

# **BREAST HEALTH**

**A Series of Articles Written by the  
Vancouver Women's Health Collective  
#219 - 1675 W. 8th Avenue  
Vancouver, BC V6J 1V2  
(604) 736-4234**

## Breast Anatomy and Function

**T**hroughout history women's breasts have been viewed as symbols of femininity, measures of beauty, determinants of fashion and sources of eroticism. The media, art, literature and culture present images of idealized breasts which few women have and are largely the constructs of men's imaginations. Money is spent on selling implants, silicone injections, padding, binding and breast enhancers which may disfigure or endanger a woman's health. There is great attention to the breasts as sexual objects. However, their primary function, which is to provide nourishment to an infant, is often viewed as unnatural or obscene.

**I**n order to demystify our breasts we must understand about their anatomy and how they function in relation to the rest of our body.

**I**n the centre of each breast is the nipple, which is surrounded by a pigmented circular area called the areola. The color of the nipple and areola varies among women and can range from a light pink to a deep brown or almost black color. The base of the nipple is ringed with tiny oil producing glands that help keep the nipple supple. Some women have hair around the areola. There are bumps around the areola somewhat like goose pimples. These bumps are known as Montgomery's glands and lubricate the nipple and areola during breast feeding.

**T**he nipple is made up of spongy tissue. In some women the nipple is constantly erect, while for others the nipple only

becomes erect when stimulated by cold, physical contact or sexual activity. A woman's nipples may protrude beyond the areola while others may be inverted. If a formerly protruding nipple were or become inverted it might indicate some underlying problem and should be brought to the attention of a health practitioner.

**T**he inside of the breast is made up primarily of fat and breast tissue. The breast tissue is firm and rubbery and is sandwiched between layers of fat behind which lies the chest muscle.

**T**he interior of the breast is divided into sections called lobes. The lobes are divided into lobules, each of which contains milk-secreting glands cushioned by fat and fibrous connective tissue. The fat cells between and within the lobes give the breast its softness and shape. Cooper's ligaments are the fibrous tissues that separate the lobes. These ligaments provide the breast with support and shape. As these ligaments age and stretch, the breast droops. The fibrous tissue attaches the breast to the muscles of the chest wall, which are known as the pectoral muscles

**T**here is also a duct system or pipeline which brings milk to the nipple. These ducts intertwine like the roots of a tree, but do not connect. Each has a separate opening, so that when a woman is nursing, milk comes from all around the nipple

**B**reasts come in many different shapes and sizes. Their growth and function are

affected by the sequential stimulation of hormones secreted by the ovary, anterior pituitary, adrenal cortex and thyroid glands. These glands respond to messages from the brain which affect body development and body function. Breast development starts at puberty and reaches adult size as body growth is completed.

**T**he breasts are part of the reproductive system. During each menstrual cycle the breasts may swell. This is due to several factors. There is an increase of blood flow to the breasts and the ovaries produce hormones that also contribute to breast swelling. The breasts begin to retain fluids in preparation for possible pregnancy. When pregnancy does not occur, the hormonal process is reversed and the production of fluid decreases causing the breasts to soften.

**I**f pregnancy occurs, the breast continues to grow, and the pituitary releases prolactin which aids the growth of the breast and the making of milk. The cells absorb from the bloodstream the necessary substances to make colostrum and milk for the infant. Colostrum is the fluid first secreted at childbirth and contains immunity providing proteins to protect the newborn from infections until their immune system has developed further.

**T**he breasts, after pregnancy or at the end of breast feeding, begin to recede in size. Old duct cells are dissolved and gotten rid of through the lymphatic system. Fibrous breast tissues, which elongated and increased in number during pregnancy and lactation, now retract and return to their original size.

**T**he breast contains sensory nerves which respond to physical contact, sexual activity and cold. An infant sucking stimulates the nerves. The nerves transmit a message to the brain and the hormone oxytocin is released. This hormone controls lactation by causing contractions of cells in the breast so milk is secreted. For some women, the nerves are so sensitive that the sound of an infant crying in another room can trigger a woman's let-down reflex and cause a flow of milk.

**B**reasts play a vital role in the reproductive cycle no matter their size or shape. They have been shrouded in myths for too long. Understanding how our breasts develop and work is one way to learn more about our own bodies and health.

# BREAST SELF-EXAM

**B**reast self-examination is an opportunity for you to regularly survey your breasts and the monthly changes they undergo. Women have more awareness of how their own breasts feel and change than a doctor who does a quick check once a year during a physical exam. By learning about your breasts you can relate any specific concerns or changes to your physician. Most breast lumps are discovered by women themselves, and early detection can allow for more varied treatment alternatives if, in fact, the lump is cancerous. Most lumps are not, but your recognition of this potential concern makes your knowledge important as a member of your health care team.

## When To Do Breast Self Exam

**B**reast self-exam should be done once a month, just after the end of your menstrual period. Because of hormonal changes, this is when the breasts are softest and least lumpy. A monthly interval allows your fingers and eyes an opportunity to distinguish any changes, but is sufficiently frequent to remember how the breast felt before.

**A**fter menopause or a hysterectomy, you might want to schedule a monthly date, like the first of each month to do breast self-exam.

**I**f you are not menstruating because you are pregnant or nursing, your breasts may be more difficult to examine. This is due to breast changes for milk

production. However, continue to examine your breasts once a month.

## Step 1: Examining Your Breasts

### *Arms at Sides*

**S**it or stand in front of a mirror with your arms at your sides. Look for changes in your breast size and shape. Look for any indentation or dimpling of the skin. If you see a change in the texture of the skin, so that the pores are open like that of an orange, this is an important sign of breast cancer. Unusual reddening of the skin, rashes on the breast or nipple, or unusually prominent veins should be noted.

**I**nspect your nipples for any changes in the direction they point, any new inversion (nipple pointing inward), flattening, broadening or retraction. Look for thickening, redness or erosion in the skin around the nipple and areola (pigmented skin around the nipple).

**G**ently squeeze each nipple to see if there is any discharge. If there is nipple discharge, you should have it checked by your physician.

### *Arms Raised*

**R**aise both of your arms over your head and look again for the same changes in nipple and breast texture.

## *H*ands On Hips

**P**ut your hands on your hips, and squeeze against the hips to contract your chest muscles. Visible changes like dimpling, swelling or puckering will be more apparent. Turn sideways to observe sides of breasts and underarm breast tissue.

## *F*orward Bending

**B**end forward in front of the mirror so your breasts hang down. You can see the size of your breasts and if they hang symmetrically. A breast with a cancerous tumour which is attached to the chest wall, may not hang down freely like the other breast and may pull back toward the ribs.

## *B*reast Lifting

**L**ift your breasts and check for any skin changes on the underside of the breast which is not normally seen. These changes would include redness, puckering or dimpling.

### **Step 2: Palpitation Feeling Your Breasts For Lumps Or Thickenings**

**B**reast examination is easiest when lying flat on your back. This position supports and spreads the breast evenly so that all breast tissue can be felt. Larger breasted women may wish to put a pillow or bath towel under their shoulder to prevent breast tissue bulging to the side. Women with heavy or large breasts may feel a firm ridge of tissue at the lower edge of their breasts. This is the inframmary ridge. It develops because

we walk upright and our breasts fold over themselves.

- ★ Place your left arm behind your head and place your right hand with fingers together, flat against your left breast. Start at the outside of your breast near your armpit and feel slowly and carefully with small circular motions all around the outer part of your breasts. Use the pads of your fingers rather than your fingertips.
- ★ Move your fingers in towards the nipple about 2 cm. or 1/2 finger width and feel all the way around again, with small circular motions. Continue to move in towards the centre of the breast and feel around again. This circle around the breast should be repeated until you have covered the entire breast, including the nipple.
- ★ Bring your left arm halfway down to your side and, still using the pads of your fingers, feel for lumps or thickenings under your armpit.
- ★ Put the pillow under your right shoulder, put your right arm under your head, and repeat the entire procedure for the right breast.

**Optional:** Repeat the palpitation process for both breasts sitting upright. This is not always done as part of a regular breast self-exam, but sometimes a lump which is close to the chest wall can be felt sitting up, but not lying down.

**W**hen you begin doing breast self-exam, you may find what feels like lumps all over your breasts. Many women's

breasts are normally lumpy. Breast tissue, milk ducts, muscles and fibrous tissue, can all be very deceiving and appear as a lump to someone not familiar with her breasts. A health practitioner can help you get an idea of what is normal for you, especially one with an understanding of breast examination. Breast clinics may have additional resources like videos and books as well as trained staff to assist you.

**I**t takes time to learn the techniques and discover how your breasts naturally feel and change. Make monthly breast self-exam part of your self care routine.

# ABOUT BREAST CANCER

## What is cancer?

**L**iving cells bear offspring by dividing and forming 2 separate cells. Normally, how a cell functions, and when it divides, are well regulated and coordinated with the rest of the body's cells and tissues. Cancer cells escape the controls that regulate normal cells and they start to multiply wildly.

**S**ometimes the cells form a self-contained mass, or a benign (non cancerous) tumor, which does not spread. Other times, the new mass of cells will start to invade other tissues. This is what characterizes a cancer.

**C**ancers are recognized in three ways:

- ★ the appearance of the cells within them are no longer normal,
- ★ by the way the mass of cells invades other tissue,
- ★ and by the ability for clumps of cancerous cells to travel and form other cancers in other parts of the body. When cells move like this it is called metastasis.

**A** collection of cancer cells which do not invade other tissues are referred to as "in situ". Sometimes "in situ" cancer becomes a spreading cancer, and sometimes it does not. It is not known whether these cancers are something between a benign tumor and a cancer, or whether they are a form of cancer which needs to be "activated" to grow. Little is

known about why they sometimes become cancerous and sometimes do not.

**E**ighty percent of cancers are believed to be environmentally caused. Cancers can be caused by chemicals that are in the air we breath or by passing through our skin. They can also be found in a person's food or medicine. We still do not understand how these chemicals act to cause cancer. It is known that many cancer causing chemicals are "mutagenic", that is, they cause genetic changes which are thought to influence cells to grow into cancers instead of functioning as they normally should. Radiation has been shown to be mutagenic.

**I**t is thought that cancer develops in stages. First, a cancer starts, by a cancer causing substance. Later, another cancer causing substance acts to aid the cancer in growing. The period of time between when a cancer is started and when it actually appears is called the "latency period". Many cancers have long latency periods. Often a person will not develop observable cancer until 10-30 years after they have been exposed to a cancer causing substance.

## Rates of Breast Cancer

**A**bout 14,400 new cases of breast cancer are discovered every year. About 5,000 women will die of breast cancer this year alone.

**I**n 1992 Breast cancer was the leading cause of death among women aged 35 to 54.

**C**urrently, one in nine women in North America will get breast cancer at some time in her life. Breast cancer is the most common type of cancer affecting North American women. It is the second greatest killer of women next to heart disease. Yet it is the least researched and least understood type of cancer. The lack of priority given to breast cancer research proves to be testimony to the lack of importance Women's health has yet to be given in the male dominated medical system.

**T**he incidence of breast cancer has been increasing since the generation of women born around 1900. Between 1969 and 1979 the incidence of breast cancer rose 1% a year. There has been a particularly steep increase in how many women under 40 are getting breast cancer.

**E**ighty-seven percent of women who have breast cancer with no spread to the lymph node (in the nearby armpit) will survive at least 5 years after their diagnosis of breast cancer. Seventy-five percent will survive at least 10 years. Fifty-six percent of women whose cancer has spread to the lymph nodes in the armpit when first detected will survive at least 5 years. Only 10% of women whose cancer has spread to other organs when first detected will survive 5 years.

**O**ne study of deaths due to breast cancer between 1950 and 1973 showed that 40% of women with breast cancer die rapidly within 2 years of diagnosis regardless of treatment. The other 60%,

who all recieved mastectomy as a treatment, had a mortality rate which was very similar to women of the same age without breast cancer. What is most alarming however, is that it is not known whether this 60%, who underwent radical mastectomy, would have done as well or better without the type of treatment they received. It is highly questionable that the medical system continues to subject women to this disfiguring procedure while still being uncertain of its success or value.

**R**ecently, there has been much argument around the issue of radical mastectomy. It is becoming more widely understood as an extreme and unnecessary procedure. Studies indicate that lumpectomy, which does not require the removal of the entire breast, has similar recovery results as radical mastectomy. There is far less emotional damage suffered by the client who has lumpectomy than those women who suffer through total breast removal. It is shocking that health practitioners continue to insist on radical mastectomy when the results of such a procedure may render women worse off.

### Types of Breast Cancer

**A**bout 80% of women with breast cancer have invasive duct carcinoma. This form of breast cancer starts in the ducts, or passage ways, leading from the milk producing lobes to the nipples. Invasive duct carcinoma is most often first felt as a hard irregular lump in the breast.

**T**here are several types of breast cancer that leave women with a better chance of survival than that of invasive duct



carcinoma. One type is mucinous carcinoma of the breast, which is characterized by a smooth lump full of a jelly-like substance. Medullar carcinoma, forms an almost spherical lump. Tubular carcinoma forms a small irregular lump. Adenoid cystic carcinoma and secondary carcinoma are rare types of cancer which usually occur in children and adolescents.

**B**reast cancers which are most critical because with a smaller chance for survival include:

- ★ breast cancers with types of cell growth not usually found in the breast (squamous, osseous or chondroid metaplasia);
- ★ sarcomatoid carcinomas, a type of breast cancer which is usually large when first discovered because of a rapid growth rate, and which has a 35% 5 year survival rate regardless of the stage of its discovery
- ★ and inflammatory carcinoma, which occurs in 2% of women with breast cancer. It is a cancer which attacks the lymphatic system directly, causing the breast to become red and swollen.

**A**bout one third of breast cancers need the hormone estrogen to grow. Another third are, to different degrees, estrogen dependent, and one third do not depend on estrogen. This is a shocking statistic considering the alarming rate at which women are prescribed estrogen by their health practitioners, either in the form of birth control pills or through estrogen replacement therapy for relief of menopausal symptoms.

**W**omen with estrogen dependent cancers have been treated with an estrogen-blocking drug and by removal of the ovaries. It is thought that these treatments stop women from producing large amounts of estrogen. These treatments are used mainly to ward off recurrences once breast cancer has been detected and removed, or used when women are known to be at a higher risk for breast cancer.

### **Stages of Breast Cancer**

**B**reast cancer was originally thought to develop in stages; beginning in the breast, then moving to the lymph nodes under the arm, and finally to other organs - usually the bones, liver or lungs. Although cancers usually follow this pattern, it is not always the case.

**A**bout 25% of women with small lumps contained entirely in the breast, with no spread to the lymph nodes, either have a recurrence or the cancer spreads to other organs even if the breast and lymph are entirely removed. The disease was, therefore, present outside of the breast of these women when their breasts were removed. Because of these cases, it is thought that breast cancer may affect the whole body early on, constantly shedding clumps of cancerous cells into the blood stream and into the lymphatic system. Often the woman's immune system will prevent other tumors from being formed outside her breast while her cancer is at an early stage. If the lymph nodes under the arm are cancerous, there is a lower chance of recovery. Infection of the lymph nodes is a sign that a woman's immune system can no longer work against cancer.

**A**t the fastest rate of growth it takes a breast cancer three years to grow to be 1 cm. So a woman with a very small tumor has had breast cancer for a fairly long period of time. This is important to know because the time it takes to check out options for treatment can be lengthy. A one centimeter diameter tumor has had plenty of time in the body to shed clumps of cells and possibly spread.

**N**inty-five percent of women with tumors less than 1 centimetre have a 5 year survival rate. This is because a woman's immune system is better able to fight the spread of cancer at this stage.

#### Cancer Risks

**W**ithin any group of people with the same exposure to a cancer-causing substance, certain people will develop cancer and others will not.

**T**here are several attempts to explain why this is. First, a healthy immune system may be able to destroy abnormal cells before they develop into cancers. Second, the differences in rates of metabolism and in hormonal levels can slow or speed both the growth of cancer and the rate at which cancer-causing chemicals are removed from the body. Third, differences in enzyme levels can affect the way a chemical is broken down into cancer-causing substances or the way cancer-causing substances are broken down into harmless substances. Finally, differences in diet can affect how a cancer-causing substance is metabolized. For instance certain vitamin deficiencies can make a person more prone to certain types of cancer.

#### Causes of Breast Cancer

**D**ietary fat has been shown to be a factor in the development of breast cancer. Women in highly industrialized countries are much more likely to get breast cancer than women in less industrialized countries. This may be explained by differences in how much fat (particularly animal fat) there is in a woman's diet. As well, it is thought that high fat diets earlier in life and in puberty are more of a factor than in adult women.

**I**t is not known whether high fat diets are only more likely to cause cancer if women are also exposed to cancer-causing substances or if residues of cancer-causing substances which poison our environment are concentrated in animal fats. It is remarkable that studies on diet and breast cancer have not looked at cancer causing toxins in food. Regardless, a woman trying to decrease her risk of breast cancer may want to limit the amount of fat in her diet.

**B**ody Hormone Level changes could make a woman more prone to breast cancer. Prolactin, is a hormone which affects breast development. Women on standard North American diets high in meat have been shown to have higher levels of prolactin compared to women on low-fat vegetarian diets.

**S**tudies of the hormone estrogen, indicate that the more body fat a woman has after menopause, the more estrogen she produces which may mean a higher risk for getting breast cancer.

**E**strogen replacement therapies used to reduce symptoms of menopause have been shown to increase a woman's risk of

developing breast cancer. The higher the dose of estrogen and the longer a woman has been on estrogen replacement, the greater her risk. Women who develop benign breast disease while on estrogen replacement therapy have seven times the risk of developing breast cancer as other women. (The link between estrogen replacement therapy and cancer of the endometrium is even stronger than the link to breast cancer.)

**D**ES (diethylstilbestrol) is a synthetic estrogen which was given to millions of women during pregnancy in the 1940's and 1950's. It was prescribed to prevent miscarriage. Today it has been determined that DES mothers have a one and a half times greater risk for breast cancer than women who did not use DES.

**L**ong-term use of birth control pills may increase a woman's risk for breast cancer. Women with benign breast disease who have been on the pill more than six years are at higher risk. Women who use high dose (high progestagen) birth control pills for 4-5 years before they reach the age of 25 have a substantially increased risk for breast cancer as they get older. Generally, the younger you begin using the pill, and the longer you use it, the greater chance you have of developing breast cancer.

**P**rovera (called depo-provera in its injectable form used as a contraceptive) is a progestin, a synthetic form of progesterone, which is a hormone linked to a higher risk for breast cancer. Although Provera has been banned for use as birth control in North America and in other industrialized countries, this

dangerous drug is widely used for birth control in third world countries.

**N**on-Hormonal Drugs like reserpine, taken for high blood pressure (hypertension), has been linked in some studies to a higher risk for breast cancer.

**R**adiation causes breast cancer.

Women exposed to radiation have high rates of breast cancer. Large doses of chest x-rays given as a treatment for tuberculosis have been found to cause breast cancer in some of the women exposed. Any x-ray to the chest has a potential for increasing a woman's risk for breast cancer. The larger the dose, the greater the risk. Request the use of a breast shield during X-rays.

#### Genetic vs. Environmental Causes

**S**ome types of cancers have been found to run in families. This could mean that some women are genetically predisposed to developing breast cancer. Recent findings suggest that some women carry a gene that puts them at high risk for developing breast cancer. Low level radiation is needed to trigger this gene into developing breast cancer. Women with a family history of breast cancer are more likely to develop the disease. If a woman's mother and sister, or two close relatives, have had breast cancer in both breasts before they reached menopause, she has about a 50% chance of developing breast cancer. If a woman has two close relatives who develop breast cancer after menopause, her risk of developing the disease is about 16%. This compares to a 9% average risk for women in North America. A woman is at some risk if relatives on her father's side, or if more distant relatives (a

grandmother or aunt) have had breast cancer.

**I**t is not known whether some of the increased family risk is due to having been exposed to a similar environment and/or to a similar diet, rather than being entirely genetic. The likely explanation is that both play a part.

**R**eproductive history and breast cancer have been compared among groups of women. There is some evidence to show that women who begin to menstruate earlier and reach menopause later are more likely to develop breast cancer. Other studies indicate that certain types of breast cancer are less likely to occur if a woman has breast-fed her children.

**S**ome studies have shown that women with benign breast disease are more likely to get breast cancer than other women. Benign breast disease is shown to be a factor with women who use the pill and estrogen replacement therapy.

**H**ard and fast answers about breast cancer are lacking. For such a devastating disease it is unbelievable that we are faced with so many questions and so much conflicting evidence. There are no solid answers and no real solutions. There are two things we can be sure of. One, that breast cancer is on the increase and it continues to kill women. Two, that there is not enough funding going toward researching prevention of this killer.

# Detection of Breast Cancer

One out of 9 women in North America will, at some time in their lives develop breast cancer. The earlier breast cancer is detected and treated, the higher the likelihood of surviving for a long period of time, free of disease.

Sadly, in 1992, only \$849,000 was spent on breast cancer research by the federal government, out of a possible budget of \$223 million, and most of this research money went toward developing more advanced technologies to detect breast cancer at an earlier stages. Earlier detection of breast cancer is not the same as prevention, however. Very little money goes toward finding ways to prevent breast cancer. Procedures like breast self-exam and physician exams are promoted as cancer prevention. In fact, this is misleading. Although women may choose to screen themselves to increase their chances of survival by finding cancer early, screening procedures, such as mammography, self breast exam, and physician exam, do not prevent cancer.

## Breast Self Exam

*(Please refer to our fact sheet for a detailed description of breast self exam.)*

The advantages of breast self exam are that a woman becomes familiar with what her breasts normally feel and look like, and she can find changes and lumps much more easily than a doctor who only examines her once a year. Monthly breast self exams also mean that a lump is found as soon as it is large enough to be felt. Ninety percent of breast lumps are

discovered by women themselves or their lovers. Practising breast self-exam does not have any harmful side effect, and it is something which can be easily learned if the time is taken to teach it properly.

The breast self-exam is safe, simple, and it works. Doing the self-exam gives a woman some control over her own health care by being responsible for checking her own breasts.

The lack of funding directed at teaching and promoting breast self-exam may be the biggest reason why many women do not perform breast self exams regularly. Sadly, breast self-exam is sometimes dismissed as a tool for screening for breast cancer because many women do not examine their own breasts. Access to better education and resources around breast self exam would see a rise in earlier detection of breast cancer.

## Physician Exam

The breast exam that your doctor does is identical to breast self-exam, except that it is done only once a year. Doctors, however, will not be as familiar with a woman's breasts, so minor changes may not be as easily noticed. To detect cancer early it is best to practice self exam as well as a yearly physician exam. It is best to practice self exam regularly.

## Mammography

Mammography is an X-ray examination of the breast. Two x-ray

photos of each breast are taken. This is the only procedure known to be able to detect breast cancer when it is so small that a lump cannot yet be felt. Some cancers have been identified by mammography as long as 2 years before the cancer would have been large enough to feel.

**B**ecause Mammography uses a substance which is known to cause cancer, X-radiation, it increases a woman's risk of getting breast cancer. Because X-rays cause cancer there is much debate around the issue of using mammography as a tool for regularly screening women who do not have symptoms of breast cancer. There is no known low level of radiation which will not cause cancer. Some breast cancers which would not have otherwise occurred will occur because of exposure to x-rays.

**B**reast screening mammography involves regular yearly X-rays of healthy cancer free breasts. A recent Canadian study revealed that the benefits of mammographies do not outweigh its risks for women under 50 years of age.

**M**ammography is not a risk-free procedure. It is, therefore, very important that it not be over-used. For women under 50, mammography may be of no advantage. There are several reasons for this:

1. most breast cancer occurs in women over 50 (about 80% over 40 and 65% over 50) (6)
2. the breast of younger women are denser and more glandular, and mammography is less accurate in finding tumors in dense glandular

breasts than in the looser breasts of older women.

**I**f a woman opts for mammography it is important to check the equipment being used. Radiation dosage per examination differs depending on what equipment is being used, it is important to find out what the exposure level will be for a total exam before going for a mammography. If more than one facility is available, check what the exposure levels are at each facility and go to the one with the lowest dose. Higher doses of x-rays do not mean that the mammography will be more accurate. It is also important to find out how recently the equipment was checked for patient exposure levels.

**M**ammography is accurate 85%-90% of the time. There are reports of accuracy being better on newer equipment. Mammography does produce some false-positives as well as false negatives. This means that while the mammography detected cancer, a later biopsy shows none. It is therefore, important always to have a surgical biopsy after a mammography result comes back as positive for cancer.

#### Minimal Cancers

**M**ammography is acclaimed for its ability to detect very small or minimal cancers less than 1 cm. in size. For women with minimal breast cancer, 20 year survival rates have been calculated to be more than 95%. *(for more information on minimal cancers see "About Breast Cancer" fact sheet published by the Vancouver Women's Health Collective)*

**I**t's been suggested that the higher survival rates being reported for women with minimal cancers detected by mammography alone is inflated because it includes women who would have survived anyway, without detection and treatment. Tiny tumors which may grow so slowly that they would never produce any symptoms or become life-threatening within a woman's normal lifespan may be included as cancers found early and cured because of mammography. There is also concern that through mammography more questionable diagnosis are being made, particularly of poorly understood pre-cancerous conditions, and more women are undergoing needless surgery for conditions which are not invasive cancer.

#### Deciding Whether To Have Mammographies

**W**omen without any symptoms of cancer are increasing their risk of getting cancer if they have mammographies once a year. If a woman has mammographies less often and if the equipment produces a very low radiation dose, such as .3 rad per exam, her risk is increased less but is not eliminated.

**I**f a woman is older when she has a mammography, in her late 60's or early 70's, the risks of developing breast cancer during her lifetime due to radiation exposure decreases because breast cancer has a latency period of 10-20 years. The latency period is the period of time between exposure to a cancer-causing agent and developing cancer that can be detected.

**M**any women with no signs of breast cancer may decide that early detection by monthly breast self-exam is adequate for them, and that they do not want to use a method of detecting breast cancer which increases their risk of getting the disease.

**M**ammography is useful when a cancerous tumor has already been found. It is used to look at the rest of the breast and the opposite breast, to make sure there is no other cancer present.

Mammography can also be useful in examining a lump or change in the breast which may or may not be cancerous. In this case a mammography will help to determine if a biopsy should be performed. Mammography can also help to search for previously unseen breast cancer in a woman whose lymph nodes close to the breast are known to contain cancer.

**I**n some cases the benefits of mammography may outweigh its risks. Some of those who might consider mammography would be:

- ★ women who have already had breast cancer in one breast.
- ★ women with 2 close family members who have had cancer in both breasts before menopause.
- ★ women who have had localized non-invasive cancerous conditions.
- ★ women who have had a type of breast lump thought to be pre-cancerous.

**T**here are many other women who have characteristics which may make

them at higher than average risk for developing breast cancer and who may or may not decide to increase their risks further by undergoing mammography. These include women who have had a close family member (mother or sister) with breast cancer or women who have taken post-menopausal estrogens for a lengthy period of time, or at a high dosage.

**A**mong other 'risk factors' for breast cancer are; having taken high progesterone birth control pills, having taken DES during pregnancy, being on thyroid supplements long-term, having no children, or being Jewish, white and upper-middle class. The problem is that many risk factors have not been well established and often the degree of increased risk is disputed. It must be added that 70% of women with breast cancer have none of the known risk factors.

**A** woman who knows that she is at somewhat higher than average risk could either decide that early detection is very important to her and have mammographies, or that prevention is very important to her and avoid mammographies.

#### Alternatives to Mammography

**A**t present safer alternatives to mammography are underfunded and under researched. Although some new technologies are available that offer less risk, funding agencies have been reluctant to endorse them. With the rise in awareness of the possible dangers of mammography it is vital that these alternatives are studied and perfected.

Ultrasonography is a detection device which uses high-frequency sound waves to look at the interior of the breast. A woman leans over a basin of water so her breasts are immersed during the ultrasound exam. Ultrasound does not have the known risks associated with x-ray exposure, although it has not been in use for as long, so long-term effects may still be unknown.

**F**or younger women (under 50) with breasts which are denser and more glandular, cancers can often be detected more accurately with ultrasound than with x-ray mammography.

**S**imple fluid filled cysts are easily differentiated with ultrasound although with mammography they may be confused with solid tumors. Ultrasound is less accurate than mammography in distinguishing solid benign lumps such as fibrous cysts from breast cancer.

**T**here have been some individual reports of tumors too small to be felt being detected by ultrasound, but ultrasound has not been proven to be useful for early detection in any large scale study.

**T**hermography produces a detailed map of the pattern of heat emitted from the breast. Each woman's breasts will produce a characteristic 'thermal map' which is unlike that of another women. Usually the 2 breasts are fairly similar, and if there is a large difference in the pattern it can be an indication that something is wrong. A cancerous breast usually produces more heat than normal. However, other non-cancerous processes such as inflammation can also cause heat. Pregnancy and where a woman is in her



menstrual cycle also affect the heat pattern from a breast.

**T**hermography is not very accurate. In one study, thermography was found to have a 45-47% rate of 'false-positives' - calling a healthy breast cancerous. At this stage it should only be used as an additional tool.

**D**iaphanography uses intense light shining through the breast to get an image of the interior of the breast. Photographs are taken with highly sensitive color film. Both benign disease and cancer can cause changes in the shades of color because of differences in protein concentration.

**W**omen's breasts differ in how easily light can shine through them. For some women, mammography may not be useful because of the density of the breast tissue, but diaphanography will provide a clear picture. Because Diaphanography is new, its accuracy is not well known.

#### Breast Pap Smears (*exfoliate Cytology of the breast*)

**T**his test can be used if a woman has a nipple discharge. It can also be used for screening in women with no symptoms if a bit of fluid can be massaged or suctioned from a woman's nipple. Cells in the fluid are examined under a microscope to see if they look normal. If abnormal cells are found, fluid which will show up in an x-ray is pumped through a hair thin tube into the breast ducts, and an x-ray of the network of ducts is taken. This will often show the source of the abnormal cells.

**T**his is a simple and inexpensive procedure. Sometimes cancers too small to be felt can be found. However, it is argued that the pap smear can not detect all types of cancers.

#### Needle Biopsies

**T**here are two types of needle biopsies, fine needle, which removes fluid, and wide needle, which removes a tissue from the core of a lump.

**I**f a woman has a breast lump which is fluid-filled, fine needle aspiration biopsy can be used to remove the fluid from her lump to see if it contains any cancerous cells. This biopsy can be done in a doctor's office, with local anaesthetic or no anaesthetic.

**I**f no fluid can be removed from a breast lump, a wide needle biopsy can be performed, which removes a core of tissue from the lump. This procedure is only considered accurate if it shows cancer to be present. If no cancer is found, it may be because the core of tissue did not come from the part of the lump containing cancer cells. Therefore, a surgical biopsy is always done if a wide needle biopsy comes back negative. Many physicians automatically perform surgical biopsies on lumps from which fluid cannot be withdrawn, because of the inaccuracy of wide needle biopsy.

**A** wide needle biopsy can be performed at a doctor's office with local anaesthetic

## Surgical Biopsy

**W**hen a surgical biopsy is done, the lump is removed to see if it contains any cancer. Rarely an 'incisional' biopsy will be done on a large lump, removing only part of the lump.

**S**urgical biopsy may be done either with local anaesthetic in a doctor's office, or under general anaesthetic. Until recently, women had surgical biopsies with the understanding that their breast would be removed while they were still unconscious if the lump was cancerous. It is now recommended that a surgical biopsy be performed separately from any major breast surgery, so a woman can have a more accurate diagnosis, and so she has time to consider what sort of treatment to have if she does have cancer. If a woman does decide to have a mastectomy, she has time to acknowledge to herself that she will have her breast removed before it happens. Under the old 'one step' system combining surgical biopsy and mastectomy, a woman went under the anaesthetic not knowing whether she would wake up with one less breast.

**I**t is important to make sure that if the lump is cancerous, estrogen and progesterone receptor tests are performed on the tissue. These tests will show if the cancer depends on hormones to grow. This can give a woman more information about her chances for cancer.

recovery and survival, because they can indicate if her cancer is of a slower or faster growing type. They also show whether hormone therapy will be useful if she has a recurrence of cancer. The test must either be done immediately when the lump is removed, or from a frozen section if the tissue is frozen within 15 minutes of its removal.

**I**f a woman does have breast cancer, as shown by a biopsy, there are several other tests that should be done before considering surgery. These will show whether her cancer has spread beyond her breast. They include: a chest x-ray, to see if there are tumors in the lungs or on the ribs, blood and urine studies, which can show if liver or bone tumors are present, and a liver and bone scan. It is important to insist on these tests even if your breast tumor is small. Although a small tumor is much less likely to have spread to other body organs, this has sometimes already occurred.

**A** great deal of money has been put into researching technology to detect breast cancer at early stages rather than into the causes of breast cancer. Because of the intense debate around the worth of current methods of detection, much more energy and funding needs to be directed toward preventing breast

# TREATMENTS FOR BREAST CANCER

**L**ong term survival statistics for breast cancer have not changed much over the last 80 years. Breast cancer treatment is still experimental. There is very little that researchers and scientist know, as fact, about breast cancer.

**A**ll cancer treatments involve risks to women's health that may not outweigh their benefits. Cancer treatment comes from a disease oriented Western Medical practice which focuses on attacking only cancer cells and does not treat the body as a whole organism. The more understanding researchers gain about cancer, the more obvious it becomes that conventional treatments are unable to cure or prevent cancer.

**D**octors believe that breast cancer starts and grows slowly in the breast, entering the lymph nodes in the armpit and then spreading throughout the body. It is thought that if breast cancer is removed soon enough, a woman can be cured. Surgery is thought to be the best and sometimes only treatment for breast cancer. A current myth about breast cancer which many surgeons believe is that the more breast tissue they remove, the greater a woman's chances for survival. More recently it has been shown that breast cancer is by no means predictable and it rarely follows a logical pattern.

**T**here are many tests that are used to determine if cancer is present. These are

called biopsy, by using either a needle or by surgically removing the suspected lump. The removed tissue is then examined under a microscope. If cancer is found the lymph nodes are often then examined to see if the cancer has spread to other organs in the body. (called metastatic) Some doctors still insist on removing all the nodes to test them for cancer. This will leave a woman with severe complications, such as painful swelling of the arm. Removing all the nodes, when it is not necessary is dangerous since lymph nodes are part of a woman's immune system. Without lymph nodes a woman's body will have a harder time fighting off further disease or infection. Women with intact lymph nodes have less recurrences of breast cancer.

**I**f cancer is detected, other tests, including blood tests, urine tests, X-rays, and bone scans, are also done to see whether the cancer has spread beyond the breast.

**S**everal factors can influence the type of treatment for breast cancer. The size of the lump in the breast, whether there are cancer cells in the lymph nodes or in the blood stream, whether there are cancer cells in other parts of the body, as well as a woman's age and general state of health.

**N**o matter what stage a woman's breast cancer might be in, every effort should be made to provide her with treatment that

offers the best chances for survival, involves the least number of side effects, and is the least mutilating and debilitating.

## SURGERY

**O**ver one hundred years ago Halsted's promoted the radical mastectomy as a cure for breast cancer. His practice influenced the course of breast cancer treatment to the point where radical mastectomy was considered "the" treatment for breast cancer for nearly 80 years. This common treatment for breast cancer involved removing the entire breast, the skin and underlying fat, the lymph nodes in the armpit and the major and minor pectoral (chest) muscles and sometimes the lymph nodes.

**R**adical mastectomy is an extremely mutilating surgery. Women are left with a sunken chest wall, with a chance of developing lymphedema (swelling of the arm caused by improper drainage by the lymph nodes), shoulders stiffness and lack of proper arm movement that sometimes lasts years. The operation is followed by pain since it cuts across the sensory nerves.

**I**t is astonishing that frequently doctors urge women to undergo radical mastectomy, even today, when less mutilating procedure have been shown to have similar results.

**T**he "modified radical mastectomy" involves removal of the breast, some fat, and most of the armpit lymph nodes. The chest muscles are left intact. In addition, because the pectoral muscles are preserved, the woman's arm remains

stronger than it does after radical mastectomy.

**T**he "simple mastectomy" only the breast is removed, leaving the lymph nodes and the chest muscles intact. It avoids the sunken chest common to radical mastectomy and offers less chance of lymphedema. It is common for surgeons to check for cancer cells in the armpit lymph nodes prior to surgery. If cancer cells are found, a simple mastectomy may be followed by radiation therapy to the nodes.

**T**he "partial mastectomy" which is termed partial because, although the tumour and 2 or 3 centimetres of surrounding tissue are removed, some of the breast remains along with half the tissue and skin. Although some of the breast saved with this surgery, a wedge of tissue and skin is removed and the breast can be quite disfigured. Radiation therapy is often advised after this form of surgery to kill any cancer cells that might remain in the rest of the breast.

**L**umpectomy" which removes only the tumour mass and a small amount of the surrounding breast tissue, leaving the muscles, skin and lymph nodes. Again, radiation therapy is almost always encouraged after lumpectomy to minimize, as much as possible, the chance of cancer recurring.

**A** major argument against minimal surgical techniques, that do not remove all the breast, has been the tendency for cancer to appear in other parts of the breast or to develop in the opposite breast. Although there is a 30% chance that cancer will recur in the breast if only the lump is removed as opposed to an

8% chance if a mastectomy is performed. But if lumpectomy is followed by radiation therapy, the chance of cancer recurring in the breast is the same as that for mastectomy - (8%) (1) It is becoming clearer that removing the breast merely cuts down the chances of breast cancer recurring in the breast. However it must be considered that many breast cancers are thought to metastasize (spread to other parts of the body) long before a lump has appeared in the breast. If a woman dies of breast cancer it will not be because of a lump in her breast but because the cancer is affecting other more vital organs (her lungs, for example). If her breast cancer has metastasized, removing her breast will not affect her chances for survival.

**T**oday, most responsible surgeons recommend lumpectomy or, at least, partial mastectomy to women in the early stages of breast cancer along with radiation therapy (to kill any cancer cells that might remain in her breast) or chemotherapy if her cancer appears to have spread throughout her body.

#### **Caution: Prophylactic Mastectomy**

**P**rophylactic mastectomy, or "Preventive" removal of one or both breasts in case they later become cancerous, is a procedure being suggested to some women. Prophylactic mastectomy is the removal of healthy breasts. A woman may have the operation suggested to her by her doctor if she has:

- ★ cystic breasts (a condition which by no means puts her at a higher risk of breast cancer

- ★ if she has already had cancer in one breast
- ★ if she has a very strong family history of breast cancer
- ★ if she has a condition in her breast that is thought to be precancerous or if she has lobular or ductal carcinoma in situ.

**I**t is hard to see prophylactic mastectomy as anything but mutilation of women's bodies. It is one thing for a woman to have a cancerous breast removed. (although complete removal of the breast is usually not necessary either) It is another, for a woman to be told that she should have a healthy breast removed because it might develop cancer at some time in her life. This applies to even so-called "high-risk" women or for women with microscopic pre-cancer (adenosis).

**P**rophylactic mastectomies are recommended to women so that they no longer have to fear developing breast cancer, in the case of subcutaneous mastectomy (where the nipple and skin is left intact), this is a false promise: the small amount of breast tissue (about 5%) that is left in the body could become cancerous.

**T**he complications that can arise with subcutaneous mastectomy combined with replacement silicone implants are:

- ★ interal bleeding or infection at the time of the operation
- ★ fibrosis (an excess growth of connective tissue which hardens around the implant causing distortion of the breast)

- ★ decreased blood supply to the area resulting in death of the skin/and or the nipple.

## AFTER SURGERY

### Prosthesis

**W**omen who have had mastectomies are usually fitted with artificial breasts called prostheses. This is done for appearance, so that a woman's breasts will look more uniform in clothing and to counterbalance the weight of the remaining breast and eliminate back strain that can be caused by uneven weight distribution.

### Breast Reconstruction

**T**here are many possible problems associated with Breast implants. Death of the tissue or skin over the implant can occur with breast reconstruction, the implant can be poorly positioned in the first place or can migrate up or down within the chest causing the reconstructed breast to look distorted. Occasionally, fibrosis (excessive growth of connective tissue) will develop around the implant and the new breast will become hard and difficult to move. As well, the nipple can lose its colour. Minute quantities of silicone gel can migrate out of the implant and be absorbed by the woman's body. The effects of this are enormous and devastating. Side effects can range from Immune system failure resulting in chronic illness.

**E**ven the most beautifully reconstructed breast will never match the normal one exactly. As well, a woman

has little or no erotic sensation in her reconstructed breast(4) She will look and feel more balanced.

### Radiation Therapy

**A**ll cells are susceptible to radiation. They are most susceptible when they are in the final process of dividing, or "mitotic" phase. Cancer cells, by definition, divide more rapidly than normal cells and are more often in this mitotic phase. So, in theory, they are more vulnerable to radiation.

**R**adiotherapists are trying to make better use of this vulnerable period. By dividing up doses of radiation and administering more precise amounts to the cells as they reach mitosis, they hope to kill off more cancer cells and leave normal cells unharmed.

**R**adiation is used in several ways in the treatment of breast cancer; to control the spread of cancer in the breasts of women who cannot or who don't want to undergo surgery; to shrink large breast tumours down to a size where they can be removed; to ease pain caused by breast cancer that has spread, especially to the bones; and, most commonly, as additional treatment to less radical forms of surgery, to lessen the chances of breast cancer recurring in the breast.

**R**adiation therapy for breast cancer is done strictly to kill cancer cells within the breast or in the surrounding lymph nodes if cancer cells are found there. However, breast cancer cells in the lymph nodes can be a sign that the disease has metastasized (spread to other parts of the body). If this is the case, radiation

therapy, even though it may kill cancer cells in the breast itself, or in the lymph nodes, will not improve a woman's overall chances for survival. Once the disease has reached this stage, other forms of treatment, such as chemotherapy, are usually used.

**R**adiation therapy has many side effects. The tissue of some women is more sensitive to radiation than others. Scarring can result, the amount of which is hard to know, and damage can be done to normal tissue, if the dosage of radiation is too great. In some women, fibrosis (excess growth of fibrous tissue) may develop within the breast. Fibrosis can act to pull the breast upward and more firmly against the chest wall.

**W**omen considering radiation therapy for breast cancer should thoroughly investigate the clinic in which they plan to be treated and its equipment, as well as the skill and knowledge of the radiotherapist, to make sure that they get the best, most up-to-date treatment. A woman should not undergo radiation therapy if she is pregnant, because radiation will harm the fetus.

**R**adiation, in itself, has been shown to cause cancer which can appear up to 20 years after the woman has undergone treatment. Women who already have breast cancer need to consider whether, in their particular situation, the benefits of such a treatment are worth the risks. A woman's age, how far along her disease is, and other treatments are all things she needs to consider.

**L**umpectomy followed by radiation to the remaining breast tissue is a treatment recommended by many doctors and

chosen by many women. With lumpectomy, women can keep most of their breast and radiation may help to ensure that cancer won't recur in the breast.

### Chemotherapy

**C**hemotherapy is a treatment for breast cancer that uses "anticancer" chemicals or drugs. Until recently, chemotherapy was used only if there was a recurrence of breast cancer, either in the breast or in another part of the body. Now it is usually given to pre-menopausal women with breast cancer together with breast surgery and/or radiation therapy if cancer cells are found in the bloodstream, lymph system, the lungs, the liver or the bones. Chemotherapy is not usually helpful to women who are past menopause.

**O**ut of tests on over 200,000 drugs so far, about 50 have been shown to be useful in killing cancer cells (with the least toxic effects) Of these, 20 appear to be effective against breast cancer with some 8 being preferred by cancer specialists.

**A**nticancer drugs are toxic. They affect normal cells as well as cancerous ones. Chemotherapy is most deadly to cells when they are doubling their genetic material (DNA). Cancer cells divide faster than normal cells, are in this so-called "S-phase" more often and are, therefore, more vulnerable to chemotherapy. According to cancer specialists, chemotherapy doses can be divided up and timed so that they kill as many cancer cells as possible and effect the least number of normal cells. Because hair and skin cells also reproduce faster than other normal cells, they, too are

more sensitive to chemotherapy. Hair loss and skin flaking often happen to women undergoing chemotherapy.

**C**hemotherapy is given by mouth or by injection, either weekly, monthly or, sometimes on a daily basis. Women are often given small doses of the drugs to begin with and the doses are slowly increased until signs of toxicity (drug poisoning) show up. At this point, the doses are either reduced or the woman is taken off the drugs for a time to give her body a chance to rest. Symptoms of poisoning include a sore mouth, nausea, vomiting, and muscle spasm or weakness. These symptoms appear to be short lived and fade when the drugs are with-drawn. Different combinations of drugs are tried in the hope of getting the best results with the least side effects.

**O**ne dangerous side effect of chemotherapy is "immunosuppression". Several of the anticancer drugs suppress lymphocytes and white blood cells which guard the body against infection. Women on chemotherapy are more likely to get viruses and bacteria which under normal conditions, their bodies could fight off. Taking a periodic rest from a chemotherapy treatment may allow a woman's immune system a chance to "bounce back". There is evidence that nothing is gained by continuing chemotherapy for more than 6 months.

**M**any of the drugs used in chemotherapy have, themselves, been found to be cancer-causing. Most doctors think that the benefits of chemotherapy for a woman with breast cancer are worth her taking these risks and suffering these "discomforts". Chemotherapy was once thought to be

the "new hope" for breast cancer patients. Much emphasis is being placed on researching it. However, chemotherapy is still an experimental form of cancer treatment. There is a great deal of debate around whether it will prove to be hopeful. Its long term effects and whether or not it will truly improve breast cancer survival rates are still not known.

### Hormone Manipulation

**S**ome breast cancers are depend on the bodies hormones to grow. These hormones are secreted by glands in a woman's body. Because fewer than half of all breast cancers are hormone dependent it is important to find this out before treatment begins. A test called a "hormone receptor assay" is performed on the tumour tissue (usually when the cancer is first treated) to determine hormone dependency.

**I**f a women's tumour is estrogen (a specific hormone) dependent, attempts are made to lower the levels of estrogen in her body. This can be done by surgically removing the ovaries or the adrenal glands (both produce estrogen) if the women is menopausal, or by using radiation on the ovaries to make them non-functional, or by administering drugs (usually synthetic hormones) that suppress their fuction. Tamoxifen is a drug commonly used on women whose tumours are estrogen dependent. Tamoxifen, however, comes with its own serious side effects that must also be considered.

**H**ormone manipulation involves certain risks. Endocrine surgery (especially on adrenal glands) is physically taxing and



can be dangerous. Synthetic hormones have been shown to cause cancer as well as a host of other health problems. Other effects of hormone manipulation are not known.

**I**t has been shown that hormone manipulation does not cure cancer. It merely slows down or stops the growth of an existing cancer that depends on hormones to grow. Many women undergoing this therapy have improved for months, even years. However, in most cases, the cancer has eventually come back. More research needs to be done before hormone therapy can be successfully used to treat breast cancer.

### Hyperthermia

**H**eat therapy, or hyperthermia, is an experimental cancer treatment that is based on evidence that cancer cells don't like high temperatures. Cancer cells are more heat-sensitive than normal cells. Heat generating radio waves have been directed at tumours in the hope of reducing them. Some researchers are removing the blood from patients, heating it and then replacing it, either throughout the entire body or only at the specific tumour site. This is a treatment that is less harmful than other treatments, yet remains in its experimental stage due to extreme underfunding.

### Immunotherapy

**I**mmunotherapy is based on the theory that certain substances in the body's immune system can stimulate the growth of cancer-fighting cells. These cells could destroy an invading cancer cell leaving normal cells unharmed. It is believed that there is an immune response in some

people that prevents cancer from developing, or that destroys cells if they become cancerous. Immunotherapy research is trying to pin point the factors that make some people immune to cancer in the hopes of making a vaccination, for example.

### Genetic Research

**R**esearchers in the United States are working with genetic material (DNA) with the idea that cancer occurs when something goes wrong with the genetic structures that control cell processes. Genes are responsible for programming cell growth. For some reason, possibly because of exposure to carcinogens (cancer causing agents) from the environment, this programming sometimes gets mixed up and instead of controlling cell growth it causes them to grow faster. Scientists are attempting to understand how the body responds to carcinogens on the genetic level in the hope of stopping or neutralizing the development of cancer.

**T**here are probably more effective ways of treating cancer. Research is being done into more holistic forms of cancer treatment and prevention. Diet, vitamin therapy and stress reduction are being shown to be useful approaches to cancer treatment. However, because close to 100% of the money available for cancer research (from private foundations and from governments) goes into looking for more expensive and technologically advanced treatment methods and almost no money is given over to researching "alternative" treatments or ways of preventing cancer, we hear little about these therapies.