Germline Mutations & Hereditary Cancer

What does "germline" mean? In simple terms, germline means the DNA that you inherit at conception. Germline mutations are broken parts of certain genes that you may inherit at conception. Some germline mutations might put you at risk for developing cancer.

Here's an example using a BRCA2 gene mutation. Keep in mind that there are many other genetic mutations that may increase the risk of cancer, like

BRCA1, CHEK2, PALB2, MLH1, MSH2, MSH6, CDKN2A, ATM, PALB2, etc.

Information reviewed by a Certified Genetic Counselor

> One of your brothers inherited the same mutation. He is a previvor.**

But it does not mean he will get cancer. Some people have germline mutations and do not get cancer.

However, there is still a 50% chance that each of his children will inherit the exact same mutation. But there's also a 50% chance they will not.



Let's say your paternal grandfather had male breast cancer* caused by one of the thousands of pathogenic BRCA2 mutations.



Every one of his children had a 50% chance of inheriting the exact same mutation.

* Please note: Breast cancer is not the only cancer that can indicate the possibility of a germline mutation. Other cancers, including pancreatic, ovarian, prostate, melanoma, colorectal, or rare or early-onset cancers, can be an indication.

Knowing and sharing health history as well as genetic testing results is very important for families with a history of cancer!

Your father inherited the mutation and also had male breast cancer.

And again, there was a 50% chance that each of his children would inherit the exact same mutation.



Your aunt did not inherit the mutation.

Her children are not at risk. There is no mutation to be passed on. The mutation does not skip generations.



His children are not at risk. There is no mutation to be passed on. The mutation does not skip generations.

mutation.



inherited the same mutation but took steps to prevent cancer. (Regular screenings or monitoring and surgery.) You are also a previvor.

Once again, there is a 50% chance that each of your children will inherit the exact same mutation.

> However, in vitro fertilization (IVF) with pre-implantation genetic testing may be an option to prevent the mutation from being passed on.









Did You Know?

Everyone has BRCA genes. There are BRCA genes in every cell in your body.

GENETIONARY