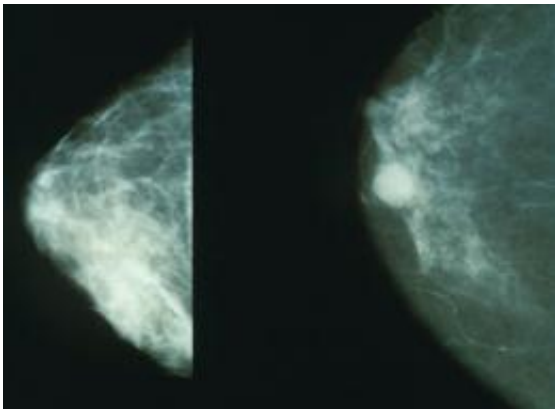


# Tumors are diagnosed more often in the left breast than the right: It depends on where you are born

August 5 2014

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Mammograms showing a normal breast (left) and a cancerous breast (right).  
Credit: Wikipedia.

Breast cancer is found more often in the left breast than in the right breast. The exact cause of this asymmetry is unknown. However, two researchers from the University of California, Irvine have found that this asymmetry is a function of where the patient was born. This surprising finding indicates that the environment in which a fetus develops can have profound influence decades later.

The two researchers, Trevor Sughrue and James Brody, analyzed the case files for over a million [breast cancer patients](#) who were diagnosed in the United States over the past 40 years. Their results were published in

the journal *PLOS ONE*.

They found that those born in Japan had more tumors in the left breast than in the right (114 in the left breast for every 100 in the right breast). While those born in Poland had more tumors in the right than the left breast (92 in the left breast for every 100 in the right).

However, no [significant difference](#) exists between Japanese-Americans born in the United States and the general population in the United States. This finding indicates the propensity for left breast tumors is not a genetic factor, but rather an environmental one. Women born in Japan are more likely to develop a tumor in their left breast than their right compared to women born in the United States.

The mechanism behind this finding is not known, but the finding highlights the growing recognition that the prenatal environment can effect the person's health decades later.

"This study not only illustrates the importance of the prenatal environment on the much later development of [breast cancer](#), but also highlights the power of analyzing [electronic medical records](#). Small effects that are not usually noticed by looking at hundreds of patients come into focus. This technique should lead to a revolution in medicine." James Brody, Associate Professor of Biomedical Engineering at the University of California, Irvine said.

**More information:** Breast Tumor Laterality in the United States Depends Upon the Country of Birth, but Not Race. *PLOS ONE*, [DOI: 10.1371/journal.pone.0103313](#)

Provided by University of California, Irvine

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