2 Mutations, *JNCI Cancer Spectrum* (2018). [DOI: 10.1093/jncics/pky078](https://doi.org/10.1093/jncics/pky078)

Provided by Columbia University's Mailman School of Public Health

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