

# Breast Cancer Background Information

Version 1.0

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## 1 This document

This document contains background information which is useful when you or a relative has got the diagnosis Breast Cancer.

### Disclaimer:

In the interactive guideline (the IT solution) as well as any written material we reflect information we have from different sources.

All information given in any document may be faulty for at least the following reasons:

- We know for a fact that different national expressions of expertise may contradict – so if only one can be true, some information may be wrong
- We may have misunderstood the meaning of a piece of expert knowledge
- We try to clarify the information to make it useful – and implementable. We may get that wrong

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## 2 Overview

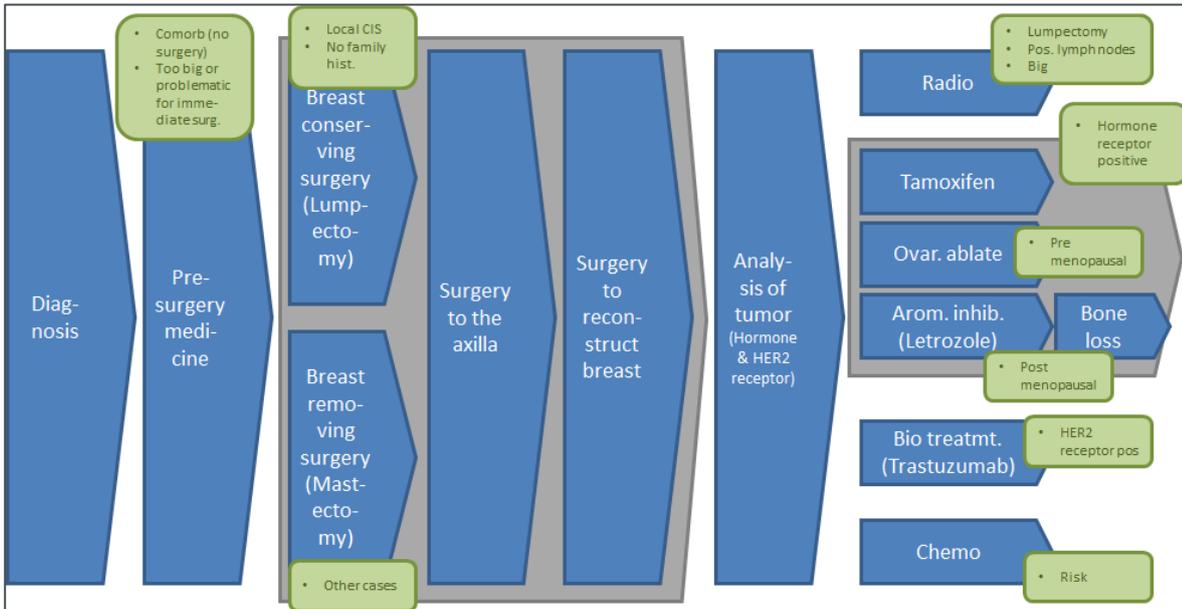


Figure 1: Process Overview of the Breast Cancer treatment

OCEAN
HOME    WELCOME, KN    ENGLISH    LOGOUT

### EARLY AND LOCALLY ADVANCED BREAST CANCER. DIAGNOSIS AND TREATMENT VER 2.18

- ▼ Initial steps and payment
- ▼ Introduction
- ▶ Initialization
- Family related risk assessment
- First patient record
- Tumor size
- Localization / position of tumor
- Fertility, tobacco, alcohol, and hormone self assessment
- Comorbidity assessment
- ▶ Payment
- ▶ Referral, Diagnosis and Preoperative Assessment
- ▶ Surgery to the Breast
- ▶ Breast Reconstruction
- ▶ Postoperative Assessment and Adjuvant Therapy Planning
- ▶ Chemotherapy
- ▶ Complications of Local Treatment and Menopausal Symptoms

#### Initialization

Consent and waiver

Treatment domain

Denmark - DBCG\*

UK - NICE\*

France\*

US (using NICE)\*

Gender

Female\*

Workflow configuration

None of the below - I am just trying the solution

I am the patient

APRIL 1964

Wk	Su	Mo	Tu	We	Th	Fr	Sa
13				1	2	3	4
14	5	6	7	8	9	10	11
15	12	13	14	15	16	17	18
16	19	20	21	22	23	24	25
17	26	27	28	29	30		

First name(s)

Last name

Full name

Country of residence

**Figure 2: The interactive flow version of the knowledge - and you get the individual rules that apply to you by selecting the right treatment domain**

### 3 Different Treatment Areas and their Rules

Ref	Area	Comment	ER positive	HER2 investgate
1	USA	Used to publish the NICE guideline on Guideline.gov – now it is removed. We have used the American Cancer Society as source. It has published a 40 page guideline to patients.	1%	Only invasive
2	UK – NICE	Generally leaves DCIS (20% of all breast cancers) as little treatment as possible	(Unknown)	Only invasive
3	Brazil	The private hospitals – including those that focus exclusively on cancer – look very much internationally, especially to the USA. They are very practical and to-the-point in their information. We have used a very concise and useful text from the main cancer hospital, A.C.Camargo in São Paulo.	(Unknown)	(Unknown)
4	Denmark – DBCG <sup>1</sup>	Applies medication whenever a little effect can be shown – with little regard of side effects	1%	All
5	Sweden	The guidelines are hard to get online, and they are regionalized (they seemingly don't have a national approach).	10%	All
6	France	A very comprehensive set of guidelines. We haven't fully checked that we conform to them. The French health system is very thorough – and it shows in their documentation. Which is however only in French. They have published a 120 page guideline to patients.	10%	

<sup>1</sup> Danish Breast Cancer Group

## 4 Brazil – A.C.Camargo Cancer Center

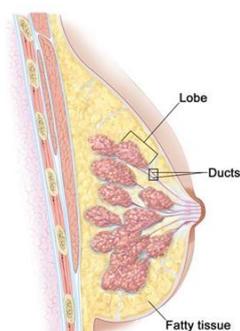
This section contains a translation from Portuguese of the explanation on the web site of A.C.Carmargo Cancer Center in São Paulo, Brazil (source: <http://www.accamargo.org.br/tudo-sobre-o-cancer/mama/27/>).

It is a very good introduction to the treatment of Breast Cancer, and we deem it is universal.

It however omits the mention of Biological treatment (with Trastuzumab), which comes into question, if the tumor is HER2 positive.

### 4.1 Introduction

The breast consists of



- lobes (which are milk-producing structures),
- ducts (which are small channels which connect the lobes to the nipple),
- fat,
- connective tissue,
- blood vessels, and
- lymphatic vessels.

Lymphatic vessels are similar to blood vessels, except that instead of blood they carry

- lymph fluid containing cells of the defense system,
- fat and
- proteins.

Over the lymphatic vessels there are small organs in the form of beans – the lymph nodes – storing white blood cells called lymphocytes.

Most lymph vessels of the breast lead to lymph nodes located in the armpits, called axillary lymph nodes. If the cancer cells reach these nodes, the probability that the disease has spread to other organs is increased.

Most breast cancers begin in the ducts (ductal carcinoma), some begin in the lobules (lobular carcinoma) and the other in the other tissues.

Breast cancer is the most frequent in women, behind only the cases of non-melanoma skin cancer. Approximately 200,000 new cases per year in the USA (57,120 in Brazil).

What causes breast cancer?

Breast cancer is caused by genetic changes that can be stimulated by

- environmental factors such as
  - smoking,
  - use of hormones (HRT – hormone replacement therapy),
  - of menstruation at a young age,
  - menopause at a later age,
  - fewer pregnancy and pregnancy age increasingly late,
  - overweight and

- alcohol consumption or also by
- genetic factors.

What are the main types of breast cancer?

- Ductal carcinoma in situ (DCIS): consists of a breast cancer at an early stage that in principle would not be able to develop metastasis;
- Invasive ductal carcinoma (IDC): is the most common type of breast cancer. Has the capacity to metastasize;
- Invasive lobular carcinoma (ILC): is the second most common type of breast cancer and is related to the risk of developing cancer in the other breast and also to ovarian cancer. Has the possibility of developing metastasis.

What types of pre-cancerous lesions?

The breast lesions that predispose to breast cancer are:

- Lobular carcinoma in situ Lobular Neoplasia or
- Atypical ductal hyperplasia
- Atypical lobular hyperplasia

Can a man have breast cancer?

Yes. The development of breast cancer in men is related to the presence of cancer family history of genetic predisposition syndromes, radiotherapy on the chest, among others.

## 4.2 Diagnosis

The performance of diagnostic tests for prevention greatly increases the number of cancer cases identified before causing symptoms.

What are the symptoms of breast cancer?

The most common symptom of breast cancer is the appearance of a lump. Lumps that are painless, hard and irregular are more likely to be malignant, but there are tumors that are soft and rounded. Therefore, it is important to see a doctor.

Signs of breast cancer include:

- Appearance of a lump.
- Swelling of the breast.
- Skin irritation or occurrence of irregularities in the skin, such as dimples or puckers, or which make the skin look like an orange peel.
- Pain in the nipple or nipple inversion (inside).
- Redness or scaling of the nipple or breast skin.
- Secretion output (other than milk) from the nipple.
- A lump in the armpit.

What are the symptoms of breast cancer in men?

Similar to female breast cancer, this tumor in humans is asymptomatic in its early stages. The most common symptom is the appearance and rapid growth of a nodule (lump) in the breast. Other symptoms may be: shrinkage or swelling of the skin, discharge from the nipple and pain that will only appear in more advanced stages of the disease.

## Screening tests

Consist of modality imaging studies that are designed to detect a tumor at an early stage before being seen by the physician or by the patient.

The main screening test for breast cancer is mammography, which in some cases may be supplemented by ultrasound or magnetic resonance imaging (MRI).

The recommendation is different in different countries, but in general that women begin mammography from age 40 and on an annual basis. In some circumstances the age should be brought forward and the frequency according to medical indication.

How is the diagnosis of precancerous lesions?

The diagnosis of these lesions is based on changes in mammography or ultrasound, through some type of biopsy - thick needle biopsy or mammotomy with or without surgical biopsy.

What does BI-RADS mean?

The BI-RADS (Breast Image Reporting and Data System) is the name of a system of standardization of breast imaging reports can be applied to changes in mammography, ultrasound and MRI. In general each classification means:

- Category zero: examination failed to characterize changes. Need other examinations.
- Category 1: means normal examination. Recommended control at 1 year.
- Category 2: means the presence of benign changes without risk of cancer. Recommended control in 12 months.
- Category 3: probably means benign changes. 3% cancer risk. Other control at 6 months.
- Category 4: mean changes suspicion for malignancy. 20% cancer risk. Need a biopsy and pathologic evaluation.
- Category 5: means probably malignant changes. 95% cancer risk. Indicated surgical resection can be performed some form of preoperative biopsy.
- Category 6: means injury already biopsy and diagnosis of cancer. Can be used to classify the findings of a monitoring mammography after neoadjuvant chemotherapy.

What types of biopsies are available?

The mammary biopsies are indicated when there is a change in the clinical examination or when there are changes in imaging exams. The main types are:

- Fine needle aspiration (FNA): mainly used for aspiration of cysts can be used for evaluation of nodules;
- Biopsy thick needle or core biopsy: mainly used for 5 mm were solid nodules;
- Mammotomy: mainly used for areas of microcalcifications. Allows placement of metallic clips in the breast;
- Surgical biopsy: consists of making resection by surgery. It is used when the lesion is suspected cancer (BIRADS 5), when other types of biopsies are inconclusive or when you have a very extensive microcalcifications area.

What are the diagnoses that can happen after performing a breast biopsy?

After performing a breast biopsy usually 3 diagnoses can come into question:

- Benign lesion;
- Pre-cancerous lesion;
- Cancerous lesion.

I am diagnosed with breast cancer and now what should I do?

After a biopsy confirming the diagnosis of breast cancer patients should seek specialist medical treatment in which the doctor will make an overall assessment of the patient through clinical history, physical

examination, and can be complemented by imaging studies (X-ray chest , bone scans, ultrasound abdomen and pelvis) or other depending on the staging.

What is tumor staging?

It consists of a method of classifying the extent of the tumor grade. It is made based on tumor size measured by physical examination and based on imaging studies. Refers to 3 variables (TNM):

- T – (“Tumor”) refers to the size of the tumor in the breast.
- N – (“Nodes”) refers to metastatic involvement of axillary nodes.
- M – (“Metastases”) refers to metastatic involvement of other organs.

## 4.3 Treatment

### 4.3.1 Systemic Treatment versus Local Treatment

- The goal of the local treatment is to treat the tumor without affecting other tissues, such as
  - surgery and
  - radiation.
- The systemic treatment is administered orally or injected and reaches the whole body, as in the case of
  - chemotherapy,
  - hormone therapy and
  - immunotherapy.

The tumor cells can break off and travel to other parts of the body in the early stages of cancer and may lead to other tumors. Therefore, often, even when there seems no more signs of cancer after surgery the so-called adjuvant therapy is used that kills these cells.

Some people undergoing chemotherapy before surgery to shrink the tumor, in the therapy called neoadjuvant therapy.

### 4.3.2 What is the treatment for breast cancer in men?

In general, it follows the same treatment for breast cancer as in women. Usually surgery is to do mastectomy with sentinel lymph node or axillary dissection. You may need supplementation with radiotherapy and chemotherapy.

### 4.3.3 What types of breast surgeries are there?

1. Lumpectomy or Quadrantectomy (Breast conserving surgery): surgery consisting of partial breast removal. All this should be complemented by radiotherapy. Is indicated for patients with:
  - tumors at an early stage;
  - adequate volume of breasts and where the final aesthetic result is satisfactory.
2. Mastectomy: surgery consisting of total removal of the breast. It is reserved for patients that:
  - have advanced tumors (large size or with involvement of the skin lesions);
  - patients who have already undergone treatment with radiotherapy in breast or chest region above;
  - giving the patient the option to avoid radiotherapy.

### 4.3.4 What are the types of axillary surgery?

1. Examination of the sentinel lymph node (SLN):

It is the removal of one or more nodes of the armpit that are the first to be affected by tumor cells that escaped the breast tumor and migrated to the axillary nodes. For the implementation of this

procedure the injection of a substance in breast the day before surgery is performed. At the time of surgery the surgeon identifies this node and sends it to the pathologist to examine. At this point the pathologist can tell the degree of impairment. Depending on the degree of impairment it is decided whether or not an emptying of the underarm lymph nodes is necessary (lymph node clearance).

- Sentinel Lymph node compromised: the surgeon will proceed with the emptying of the armpit nodes at this very moment.
  - SLN not compromised: the surgeon will complete the surgical procedure at that time and wait for the final result.
2. Axillary lymphadenectomy (axillary dissection):  
Axillary lymphadenectomy is the removal of various nodes of the armpit and usually is advised for patients with:
- advanced tumors (large size or with the involvement of skin lesions);
  - involvement of axillary nodes;
  - sentinel lymph node compromised by metastasis;
  - massive involvement by tumor cells.

#### 4.3.5 When is breast reconstruction indicated?

For patients who have mastectomy. Breast reconstruction can be done in part or in its entirety and be carried out early or late, according to the nature of the disease and discussion between doctor and patient.

#### 4.3.6 Who can make a reconstruction at the time of surgery?

The immediate breast reconstruction, ie that which occurs at the time of surgery, is indicated where possible. In rare circumstances the choice should be delayed reconstruction.

#### 4.3.7 Who is recommended a delayed reconstruction?

The delayed breast reconstruction is reserved for

- those cases where
  - the patient has aggressive tumors,
  - advanced with extensive involvement of skin and therefore
  - should do radiation therapy after surgery
- or when the patient has pre-existing diseases that compromise the risk of immediate re-construction.

In this case, the reconstruction may be performed when the skin is recovered from the effects of radiation and as medically indicated.

#### 4.3.8 What types of available reconstructions are there?

Reconstruction with silicone prosthesis for use:

- Expansive Prosthesis: suitable for mastectomy surgery in which much skin is removed impeding the placing of a Permanent Prosthesis. The Expansive Prosthesis consists of a prosthesis with an external coating of silicon which is implanted during the surgical procedure, from empty being gradually filled with serum after the surgery until reaching the desired volume. Should be replaced by a Permanent Prosthesis.
- Permanent Prosthesis: is the conventional prosthesis, totally filled with cohesive silicone gel. It is indicated for cases where the skin was withdrawn little enough to maintain a skin envelope able to accommodate the volume.
- Reconstruction with autologous tissue (the patient's own tissues):

- Latissimus dorsi muscle: is the breast reconstruction with removal of the back region of the muscles to be transported to the breast area. Typically the placement of silicone implants to supplement the volume is needed. It is indicated in cases of great removal of skin and for patients who should perform postoperative radiotherapy.
- TRAM: is the breast reconstruction using skin and muscles of the abdomen. Usually eliminates the need for associated silicone prosthesis. It is indicated in cases of great removal of skin and for patients who should perform postoperative radiotherapy.

#### 4.3.9 What is radiotherapy?

Radiotherapy consists of a form of treatment that aims to destroy tumor cells, using a beam of ionizing radiation, and decrease the chance of the disease returning in the site of surgery.

#### 4.3.10 Who should have radiotherapy?

Radiation therapy is indicated for

- all patients with breast cancer that have Lumpectomy / Quadrantectomy (partial resection of the breast) or
- for those who have Mastectomy
  - with a tumor more than 5 cm or
  - nodes in the armpit compromised by tumor cells.

#### 4.3.11 What is chemotherapy?

Chemotherapy is a form of systemic treatment, i.e. for the entire body, and is intended to treat any cancer cells that may have left the breast (metastasis).

The drugs are administered in intravenous form and may have some side effects like

- nausea,
- vomiting,
- diarrhea,
- hair loss,
- among others.

#### 4.3.12 Who should have chemotherapy?

The need for chemotherapy will be decided in conjunction with the clinical oncologist, after the surgery and will be based on

- the size and
- characteristics of the tumor,
- presence of committed axillary nodes,
- age and
- general clinical condition of the patient.

Chemotherapy treatment can be performed before or after surgery.

#### 4.3.13 What is hormone therapy?

Hormone therapy consists of a form of systemic treatment by daily administration of tablet for a period of 5 years.

#### 4.3.14 Who should have hormone therapy?

Should be used by patients with breast tumors that are hormone receptor-positive. These receptors are identified in the biopsy report.

#### 4.3.15 After completion of the entire treatment phase with surgery, chemotherapy and radiotherapy, how will the monitoring be and how often is it necessary to see the doctor?

After completion of the treatment phase, the medical follow-up should usually be done every 6 months for the first 5 years, and annually after the 5th year.

#### 4.3.16 What is and for whom is recommended risk reduction surgery?

The risk reduction surgery, known as prophylactic, is the removal of the mammary gland, usually, with the removal of the areola and nipple and then immediate reconstruction.

It is indicated for patients with genetic mutation that bear high risk of developing breast cancer. Examples of mutations: BRCA1 and BRCA2, TP53, and others.

Other indications are:

- Patients who, while not having genetic mutations, present a certain degree of disease development risk;
- Patients undergoing radiotherapy involving a part of the breast in the treatment of other diseases during adolescence or while being young (example: Lymphomas).

Other information may depend on the individual risk when associated with breast cancer precursor lesions.

#### 4.3.17 When should prophylactic mastectomy be performed?

Strictly speaking there is no urgency, and this decision should be made after evaluation and discussion between patient and the multidisciplinary team.

#### 4.3.18 What are the risks of surgery?

The main risks of surgery are:

- Loss of sensation of the skin, nipple and areola;
- Skin necrosis;
- Infection;
- Bleeding;
- Extrusion of silicone prosthesis

## 4.4 Risk factors

It is not known exactly what causes breast cancer, but there are some risk factors associated with the disease.

Risk factor is anything that increases the risk of onset of a disease. Some can be controlled (such as smoking, eating habits) and others can not, such as age and family history.

Exposure to one or more risk factors does not mean that women necessarily are going to get breast cancer; only that there is an elevated risk of having the disease.

The earlier the breast cancer is diagnosed, the greater the chances of the treatment being successful. The purpose of routine diagnostic tests is to find cancer before they cause symptoms. Tumor size and its ability to spread are the most important factors for the prognosis of the disease.

How can I prevent breast cancer?

The main forms of prevention of breast cancer are related to the change in living habits such as:

- weight control (avoid obesity);
- physical activity;
- avoid drinking alcohol;
- avoid the use of HRT for more than 5 years.

Can mammography prevent breast cancer?

Mammography is the most important test for the early diagnosis of breast cancer. However, it does not prevent its onset, only provides the possibility of a diagnosis at an early stage.

## 4.5 FAQ

Check out the most frequently asked questions about breast cancer:

What is the most common age for developing breast cancer?

Breast cancer occurs predominantly in women after menopause, however, the emergence of breast cancer can occur in young women before reaching age 40 (age when one is recommended the start of mammography annually). Tumors which occur in young women tend to be more aggressive.

Can breast cancer occur during pregnancy?

Possibly. Represents a small number of cases, but it may be. The diagnosis is often made difficult by the changes that occur in the breast while pregnant (swelling). It is defined as breast cancer during pregnancy when it occurs during or within 12 months after the birth. Treatment can still start during pregnancy, with chemotherapy medications that do not affect the baby, or even surgery that can be performed in the same period.

You can be a mother even after a diagnosis of breast cancer?

Pregnancy after treatment of breast cancer is possible. The younger the patient is having breast cancer, the more likely is it that she returns to ovarian function (menstrual cycles) after treatment. Currently there are options that can be discussed with your doctor in case of fertility preservation desire before starting treatment.

Contraceptives can cause breast cancer?

Unfortunately there is still no response if the use of contraceptives may or may not be a risk factor for breast cancer. It is believed that its use for more than 10 years before the first pregnancy would be bad, but then could be protection against ovarian cancer. Contraceptives have undergone much modification, lower doses, different associations and there are not yet results of its effect after all these changes. Ideally, always talk to your doctor for all the pros and cons to be clarified.

Use of hormone replacement therapy (HRT) causes breast cancer?

There is a risk when using natural hormone plant (isoflavone)?

Women have participated increasingly in the labor market and these are some of the causes of seeking quality of life after menopause (after stop menstruating). HRT can bring cardiovascular and physical benefits to some women. Its use should be guided by an able physician who should talk to the patient about the risks and benefits of this medication.

When the indiscriminate use of hormone replacement in the US began (even for patients without symptoms) higher numbers of breast cancer diagnoses were observed. Therefore, the use of hormone replacement

- should be restricted to patients who need it under medical supervision, and
- it should be clear that the risk of breast cancer for women who take this medication is greater than for those who do not take it, and that
- the use in over 5 years should be avoided.

Isoflavones are less powerful hormones, but which must also be supervised by a physician.

When the woman had breast cancer, you can use hormone replacement?

No. She should talk to the doctor for menopausal symptoms are relieved with another drug that is not a hormone, since the majority of breast tumors can respond to hormones, or feed them to grow.

Identifying depression?

A normal reaction to a serious health problem is to be exposed to sadness and depression. It is necessary to be aware of the first signs that you are depressed to treat the problem immediately and not let that hinder a positive attitude during treatment.

Warning Signs:

- hopelessness and to think that there is no meaning in life,
- discouragement to perform activities that were once pleasurable,
- disinterest to stay with family and friends,
- loss of appetite,
- constant urge to cry,
- sleep problems (little or too much ),
- among others.

These problems must be quickly counted to the doctor who will prescribe the right type of treatment to treat depression.

How to deal with the loss of the breast?

It is extremely complex to the woman. The breasts have numerous meanings involving sexuality, motherhood, sensuality, femininity. All these aspects are taken into account when it comes to removal of the breasts. Even with all the advances in medicine, the total removal of the breast may also be required. Plastic surgery can be of great value to ease the pain of loss. The reconstruction, especially when ready, can bring comfort and decreased sensation of mutilation. If the reconstruction is not possible, shops specializing in medical articles offer external prostheses (which are used in bra) that fit very well the role of reducing the sense of loss and offer the possibility of social re-inclusion to the patient.

Will the hair always disappear with chemotherapy? How to deal with the loss of hair?

The most chemotherapeutic drugs used to treat breast cancer acts on cells that reproduce faster and the hair bulb are examples. Some, however, do not drop the hair, but each case is a drug that is applied more

effectively. Regardless, it is important to remember that the hair is going to grow again after the end of the treatment.

Do the use antiperspirant deodorants and / or bras with wire cause breast cancer?

This myth spreads rapidly through the Internet, but it is not true. Breast cancer is not related to trauma, type of bra or deodorants. What often happens is that women who suffer any trauma in the breast, to palpate the location of the hit find nodules (lumps or pellets) who were not previously found, but which were already there.

Exercise can prevent breast cancer?

Studies have shown that moderate physical activity is an important factor in preventing cancer.

After the diagnosis of breast cancer, can you practice exercises?

Yes, it should, but only practice exercises after medical advice - despite the importance of physical activity, it should only start with the doctor's approval. It will establish a progressive exercise routine, specially designed for every need. The patient who has been or is being treated can have a reduced cardiac function by the use of some chemotherapy or other drugs, which makes it dangerous to practice exercises without proper evaluation.

How should the habits be of someone who has treated breast cancer?

- Quitting smoking: tobacco (smoking) can cause the old cancer to return or facilitate the emergence of the disease in another organ;
- Reduce alcohol consumption: alcohol can also lead to the development of cancer;
- Adopt a healthy diet: it is very important to have a diet that prevails foods of plant origin.

Self-examination is a way to prevent breast cancer?

Unfortunately, this method does not prevent breast cancer. Studies have shown that does not reduce mortality when this test is routinely used in isolation. The self knowledge of the body, to feel the breasts, is important because with it you can identify warning signs in relation to the breast. And if changes are found, immediately see a medical specialist.

Breast pain can be cancer?

In fact, what worries the doctor and that should be investigated are the nodules (lumps or pellets) that can appear in the breasts. The pains are usually benign signal changes caused by hormonal fluctuations in women and depends largely on the personal sensitivity of each woman. The denser breasts with cysts, young breasts, well glandular tissue, are those usually hurt more and formerly called dysplastic breasts. This term is now no longer employed. The term used is "Benign fibrocystic changes of the Breasts" to breasts that have a large amount of glandular tissue, which may have small cysts (water balls) and scattered small nodules.

What are papillomas?

The papillomas are structures similar to "mushrooms" occurring within the breast duct (as small polyps inside the pipe that carries the milk to the nipple). Can cause bleeding and for this reason it is often necessary to remove and investigate it to be ensured that it is not cancer.

What are the signs that deserve attention and the guidance of a doctor?

The signs that do not necessarily mean cancer, but that should be investigated by the doctor before giving a diagnosis are:

- nodule (lump) palpable;
- nipple retraction (nipple that is inside, outside);
- secretion from the nipple (especially if it is spontaneous and reddish in color);
- redness (more red skin);
- itchy breast or nipple;
- swelling in the breast, especially if in only one of them;
- wounds in the breast skin or nipple.

Is there a way to know if one day breast cancer will develop in the body?

Unfortunately there is no way to predict which women will have cancer, all are at risk, especially women with genetic risk. But there are some lesions in the breast that when diagnosed, call the doctor's attention to the fact that those women have a higher risk than other women of the same age. These are called lesions of a high-risk of cancer. The physician should be consulted for the lesion found to be correlated to the personal risk of having a cancer, and if this risk is very high, you can be in a situation where a preventive treatment is recommended.

When is surgery of the armpit nodes, there is swelling of the arms?

Probably not. Current axillary surgery are more conservative. The nodes (lymph nodes) are responsible for local immunity and drainage of excess liquids arm. When is the removal of these nodes some caution is necessary so that no fluid accumulation (lymphedema) and the arm is not bloated, so you must follow the doctor's instructions. It is known that the smaller the surgery, for example, the removal of a single node (SLN) the lower the chance of this swelling.

Can silicone cause breast cancer?

No, silicone does not cause breast cancer. What happens is that all surgeries of breast implants leaves scars in the breast that may hinder the small image viewing. The woman that has silicone probably needs further images to make a more precise examination of mammography possible.

Will breastfeeding mean you avoid getting breast cancer?

No. Breastfeeding is another of the factors that protect the woman from breast cancer, but none of these protective factors operate in isolation. It is the sum of the different protective factors on the one hand, against the sum of the other risk factors, that define the real risk.

Upon entering the menopause can I still develop breast cancer?

Yes. In fact, the risk begins to increase after 40 years. Lumps appearing after menopause are even more suspicious. You must look for a breast cancer specialist to assess the case.

## 4.6 Paget's disease

Paget's disease, first described in 1877 by the English physician Sir James Paget, is a kind of rare, unilateral malignant tumor that affects the region of the areola and nipple. With an incidence of 0.5% to 4% of breast cancers it is more common in women between 60 and 70 years of age and can also affect men.

This cancer can occur

- in its pure form (an *in situ* cancer – where Paget's disease is the only cancer) or, as is more common,
- be associated with
  - ductal cancer in situ or
  - invasive ductal cancer.

Ductal carcinoma in situ (DCIS) is a breast cancer at an early stage, consisting of calcifications that arise when cancer cells are inside the duct and do not exceed the basic membrane. The success rate in treating a DCIS is 95% when diagnosed early.

When cells break the barrier membrane forming a lump, the cancer becomes an invasive ductal carcinoma, which is the most common type of breast cancer. At this stage there is the possibility of metastasis, because the cells go with the bloodstream and can affect the lymph nodes or other organs.

### 4.6.1 Diagnostic

The initial form of diagnosis of Paget's disease is the clinical examination of an expert. In many cases, the disease can be confused with a benign disease of the skin, such as dermatitis or allergies.

Already the gold standard of diagnosis is through biopsy, which identifies and confirms the presence of Paget cells.

The mammography, ultrasound and MRI are also recommended to complement the diagnosis, assessing whether the tumor is pure (alone) or is associated with a(nother) breast carcinoma.

Main symptoms:

- itching,
- redness,
- thick layer on the skin,
- nipple discharge (bleeding nipples) and
- the presence of nodules.

### 4.6.2 Treatment

Cancer treatment depends on the diagnosis and extent of the tumor with which it is attached. Surgery is the main form of treatment used.

For a diagnosis of small and minimally invasive nodules, is indicated breast conserving surgery or Lumpectomy / Quadrantectomy (surgery consisting of partial removal of the breast). In such cases, supplementation with radiotherapy is required.

In cases of major and invasive nodules, Mastectomy (surgery consisting of the total removal of the breast) is the main form of treatment.

### 4.6.3 Risk factors

There are no specific risk factors for Paget's disease. Because it is related to other types of breast cancer,

- not smoking,
- maintaining healthy lifestyle habits and
- seek medical advice in case of questions

are important means of prevention.



## 5 USA – American Cancer Society

See the guide on <http://www.cancer.org/acs/groups/cid/documents/webcontent/003037-pdf.pdf>

## 6 France

The following is an extract [currently unfinished work in progress] and translation from French of an extensive 120 page information guide to patients.

Source: [http://www.e-cancer.fr/component/docman/doc\\_download/10987-les-traitements-des-cancers-du-sein](http://www.e-cancer.fr/component/docman/doc_download/10987-les-traitements-des-cancers-du-sein)

### What is a cancer?

Organisms, plants or animals are made up of tiny elements: cells. At the heart of the cells, the genes contain the information needed for their operation and determine a number of characteristics. Each cell is born, multiply, giving rise to new cells and dies. Genes and all the information they contain are inherited by “child” cells.

It happens that some genes have abnormalities; the program of the cell function can then be disturbed, and it may behave abnormally. Either these defects are repaired or they induce the spontaneous death of the cell. But sometimes it happens that these cells survive. Cancer, is this: a disease caused by an initially normal cell whose program is disturbed and transforms it. It multiplies and produces abnormal cells proliferating uncontrollably and excessively. These disturbed cells eventually form a mass called a malignant tumor, i.e. cancerous.

Cancer cells tend to invade nearby tissues and can break off from the tumor. They have the ability to

- migrate through the blood vessels and the
- vessels that carry lymph, and
- form other remote tumors, called metastases.

### 6.1 What is a breast cancer?

Breast cancer is a disease that develops from cells which form the mammary gland. An initially normal cell transforms and multiplies uncontrollably and excessively to form a mass called malignant tumor.

#### 6.1.1 The breast

Breast biological function is to produce milk to feed a new born baby.

Each breast contains:

- the mammary gland, itself composed of fifteen to twenty compartments separated by the fatty tissue;
- the support fabric made of vessels, fiber and fat.

Each compartment of the mammary gland is made up of lobules and ducts. The role of lobules is to produce milk in the breast feeding period. The channels carry milk to the nipple.

The mammary gland develops and operates under the influence of sexual hormones produced by the ovaries: estrogen and progesterone.

- Estrogens especially allow the development of the breasts during puberty and play an important role throughout pregnancy (fabric softening, increased blood volume necessary for feeding the baby, etc.).
- Progesterone plays a particular role in the differentiation of the cells of the breast and on the menstrual cycle, by preparing e.g. the uterus for a possible pregnancy (densification and development of vascularization of the lining of the uterus).

The breast is traversed by blood vessels and lymphatic vessels. These and lymph nodes make up the lymphatic system, which especially helps to fight infections.

Breast Lymph nodes are located primarily:

- at the level of the armpit (axillary nodes);
- above the collarbone (supraclavicular lymph nodes);
- under the collarbone (infraclavicular nodes or infraclavicular)
- the inside of the chest around the sternum (internal breast glands).