People do not inherit cancer but instead inherit an increased risk of getting cancer.

Flood of Women Seeking Test for BRCA Mutation

GETTY IMAGES

Still Stunning: Angelina Jolie smiles for fans at a movie premiere in London. The Hollywood superstar was making her first appearance since she announced she underwent a double mastectomy over breast cancer fears

The stunning Jolie, Hollywood's highest paid actress and a United Nations humanitarian, announced in May that she had endured three months of procedures to have both breasts removed because of her high genetic risk of breast cancer.

Jolie carries the BRCA gene mutation that leads to dramatically higher rates of breast cancer. Although she is not Jewish, the deadly mutation is especially common among Jewish women.

Jolie tested positive for a harmful mutation in one of the BRCA genes, making her about five times more likely to develop breast cancer than women who do not carry this mutation, according to the U.S. National Cancer Institute. Mutations in the BRCA 1 and BRCA 2 genes can increase a woman's risk of breast cancer by 60 to 80 percent.

Jolie's risk was amplified by the fact that her mother died from breast cancer at age 56, raising the stakes that she could have a cancer at a younger age.

Jolie said she underwent the surgery to spare her children from the agony she witnessed as her mother struggled with breast cancer for a decade.

Read more: http://forward.com/articles/185563/angelina-jolies-jewish-gene-breast-cancer-surgery/#ixzz2jbao03VJ

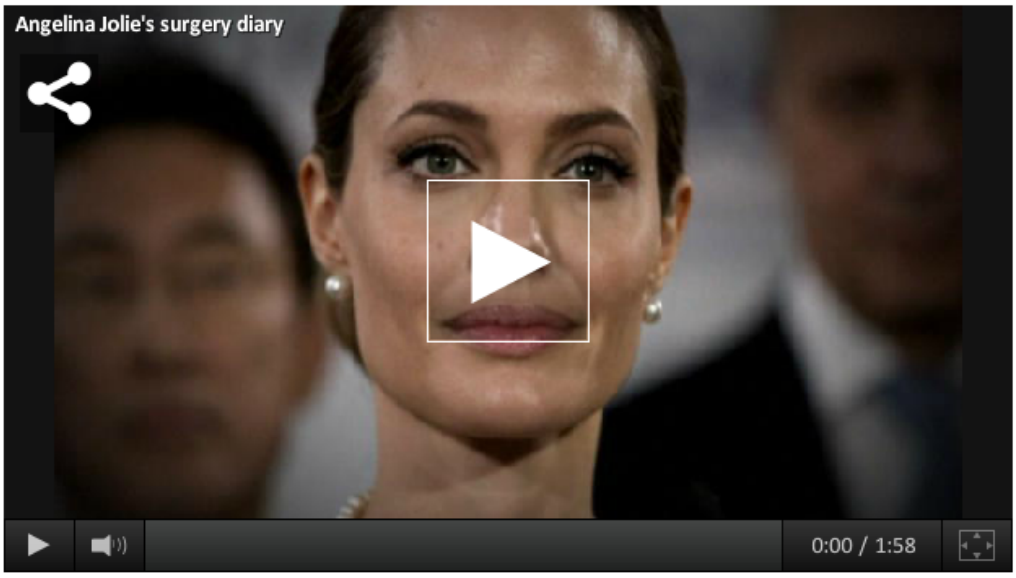
http://www.cbc.ca/news/health/angelina-jolie-s-latest-surgery-a-huge-benefit-to-prevent-ovarian-cancer-1.3007690

Angelina Jolie's latest surgery 'a huge benefit' to prevent ovarian cancer

Removal of ovaries and fallopian tubes greatly reduces risk of ovarian cancer, medical experts say

CBC News Posted: Mar 24, 2015 4:37 PM ET | Last Updated: Mar 24, 2015 6:33 PM ET

CBC News Posted: Mar 24, 2015 4:37 PM ET | Last Updated: Mar 24, 2015 6:33 PM ET



Angelina Jolie's surgery diary 1:58

Angelina Jolie's decision to have her ovaries and fallopian tubes removed given her family history of cancer greatly reduces her risk of developing ovarian cancer, say experts who welcome the awareness she's raised.

Jolie revealed Tuesday she had a laparoscopic bilateral salpingo-oophorectomy last week after a marker on a blood test signalled what could be a sign of early cancer. She previously had a preventative mastectomy after her French-Canadian mother, Marcheline Bertrand, died of ovarian cancer. Her maternal grandmother also had the disease and **an aunt** died of breast cancer.

BRCA mutations account for about five per cent of all breast cancers and four to 11 per cent of all ovarian cancers, according to the Canadian Cancer Society.

> 'The medical community thanks Angelina Jolie for doing what she has done.'
>
> - Dr. Marcus Bernardini, surgical oncologist

The average woman has a 12 per cent risk of developing breast cancer sometime during her life. Jolie carries the BRCA1 mutation, which bumps the lifetime risk for breast cancer about five times higher.

In the general population, the lifetime risk for ovarian cancer is one per cent. For women with the BRCA 1 or BRCA 2 mutation, the lifetime risk of ovarian cancer can be as high as 60 per cent.

> Unlike breast cancer, ovarian cancer is often diagnosed at a late stage when the chance of surviving is low.

Ovary removal has benefits

"It's definitely a recommendation that we give women with a BRCA 1 or 2 mutation that they should strongly consider having their ovaries removed between the ages of 35 and 40 or after they've completed child bearing. It's the option available to women that's going to reduce their risk of developing ovarian cancer as most as we possibly can," said Kelly Metcalfe, a nursing professor at the University of Toronto and an adjunct scientist at Women's College Hospital.

"It's a huge benefit to these women to have their ovaries out."

Jolie's 2013 decision to have a **preventive double mastectomy** increased demand for genetic testing, known as the "Angelina effect."

Canadian research suggested the Angelina effect increased awareness and referral among women truly at high risk for hereditary breast cancer who may have put testing on the back burner until then.

In Canada, BRCA **testing is available** to women who meet certain risk criteria, including family history of breast cancer and ethnicity.

Some gynecological specialists applauded Jolie's decision to go public.

Angelina Jolie's decision to publicize her surgeries to prevent cancer has helped raise awareness of BRCA 1 and 2 mutation testing and options. (Michael Sohn/Associated Press)

"The medical community thanks Angelina Jolie for doing what she has done because it does increase awareness. Ovarian cancer is a terrible disease," said Dr. Marcus Bernardini, a surgical oncologist at Toronto's Princess Margaret Cancer Centre.

"The most important message that needs to get out there is there is no effective screening for the type of ovarian cancer that she was at risk for."

Symptoms associated with ovarian cancer tend to be vague, such as bloating or urinary changes. Ovarian Cancer Canada advises women to see a doctor **if symptoms are frequent, persistent** or new. The most common and most serious form of ovarian cancer is now **thought to originate** in the fallopian tubes.

Other options include birth control pills and frequent checks, such as with the **CA-125 blood test** Jolie had yearly because of her family history. Unfortunately, Metcalfe said, the CA-125 marker doesn't always provide useful information and ovarian cancer can develop without any warning signs.

Transvaginal ultrasounds are also offered to women at high risk, Metcalfe said, but they may also fail to pick up early ovarian cancer.

Procedure likely to have side-effects

Jolie wrote about how she prepared herself to enter menopause and mapped out her estrogen and progesterone replacement options.

The decision to pursue a preventive salpingo-oophorectomy comes with side-effect risks. In the short-term, these include hot flashes and sexual dysfunction. Longer term, Metcalfe said, preliminary evidence suggests there can be effects on the bones, heart function and cognitive function.

Women who have the surgery are monitored and the longer-term effects are being studied to try to develop better interventions.

The Canadian Cancer Society estimates 2,700 women are diagnosed with ovarian cancer every year and 1,750 women die from it annually.

Cancer is caused by changes in the DNA of certain genes. One set of genes, called oncogenes and tumor suppressors, control when a cell is supposed to grow or to stop growing. Mutations in these genes cause cells to grow uncontrollably.

Another set of genes that can indirectly cause cancer when mutated are DNA repair genes. These genes control the ability of a cell to fix any mistakes that happen in its DNA. When a DNA repair gene is mutated, the cell can't fix mistakes in its DNA very well anymore. These mistakes build up until a tumor suppressor or oncogene are hit. Then the cell becomes cancerous.

When people think of DNA mutations, they often think of Godzilla or giant spiders attacking San Francisco. But DNA mutations are actually much more ordinary than this. **DNA mutations are pretty common and most have no effect**.

DNA mutations can happen when something in the environment damages the DNA. This is why the UV light in sunlight can cause skin cancer. Or why cigarette smoke causes lung cancer. Both sunlight and cigarette smoke damage DNA and cause cancer

Another way DNA mutations happen is when a cell makes a mistake copying its DNA.

Our cells are constantly making new copies of themselves.

When a cell divides, it copies its DNA, doubles in size and then splits in two. The cellular machinery that copies the DNA is incredibly accurate. But it isn't perfect. The occasional mistake creeps in and if that mistake is in a cancer-causing gene, then cancer can be the result.

How Cancers Run in Families

Cancers run in families when children inherit a premade mutation in one of these genes. The reason the premade mutation doesn't cause cancer on its own is that people have two copies of most of their genes.

Most cancer-causing mutations require that both copies of a gene have the mutation. When cancer runs in families, the family has one of the two copies already mutated. Now instead of needing two mutations to end up with cancer, these family members need only one. And one mutation is much more likely than two.

Pure Nature Specials - Mutation - The Science of Survival

XiveTV

Open in Chrome