

BASSER CENTER FOR BRCA

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* or *BRCA2* gene mutations 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 their 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 yearly clinical breast exams with a physician. At age 40, prostate cancer screenings are recommended for *BRCA2* carriers and considered for *BRCA1* carriers. Men with a BRCA mutation and a family history of pancreatic cancer or melanoma should speak to a physician to develop a personalized screening plan for those cancers.

Men in a family with a known or suspected 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 diagnosis (PGD) can be used with in vitro fertilization. PGD involves screening of embryos (fertilized eggs) for a specific gene 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*

Who should consider genetic counseling for *BRCA1* or *BRCA2* mutations?

- 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 or pancreatic cancer with at least one close relative with the following:
 - Breast cancer under age 50
 - Ovarian, 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 age 50 or cancer in both breasts or 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 300 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 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 genetic 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.

Where can I get more information about *BRCA1/2* and help finding a genetics specialist?

Visit basser.org or call the Basser Center at **215.662.2748**. The National Society of Genetic Counselors (nsgc.org) is also a helpful resource for finding genetics professionals in your area.

From the **Basser Center for *BRCA*** in collaboration with:

