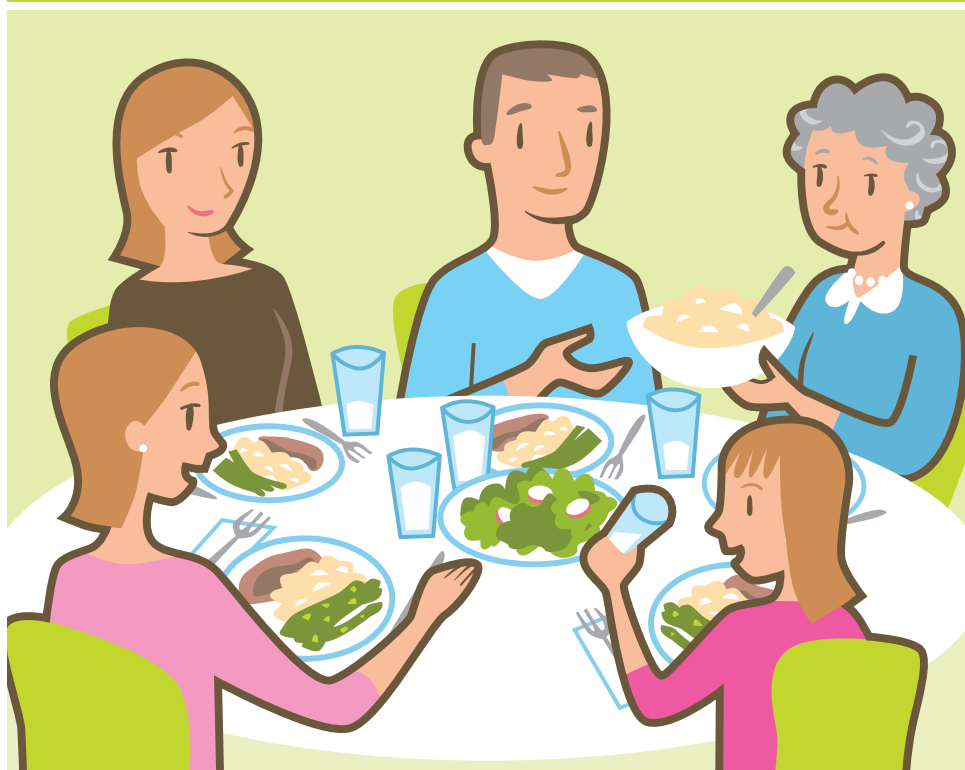


BREAST CANCER IN THE FAMILY

What You Need to Know



w i l l o w

BREAST CANCER SUPPORT CANADA



We listen.
We care.

WILLOW PROVIDES SUPPORT TODAY FOR THOSE WHO CANNOT WAIT FOR TOMORROW'S CURE.

When you call Willow, you speak with someone like you – a peer. She is a survivor who has lived through a diagnosis and is a little bit further down the road on the breast cancer journey.

Speaking with a peer about a shared experience can help build emotional strength, normalize feelings, inform you and reduce your sense of isolation.

Through information and encouragement we empower women to take control of their health care.

All of Willow's services are provided free of charge.

WHO CALLS WILLOW?

ANYONE DIAGNOSED WITH BREAST CANCER

ANYONE CONCERNED ABOUT THE RISK OF DEVELOPING HEREDITARY BREAST OR OVARIAN CANCER (HBOC)

ANYONE CONCERNED WITH BREAST HEALTH

FAMILY, FRIENDS AND CAREGIVERS OF THOSE LIVING AT RISK OR WITH BREAST CANCER

NEED TO TALK? CALL WILLOW'S PEER SUPPORT CENTRE

Members of Willow's Peer Support Team are all breast cancer survivors, experienced in answering a wide range of questions. They know how important it is to talk to someone who has been through it.

WILLOW:

- Shares information to help you better understand a breast cancer diagnosis and treatment options
- Provides information and support to anyone concerned about hereditary cancer, including the opportunity to speak with someone who has a BRCA gene mutation
- Directs you to practical resources, such as where to find a support group, a wig or financial assistance
- Provides suggestions for how to support someone with breast cancer or talk to children about a diagnosis
- Offers free interpreter services for individuals wishing to speak their language of choice

WANT INFORMATION ABOUT BREAST CANCER?

Personalized free information packages

Willow can provide you with relevant information about breast cancer including:

DIAGNOSIS

TREATMENT OPTIONS

NUTRITION

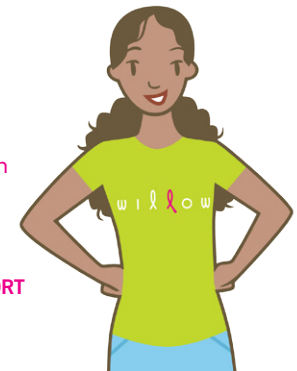
BRCA1 & BRCA2

BREAST RECONSTRUCTION

WHERE TO FIND LOCAL SUPPORT

COPING WITH SIDE EFFECTS

RISK MANAGEMENT OPTIONS



For more information about Willow and its services please call or visit us online:

1 888 778 3100 info@willow.org

www.willow.org
www.inourgenes.ca

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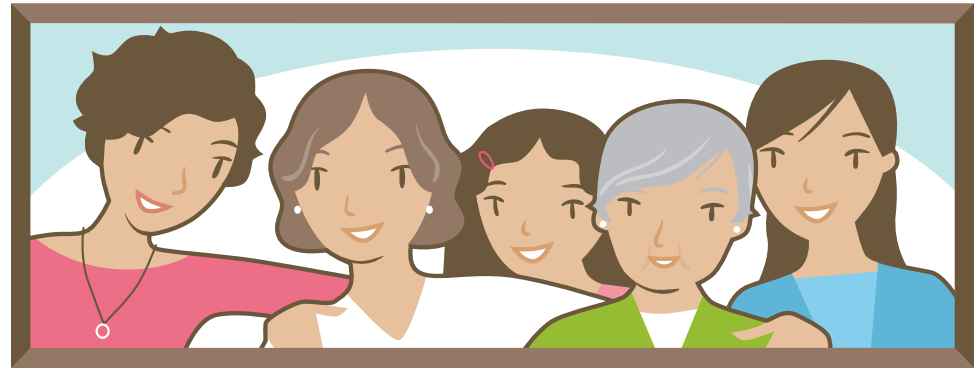
This guide was also developed with the help of women in the community who provided invaluable feedback during all stages of development.

The research support for development of this information aid was provided by the Canadian Breast Cancer Research Initiative and the Medical Research Council of Canada.

FIRST EDITION PUBLISHED MARCH, 2001.

UPDATED DECEMBER, 2011 BY DRS. WARNER, CARROLL, HEISEY, LICKLEY, MESCHINO.

Family History and Breast Cancer



Many women worry that their family history puts them at higher risk of developing breast cancer. It's true that certain patterns of cancer in a family are linked to a higher risk of breast cancer and may even suggest a strongly inherited risk of breast cancer (*hereditary breast cancer*). However, other patterns increase the risk only moderately or not at all.

This booklet gives you the facts. It explains what breast cancer is and the factors that can play a role in the disease. It describes who is at risk of developing hereditary breast cancer and what to do if you're one of those women. It also tells you what steps you can take to reduce your chance of developing breast cancer, regardless of your level of risk, and how breast cancer can be detected early if it does occur.

This booklet features the stories of three women with family histories of breast cancer, each with a different risk of developing breast cancer because of her family history.

Although breast cancer occurs mainly in women, it can also occur in men. We refer to women in the text, but men at increased risk of breast cancer may also find this booklet helpful.

If after reading this booklet you need more information, or if you're concerned that you may be at higher than average risk of developing breast cancer, please speak to your doctor.*

Terms are defined in the glossary at the back.

* For the sake of convenience we use the term "doctor" throughout this booklet. However, it may also refer to nurses, nurse practitioners or other healthcare providers.

1 in 9 women in Canada is expected to develop breast cancer during her lifetime.

BREAST CANCER FACTS

Breast cancer occurs when cells in the breast grow and divide uncontrollably. These abnormal cells join together to form a lump called a malignant tumour, which may spread to the surrounding breast tissue or to other places in the body such as the bones, lungs, liver or brain.

Worldwide, breast cancer is the most common form of cancer in women and the leading cause of cancer death in women. Each year, more than 22,000 Canadian women develop breast cancer and more than 5,000 die of the disease. Based on current rates, one in nine women in Canada is expected to develop breast cancer during her lifetime.

Rarely, men also develop breast cancer. Men account for only one in every 100 breast cancer cases.

Risk Factors for Breast Cancer

We don't know what causes breast cancer. However, there are certain things that can increase the chance of developing breast cancer. Many women will have some of these risk factors. Having one or more risk factors does not mean you will be diagnosed with breast cancer. Also, many women who get breast cancer do not have any known risk factors.

AGE

The risk of breast cancer increases throughout a woman's life. Breast cancer is rare before age 30, for example, but is much more common after age 50. A woman's chance of being diagnosed with breast cancer is:

1 IN 250	FROM AGE 30 TO 39	0.4%
1 IN 70	FROM AGE 40 TO 49	1.5%
1 IN 40	FROM AGE 50 TO 59	2.5%
1 IN 30	FROM AGE 60 TO 69	3.4%
1 IN 25	FROM AGE 70 TO 79	4%

FAMILY HISTORY

Certain patterns of breast cancer in the family increase the risk of hereditary breast cancer. We discuss this in more detail on page 14.

A PREVIOUS HISTORY OF CANCER

A previous diagnosis of breast cancer or ductal carcinoma in situ (DCIS) can increase your risk of developing a new breast cancer.

A HISTORY OF CERTAIN BENIGN BREAST CHANGES

Certain breast changes in which there are abnormal but not cancerous cells, such as atypical hyperplasia or lobular carcinoma in situ (LCIS), may increase your risk. These breast disorders are **not** common. Many common conditions that can result in lumpy breasts, such as simple breast cysts or fibrocystic condition, do **not** increase your risk.

FEMALE HORMONES

Your body naturally produces certain female hormones. However, being exposed to too much of these hormones or the wrong balance of hormones at certain times in your life may increase your risk of developing breast cancer. This could be because you:

- HAVEN'T HAD ANY CHILDREN OR HAD YOUR FIRST CHILD AFTER THE AGE OF 30
- HAVEN'T BREAST-FED YOUR CHILDREN FOR AT LEAST ONE YEAR
- HAD YOUR FIRST PERIOD BEFORE THE AGE OF 12
- REACHED MENOPAUSE AT AGE 55 OR LATER
- HAVE TAKEN COMBINED ESTROGEN/PROGESTERONE HORMONE REPLACEMENT THERAPY FOR MORE THAN FIVE YEARS
- ARE OVERWEIGHT AFTER GOING THROUGH MENOPAUSE

OTHER RISK FACTORS

Other factors that can increase your risk include:

- HAVING DENSE BREAST TISSUE (WHICH CAN BE SEEN ON A MAMMOGRAM)
- CONSUMING MORE THAN NINE ALCOHOLIC DRINKS A WEEK
- NOT BEING ACTIVE OR EXERCISING REGULARLY
- UNDERGOING RADIATION TREATMENT TO THE CHEST AREA (FOR EXAMPLE, TO TREAT HODGKIN LYMPHOMA), ESPECIALLY BEFORE AGE 30

Although you can't control many of these risk factors, you can do certain things to protect yourself. This will be discussed later.

RISK FACTORS UNDER STUDY

Other factors thought to possibly increase the risk of developing breast cancer, are being studied. They include:

- DIET
- SMOKING AND SECOND-HAND SMOKE
- ENVIRONMENTAL TOXINS
- SLEEP PATTERNS
- TAKING THE BIRTH CONTROL PILL AT A VERY YOUNG AGE OR FOR A VERY LONG PERIOD OF TIME

If you are not sure whether you have any important risk factors, talk to your doctor.

MYTHS & MISUNDERSTANDINGS

There are many myths around what does and does not increase the risk of breast cancer. Research shows that the following factors do **not** increase your risk of breast cancer:

- ANTIPERSPIRANTS AND DEODORANTS
- ABORTIONS
- BRAS, INCLUDING UNDERWIRE BRAS
- BREAST IMPLANTS
- STRESS, DEPRESSION OR EMOTIONAL UPSET
- BRUISING, SQUEEZING OR OTHER INJURY TO THE BREAST
- HAIR DYE

Breast cysts or fibrocystic condition do not increase your risk of breast cancer.



Hereditary Breast Cancer

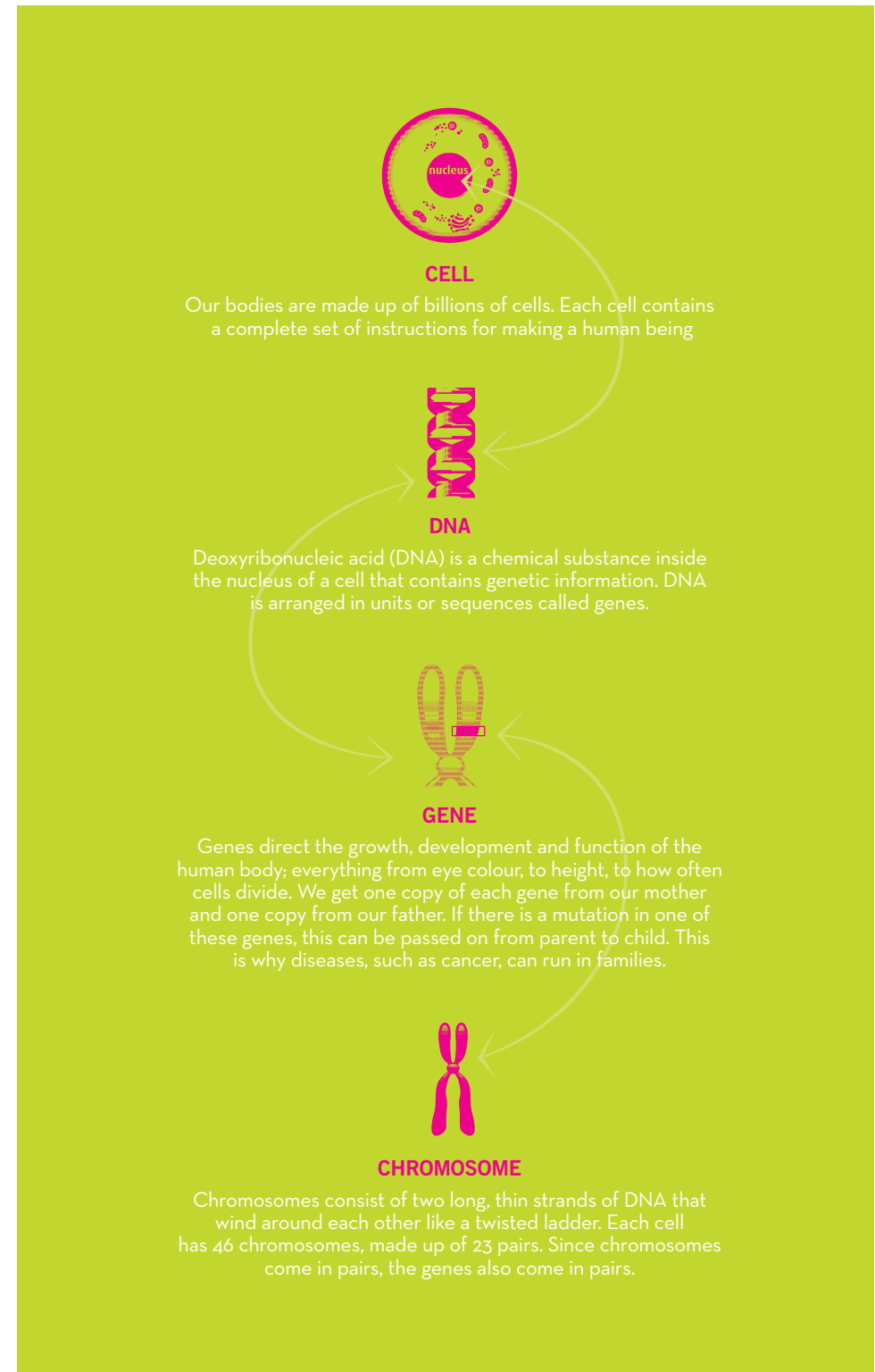
In some families, abnormal genes that greatly increase breast cancer risk are passed on from parent to child. This type of breast cancer is called hereditary breast cancer.

Genes determine what we look like and how our body grows and functions. Every cell in our body has two copies of each gene – we inherit one copy from our mother and one from our father. The copy we get from our mother may be different from the one we get from our father.

If an abnormal change, called a mutation, happens in either copy of a gene, then it can stop that gene from working properly. A mutation can either occur by chance in a single cell or be inherited from either parent. If you inherit a mutation, it means that you are born with it and it is found in all the cells in your body.

Certain gene mutations may cause a cell to develop into cancer after many years. In the case of many forms of hereditary breast cancer, these mutations increase the risk of both breast and ovarian cancer.

A woman at risk of developing hereditary breast cancer may have inherited a mutation **from either her father or mother**. Inheriting a mutation doesn't mean that she will develop cancer. It simply means that her risk is much higher than average.



BRCA1 & BRCA2

Researchers have discovered several genes that greatly increase the risk of developing breast cancer. The most common of these genes are the BRCA1 (*breast cancer 1*) and BRCA2 (*breast cancer 2*) genes. Women who have a harmful mutation in either of these genes are more likely to develop breast cancer at a younger age than the general population and are at much greater risk of developing ovarian cancer.

If one of your parents carries a BRCA1 or BRCA2 mutation, there is a 50% chance that you have inherited it. If you don't inherit the mutation from either parent, you cannot pass it on to your children.

The BRCA1 and BRCA2 mutations are more common in certain ethnic groups – for example, in families of Ashkenazi (*European*) Jewish descent.

The following table shows the risks of developing cancer if you have a BRCA1 or BRCA2 gene mutation.

TYPE OF CANCER	GENERAL POPULATION RISK (TO AGE 70)	BRCA1 MUTATION CARRIER RISK (TO AGE 70)	BRCA2 MUTATION CARRIER RISK (TO AGE 70)
BREAST CANCER WOMEN	7%	55%	45%
OVARIAN CANCER WOMEN	1%	40%	16%
BREAST CANCER MEN	0.05%	1%	7%
PROSTATE CANCER MEN	8%	12%	16%
OTHER CANCERS			Slightly increased for melanoma and pancreatic cancer

Many women have relatives who have had breast cancer. However, less than 1 in 10 breast cancers are caused by an inherited breast cancer gene mutation. Even in families that have many members with breast cancer diagnosed at a young age, BRCA1 or BRCA2 mutations are often not found. The abnormal genes assumed to be causing breast cancer in these families have not yet been discovered by researchers.

3

WOMEN'S STORIES

Andrea, Marthe and Helen each have a family history of breast cancer. They are concerned that this history increases their risk of developing breast cancer, so they want to find out more.

Andrea, 40

SALES CLERK
VERNON, BC

MOTHER'S SISTER:
BREAST CANCER AT AGE 67
FATHER'S AUNT:
BREAST CANCER AT AGE 50

"My mother's sister had breast cancer at age 67. My father's aunt died from it at age 48. I have really lumpy breasts and even though my doctor told me this is completely harmless, I am terrified about getting breast cancer."

Marthe, 65

RETIRED TEACHER
HALIFAX, NB

FATHER'S TWO SISTERS:
BREAST CANCER IN THEIR 60's
MOTHER'S SISTER:
BREAST CANCER IN HER 70's

"My father's two sisters had breast cancer in their 60s, and my mother's sister had it in her 70s. Unfortunately, I am a smoker and unable to stop - but I try to be careful about my health. I eat a healthy diet and keep slim and fit with regular exercise, but I wonder if I should worry more about breast cancer now that I am older."

Helen, 32

MARKETING MANAGER
WINNIPEG, SK

MOTHER:
BREAST CANCER AT AGE 35
MATERNAL GRANDMOTHER:
BREAST CANCER AT AGE 46
MOTHER'S SISTER:
OVARIAN CANCER AT AGE 44

"My mother was diagnosed with breast cancer when she was 35, and she survived it. When she was just a teenager, she lost her own mother to breast cancer at age 46. My mother's only sister was 44 when she was diagnosed with ovarian cancer. As I approach 35, I'm worried about my risk. I have daughters who are 10 and 12 years old, and I am concerned about their future risk of breast cancer, too."

Family History and Breast Cancer Risk

Many women have relatives who have had breast cancer. Simply having a family history of breast cancer doesn't necessarily mean you have an increased risk of developing the disease yourself. Doctors look for specific patterns of breast cancer in a family.

Some patterns of cancer in a family look like hereditary breast cancer (such as seen in families with *BRCA1* or *BRCA2* mutations). Other patterns put a woman at higher than average risk but do not suggest hereditary breast cancer. Instead, the pattern of breast cancer in the family may be due to unknown environmental factors that family members are exposed to, or it may be caused by a mutation in a gene that moderately increases breast cancer risk but for which genetic testing is not yet available.

Your family history may suggest you have an increased risk of developing breast cancer if you have:

THREE OR MORE RELATIVES ON THE SAME SIDE OF THE FAMILY WITH BREAST OR OVARIAN CANCER

TWO OR MORE FIRST- OR SECOND-DEGREE FEMALE RELATIVES ON THE SAME SIDE OF THE FAMILY WITH BREAST CANCER BEFORE AGE 70 OR OVARIAN CANCER AT ANY AGE

A FIRST- OR SECOND-DEGREE RELATIVE DIAGNOSED WITH BREAST CANCER BEFORE AGE 50

A FIRST- OR SECOND-DEGREE RELATIVE WITH OVARIAN CANCER (ANY AGE)

A FIRST- OR SECOND-DEGREE RELATIVE WITH CANCER IN BOTH BREASTS OR WITH BOTH BREAST AND OVARIAN CANCER

A FIRST- OR SECOND-DEGREE RELATIVE OF JEWISH ANCESTRY WITH BREAST OR OVARIAN CANCER

A FIRST- OR SECOND-DEGREE MALE RELATIVE WITH BREAST CANCER

A RELATIVE WITH A KNOWN GENE MUTATION IN *BRCA1* OR *BRCA2*.

In all these descriptions "relative" refers to blood relatives, not to family members who are adopted or related to you by marriage.

First-degree relatives include your mother, father, brothers, sisters, sons and daughters. Second-degree relatives include your grandparents, aunts, uncles, nieces and nephews. Third-degree relatives include your great-grandparents, great-aunts, great-uncles and cousins.

SPEAKING WITH YOUR DOCTOR

If any of these descriptions applies to you or if you are still worried about your family history, talk with your doctor. It's helpful to collect your family health history and bring it with you. If possible, include the age at which your family members were diagnosed with cancer, as cancers that present at a younger age may suggest a hereditary pattern.

Your doctor can help you determine your risk of developing breast cancer and discuss your next steps.

Having a family history of breast cancer doesn't necessarily mean you have an increased risk.

Assessing Hereditary Risk

		HER CHOICE	WHAT SHE LEARNED
Andrea	<p>Andrea’s mother’s sister developed breast cancer at age 67. Her father’s aunt had breast cancer before age 50. When Andrea looked at the descriptions on the previous page, she didn’t find any that applied to her. She understands that she probably has the same risk of breast cancer as most other women her age.</p>	<p>Andrea decided not to make a special visit to see her doctor about her family history of breast cancer. However, at her next check-up, she mentioned her fear that her lumpy breasts might be linked to cancer.</p>	<p>Andrea’s family doctor explained that her lumpy breasts are due to a fibrocystic condition. This is a very common and completely harmless condition.</p>
Marthe	<p>Marthe’s father’s two sisters both developed breast cancer in their 60s. Her mother’s sister developed breast cancer in her 70s. Because Marthe has two second-degree female relatives on the same side of her family who experienced breast cancer before age 70, her family history may suggest hereditary breast cancer.</p>	<p>Marthe decided to see her family doctor to talk about her family history of breast cancer.</p>	<p>Marthe’s doctor explained that breast cancer in her mother’s family does not increase her risk very much, but she may have a moderately increased risk compared to most other women her age because her two aunts on her father’s side of the family had breast cancer. Although the pattern doesn’t suggest a BRCA1 or BRCA2 mutation, it might suggest a gene mutation that scientists haven’t identified yet that moderately increases risk, or it might suggest some kind of environmental factor shared by her family.</p>
Helen	<p>Helen’s mother developed breast cancer at age 35, and her maternal grandmother developed breast cancer at age 46. In addition, her mother’s sister developed ovarian cancer at age 44. That means three female first- or second-degree relatives on the same side of her family had breast or ovarian cancer before age 50. Her family history has several features that may put her at increased breast cancer risk.</p>	<p>Helen decided to consult her family doctor about her family history of breast cancer.</p>	<p>Helen’s doctor explained that the patterns of cancers on her mother’s side of the family may be hereditary. If she has inherited a gene mutation, then she has a much higher risk of developing breast or ovarian cancer compared to most other women her age.</p>

Genetic Consultation

After reviewing your family history, your doctor may suggest a genetic consultation. Genetic consultations include a detailed review of your personal and family cancer history and an assessment of your genetic risk.

If you are eligible for genetic testing, *(the criteria vary somewhat from province to province)* the consultation may include a discussion of its risks and benefits. In Canada, you must receive genetic counselling before going through genetic testing if you want to have the cost of testing covered by your provincial health insurance.

If your family history doesn't suggest that you're at risk of developing hereditary breast cancer, you may not qualify for a genetic consultation but you may still be at a moderately increased risk of developing breast cancer, as we discussed on page 14.

Your doctor can explain ways to lower this risk or detect cancer early.

Genetic Testing

Genetic testing requires getting a simple blood test. This test will not show whether you have cancer, only whether you have inherited a mutation that increases your risk of hereditary breast cancer.

Keep in mind that not every woman who inherits a harmful breast cancer gene mutation will develop cancer. However, there are possible mutations linked to breast cancer that have not yet been identified. This means that even if a mutation is not found by genetic testing, many women with a strong family history are still at risk of developing hereditary breast cancer due to harmful genetic mutations that current technology cannot yet identify.

If you're eligible for genetic testing, getting tested is your choice. Knowing your risk of developing cancer can help you make informed decisions about your health management. However, there are risks and drawbacks to genetic testing, including the impact this information may have on both you and your family and the potential risk of discrimination from insurance companies.

You'll find more information in our fact sheet Genetic Testing for Hereditary Breast and Ovarian Cancer which can be found at www.inourgenes.ca.



To get tested, you can ask your family doctor for a referral to a genetic counselling clinic or call the clinic yourself. Most genetic counselling clinics are located in hospitals or cancer centres, although not all of them do testing for hereditary breast cancer. You'll find a list of clinics at the Canadian Association of Genetic Counsellors website: www.cagc-accq.ca.

How to Reduce Your Risk of Breast Cancer

Although you can't control some of the factors that may increase the risk of breast cancer, there are steps you can take to protect yourself in other ways.

FOR ALL WOMEN

A healthy lifestyle may reduce the risk of many types of cancer, including breast cancer, as well as heart disease, stroke and osteoporosis.

A healthy lifestyle includes:

- EATING A WELL-BALANCED DIET, INCLUDING 7 TO 8 SERVINGS OF VEGETABLES AND FRUIT EACH DAY
- EATING FOODS LOW IN ANIMAL FAT
- LIMITING ALCOHOL TO NOT MORE THAN ONE DRINK A DAY, ON AVERAGE
- EXERCISING REGULARLY
- STAYING AT A HEALTHY WEIGHT
- NOT SMOKING
- FOLLOWING CANCER-SCREENING GUIDELINES TO HELP DETECT CANCER EARLY
- SEEING YOUR DOCTOR FOR REGULAR CHECKUPS

FOR WOMEN AT MODERATELY HIGHER RISK

For women at moderately higher risk of developing breast cancer, like Marthe, research has shown that taking certain medications, such as tamoxifen, or raloxifene may reduce that risk. Aromatase inhibitors, which stop the production of estrogen in post-menopausal women, will likely be approved for this purpose in the near future. Your doctor can give you more information about these medications.

Currently, we don't know how to completely prevent breast cancer, but we may be able to significantly reduce the risk.

FOR WOMEN AT MUCH HIGHER RISK

For women at much higher risk of developing breast cancer (*for example, a woman with a BRCA1 or BRCA2 gene mutation*), surgically removing the breasts (*risk-reducing mastectomy*) reduces breast cancer risk by over 90 per cent. Women choosing this option are offered breast reconstruction. A woman with a BRCA1 or BRCA2 mutation should consider having the fallopian tubes and ovaries surgically removed (*risk-reducing salpingo-oophorectomy*) after she has had her children to reduce her risk of both breast cancer (*if she still has her breasts*) and ovarian cancer.

There are risks as well as benefits to these surgeries, including short-term and long-term side effects. Women considering surgery as a way to reduce their risk should talk to their doctor about the risks and benefits.

REDUCING THE RISK

Andrea

“Even though I'm not at higher risk of developing hereditary breast cancer, I want to reduce my risk for all forms of cancer, so I've started eating more fruits and vegetables, working out and watching how much I drink.”

Marthe

“I've always eaten properly and exercised, but knowing I'm at increased risk means I've started paying extra attention. I'm also going to ask my doctor to help me try again to quit smoking. We already talked about whether I should take tamoxifen but we both agreed that the risks outweighed the potential benefits as long as I'm still smoking.”

Helen

“I want to do everything I can to reduce my risk, so I've started running regularly and I'm trying to eat a healthier diet.”

Detecting Breast Cancer Early

If breast cancer does develop, detecting it early increases the chance of successful treatment. There are several ways to detect breast cancer. Which of these should be done, at what age and how often, will depend on your breast cancer risk.

CLINICAL BREAST EXAMINATIONS (CBE)

These examinations are performed by a qualified doctor or nurse who examines both of your breasts, as well as your underarms and your neck.

MAMMOGRAMS

A mammogram is a very low-dose x-ray of the breasts. This procedure flattens the breast as much as possible and can be uncomfortable for a very short amount of time. Mammograms may detect breast cancer long before a woman or her doctor can find it, and they are proven to reduce breast cancer deaths.

Screening guidelines vary by province, but mammograms are generally recommended every two to three years for average risk women aged 50–74. For women at increased risk of developing breast cancer, mammograms may be recommended more often and at a younger age.

MAGNETIC RESONANCE IMAGING (MRI)

An MRI uses magnetic energy to create a picture of the breast. For women at very high risk of developing breast cancer, it is recommended every year starting at age 25 to 30, along with yearly mammograms. MRIs are not recommended for women at lower risk because they produce too many false positives: scans that show an abnormality even when no abnormalities are there.

FOLLOWING UP

Most breast lumps and abnormalities are not cancer. However, if a lump or other abnormality is found during a screening test the doctor may repeat the test right away, or at a later time, or both. Additional tests and a biopsy may be necessary to rule out or confirm a diagnosis of breast cancer.

Early detection means a greater chance of successful treatment.

BE BREAST AWARE

It's important to be aware of what is normal for your breasts so that you can notice changes. Breast cancer is usually first noticed as a lump or thickening in the breast. Other signs might include:

- A LUMP OR SWELLING IN THE ARMPIT
- CHANGES IN BREAST SIZE OR SHAPE
- DIMPLING, PUCKERING OR INDRAWING OF THE SKIN
- REDNESS, SWELLING AND INCREASED WARMTH IN THE AFFECTED BREAST
- SKIN THAT IS PITTED (LIKE AN ORANGE PEEL)
- A NIPPLE THAT TURNS INWARDS (AND WASN'T LIKE THAT BEFORE)
- CRUSTING OR SCALING ON THE NIPPLE
- DISCHARGE OR BLEEDING FROM THE NIPPLE

Often, these symptoms are not caused by cancer but by other health problems instead. Certain tests may be necessary to make a diagnosis.

If you find any of these signs, it is important to make an appointment to see your doctor as soon as possible.



STAYING POSITIVE

Thanks to early detection and better surgery, radiation and drug treatments, the vast majority of women diagnosed with breast cancer are now treated successfully. Women who have a small tumour that has not begun to spread into the lymph nodes have an even better survival rate. For women who are being followed closely because of their family history or a known gene mutation, any cancer that develops is more likely to be detected early, which results in a better prognosis.

Today, 90/100 women who are diagnosed with breast cancer will be alive and well in five years.

Screening Strategies

SIX MONTHS LATER

Six months later, this is what these three women had to say about their family history of breast cancer:

Andrea

Since Andrea is 40 years old and probably isn't at higher risk of developing breast cancer, her doctor recommended that once she turns 50 she should start getting regular mammograms.

"I feel less worried about my breast cancer risk, but I now pay more attention to nutrition and exercise."

Marthe

Marthe is 65 years old and may have a moderately increased risk, so her doctor suggested having a clinical breast exam and a mammogram every year. Her doctor also encouraged Marthe to be aware of how her breasts look and feel and call if she notices any changes that might indicate breast cancer.

"I am aware of my increased risk because of my age and family history, and I know I'm protecting myself as best I can. I haven't smoked a cigarette for three months and think I've finally kicked the habit. I'd like to donate the money I'm saving to a cancer charity."

Helen

Although Helen is only 32, her family history puts her in a higher risk category. Her doctor referred her to a familial cancer clinic where she met with a genetic counsellor who reviewed her family cancer history. She was referred for high-risk screening which includes an annual mammogram and breast MRI. If Helen decides to have genetic testing and is found not to be at increased risk, she can stop all screening until she is 50 yrs old.

"I am going to ask my mother to consider having genetic counselling and testing for breast cancer gene mutations. The genetic counsellor explained that when genetic testing is done in a family for the first time, it's best to first test a family member who has had cancer. If my mother carries a mutation, I can then be tested and learn more about the risk to myself and my daughters, so we can take steps to protect ourselves if it turns out any of us are at higher risk."

GLOSSARY

Aromatase inhibitors: a class of drugs used to treat breast cancer in postmenopausal women by blocking the formation of estrogen. Examples are anastrozole (*Arimidex*), letrozole (*Femara*) and exemestane (*Aromasin*). [PAGE 20](#)

Atypical hyperplasia: a non-cancerous breast condition in which there is an overgrowth of mildly abnormal but noncancerous (*benign*) cells within the breast milk ducts or lobules. Women with atypical hyperplasia have an increased risk of developing breast cancer. [PAGE 8](#)

Biopsy: removal of a small piece of tissue for examination under the microscope to help detect or rule out cancer. [PAGE 22](#)

Cell: the basic structure of living tissues. All plants and animals are made up of one or more cells. [PAGE 6, 8, 10, 11](#)

Chromosomes: the part of a cell that contains genetic information. Each cell contains 23 pairs of chromosomes or 46 chromosomes in total. [PAGE 11](#)

DNA: deoxyribonucleic acid is the material inside a cell that carries genetic information. DNA determines the structure, function and behavior of cells. [PAGE 11](#)

Ductal carcinoma in situ (DCIS): A non-invasive breast cancer that begins in the milk ducts of the breasts and has not spread outside the duct into nearby breast tissue. Unlike invasive breast cancer, DCIS will not spread to lymph nodes or other organs such as bone, lung, liver or brain to form metastases. [PAGE 7](#)

Estrogen: a female hormone mostly produced by the ovaries. It causes female sexual characteristics (*such as breasts*) to develop and is necessary for reproduction. It can increase the growth of some breast cancers. [PAGE 8, 20](#)

Fibrocystic condition: a common non-cancerous (*benign*) condition in which cysts or lumps develop in breast tissue. This may also be referred to as fibrocystic disease of the breast. [PAGE 8, 9, 17](#)

Genes: the part of the cell that transfers basic biological units of heredity from cell to cell and from parents to a child. [PAGE 3, 10, 11, 12, 14, 17, 18, 21, 24, 25](#)

Hereditary: the process by which family traits are passed from one generation to another. [PAGE 15, 16](#)

Hereditary breast cancer: breast cancer resulting from a mutation in a gene passed from parent to child. [PAGE 2, 3, 5, 7, 10, 14, 15, 16, 18, 19, 21, 28](#)

Hormones: chemical substances that regulate such specific body functions as metabolism, growth and reproduction. [PAGE 8](#)

Hormone replacement therapy (HRT): the use of estrogen, progesterone or both to treat the symptoms of menopause. HRT replaces the natural hormones produced by women in their fertile years. [PAGE 8](#)

Lobular carcinoma in situ (LCIS): despite its name, LCIS is not considered to be cancer. It is an uncommon condition in which abnormal cells form in the lobules or milk glands in the breast. A diagnosis of LCIS does increase the risk of developing breast cancer in the future. [PAGE 8](#)

Lymph node: a small, bean-shaped mass of lymphatic tissue that is covered by connective tissue. Also called lymph glands, lymph nodes store lymphocytes (*white blood cells that fight germs, bacteria and cancer cells*) and filter lymph fluid for impurities. They are located throughout the body with large collections of lymph nodes most commonly found in the armpits, groin and neck. [PAGE 24](#)

Malignant: a malignant tumour is cancerous and may spread to other parts of the body. [PAGE 6](#)

Mammogram: an x-ray of the breast used to detect breast cancer or ductal carcinoma in situ (*DCIS*). [PAGE 8, 22, 24](#)

Mastectomy: surgery that attempts to remove all breast tissue including the nipple. [PAGE 21](#)

Mutation: a change in the structure of DNA that often changes the function of a gene. Mutations can be harmful, beneficial or have no effect. Certain mutations (*SUCH AS BRCA1 OR BRCA2*) may lead to cancer or other diseases. [PAGE 3, 10, 11, 12, 14, 17, 18, 21, 24, 25](#)

Radiation treatment: the use of high-energy rays or particles to damage or destroy cancer cells. [PAGE 8, 24](#)

Raloxifene: a drug used to treat osteoporosis that may also be used to prevent breast cancer in post-menopausal women who are at high risk of developing breast cancer. Like tamoxifen (*see below*) it impairs the ability of the hormone estrogen to bind to pre-cancerous cells. [PAGE 20](#)

Tamoxifen: a drug used to treat breast cancer in pre- or postmenopausal women by impairing the ability of the hormone estrogen to bind to cancerous cells. It may also be used to prevent breast cancer in women who are at high risk of developing breast cancer. [PAGE 20, 21](#)

Tumour: an abnormal growth of cells. Tumours can be non-cancerous (*benign*) or cancerous (*malignant*) and may also be called neoplasm, mass or growth. [PAGE 6, 24](#)

Resources

WILLOW BREAST CANCER SUPPORT CANADA

Willow Breast Cancer Support Canada provides confidential support and information to anyone affected by breast cancer or concerned about their risk of developing hereditary breast or ovarian cancer.

1 888 778 3100
www.willow.org
www.inourgenes.ca



OTHER RESOURCES

Living Beyond Breast Cancer
<http://lbbc.org/>

FORCE: Facing Our Risk of Cancer Empowered
www.facingourrisk.org

Be Bright Pink
www.bebrightpink.org

Pink Hope
www.pinkhope.org.au

BREAST SCREENING CENTRES

To find out more about breast screening centres in your province, call Willow at 1 888 778 3100 or visit the Canadian Association of Radiologists website (www.car.ca) for a list of accredited facilities.





www.willow.org
www.inourgenes.ca
1 888 778 3100

WILLOW BREAST CANCER SUPPORT CANADA

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