

# BRCA1 and BRCA2 in Men

Everyone has BRCA1 and BRCA2 genes. These genes help repair damage to the DNA within cells. However, some individuals inherit a mutation in one of their BRCA genes, which increases their risk for certain cancers, including breast (female and male), ovarian, pancreatic and prostate cancers, as well as melanoma. Those who test positive for a gene mutation have options available to lower and manage their cancer risks.

Men can carry BRCA1 and BRCA2 mutations, also known as pathogenic variants, and can be at increased risk for certain cancers. While cancer risks in male BRCA mutation carriers are not as dramatically elevated as those of female BRCA mutation carriers, cancer risk management and early detection are crucial. It is important for both men and women to remember that a family history of breast, ovarian, prostate or pancreatic cancers on their father's side of the family may indicate a hereditary gene mutation. Many people mistakenly believe a family history of breast or ovarian cancer only matters on the mother's side of the family. Men can inherit a BRCA gene mutation from their mother or father and can pass on their BRCA gene mutation to their male and female children.

Medical management for men with BRCA1/2 mutations changes at age 35-40. Starting at age 35, male BRCA mutation carriers should begin clinical breast exams every year with a physician. At age 40, prostate cancer screenings are recommended for BRCA2 carriers and considered for BRCA1 carriers. Starting at age 50, pancreatic cancer screening may be considered for individuals with a BRCA 1/2 gene mutation. Regarding risk of melanoma, men with a BRCA mutation should also ensure they have an annual full-body skin exam and employ sun protection practices.

Men in a family with a known BRCA mutation may also wish to undergo genetic testing to make reproductive decisions. The decision to use reproductive technologies to avoid passing on genetic traits is a deeply personal choice. For individuals that want to consider these technologies, preimplantation genetic testing (PGT) can be used with in vitro fertilization. PGT involves screening embryos (fertilized eggs) for a specific genetic mutation, such as BRCA1/2 mutations, before being transferred into a woman's womb. This can be an option for individuals who carry a hereditary condition and wish to significantly reduce the chance of passing it on to a child.

## *Frequently asked questions about BRCA1 and BRCA2*

### *Which men should consider genetic counseling for a BRCA1 or BRCA2 mutation?*

- Men in a family with a known BRCA mutation
- Men with a personal history of male breast cancer
- Men with a personal history of prostate cancer with at least one close relative with breast cancer under age 50, ovarian, pancreatic or prostate cancer at any age
- Men with a personal history of pancreatic cancer with at least one close relative with breast cancer under age 50 or ovarian or pancreatic or prostate cancer at any age
- Men with a personal history of pancreatic cancer and are of Ashkenazi Jewish ancestry
- Men with a family history of breast cancer under 50, cancer in both breasts, ovarian cancer, or any of the above criteria may also be recommended for genetic counseling.

### ***How do I collect my family history before my visit to a genetics professional?***

Collect a detailed family history of cancer from blood-relatives on both your mother's and father's side of the family. This includes your first degree (parents, siblings, children), second degree (half-siblings, grandparents, aunts, uncles) and third degree (cousins, great grandparents, great-aunts, great-uncles) relatives.

### ***How common are BRCA1 and BRCA2 mutations?***

Inherited mutations in BRCA1 and BRCA2 are not common. About 1 in 500 to 1 in 800 individuals in the general population have a mutation. Individuals of Ashkenazi Jewish descent have a 1 in 40 chance of carrying a BRCA1/2 mutation. This is at least a ten times greater probability than that of the general population.

### ***Can women and men carry BRCA mutations?***

Both women and men can carry BRCA mutations and pass them on to their male and female children.

### ***What is the chance of passing on or inheriting a BRCA mutation?***

If a mother or father carries a mutation, there is a 50% chance of passing it on to each child. This means that not all individuals from families with BRCA mutations inherit the same cancer risk.

### ***How much is BRCA testing and does insurance cover it?***

The cost of BRCA genetic testing varies by the type of test done. These costs are often covered, either in part or in full, by insurance carriers when an individual meets certain guidelines for testing. Medicare typically covers genetic testing for individuals with a personal history of cancer. Medicaid coverage varies by state.

### ***What if I do not have insurance or cannot afford my BRCA testing?***

Some medical centers and testing labs have financial assistance programs to assist uninsured and underinsured individuals with the cost of their BRCA testing.

### ***Will a BRCA test result interfere with getting health insurance?***

Federal legislation known as the Genetic Information Nondiscrimination Act (GINA) prevents employers and health insurance companies from discriminating against individuals based on their genetic information.

### ***Are mutations in BRCA1/2 the only ones that impact cancer risk?***

Although mutations in the BRCA1/2 genes are important predictors of cancer risk, they are not the only ones. A thorough risk assessment by a cancer genetics professional can help to determine if testing for other gene mutations is recommended.

### ***How can I find a genetics specialist?***

The National Society of Genetic Counselors ([www.nsgc.org](http://www.nsgc.org)) is a helpful resource for finding genetics professionals in your area.

The Basser Center for BRCA at Penn Medicine's Abramson Cancer Center is the first and only comprehensive center solely devoted to funding research across the globe, educating providers and patients, and advancing care for BRCA-related cancers. [www.basser.org](http://www.basser.org)

*From the Basser Center for BRCA in collaboration with HIS Breast Cancer Awareness.*



HIS Breast Cancer Awareness, offering insight and education on male breast cancer is here to inform, to educate and bring awareness, regarding breast cancer in men. We are here to assist and inform once you have been diagnosed with breast cancer.