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Mammography and breast cancer detection





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One of the greatest changes seen in the Western world during the 20th Century has been the empowerment of women.

Now, and increasingly so in the future, they plan, choose and make decisions, not only for themselves, but also for their families. Naturally, they are increasingly taking roles in political social and economic life. In brief, they have taken their lives into their own hands.

Curiously, however, today's active women are sometimes still apathetic where their own health is concerned. They often ignore warning symptoms, with results that could have easily been avoided.

Stay **serene**, whatever you



Naturally, highly qualified medical professionals can help you take advantage of the latest innovations in techniques. But for women today, remaining in good health or regaining health as quickly as possible is first and foremost a voluntary personal act. Some simple procedures and non-invasive preventive checks, carried out regularly, are all that is required.

For women today, the secret of maintaining their peace of mind depends to a significant degree on early warning detection.

Prevention in mammography

True prevention doesn't exist, because the precise causes of breast cancer are varied, and are not yet fully understood. Mammography, however, is still the most reliable method of early detection for breast cancer. Breast cancer is the commonest cause of death in women.

Close to 350,000 cases are detected every year in Europe. Clinical studies in the United States, Sweden and Holland have shown that early detection has caused mortality rates to fall by 30 to 45 %.

If you start to display any of these symptoms, then you should consult your doctor immediately.

For women who do not display any symptoms, the medical recommendations are as follows:

- Women over 20 years old should carry out a self-examination every month.
- Women over 50 years old should have a mammogram about every 2 years
- Women with a personal or family history of breast cancer should consult their doctor to see if they need to undergo mammography before they reach this age, or have mammography carried out more frequently.

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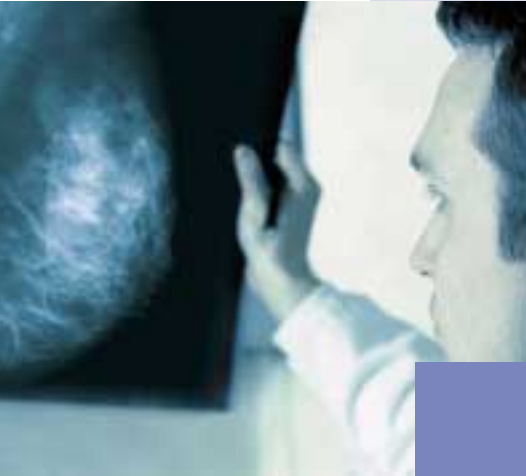


The earlier the detection, the greater are the chances of survival. It is therefore essential that signs of breast cancer can be recognised, these are:

- A small lump or thickening of the breast
- Changes in the shape of the breast or persistent discomfort
- Discharge from the nipple that is not associated with pregnancy (or breast feeding).

Follow these recommendations and your doctor's advice. Mammograms are not a luxury. Breast cancers develop slowly. In general they take 6 to 8 years to reach a size of 1 cm. The smaller and more localised the tumour, therefore, the greater are the chances of a full recovery. Breast cancer that is treated sufficiently early, before it affects the axillary lymph nodes, is curable in almost 100% of cases.

What is a **mammogram**?



A mammogram is a radiological examination allowing breast problems to be detected, whether benign abnormalities or development of tumours.

Examination involves a mammography system, an X-Ray machine that has been specifically designed to display the structure of the breast.

Today, 2 types of mammography machines exist:

- **The standard mammography system** system which uses the traditional type of film used in radiology. This type of equipment is often found in radiology departments and surgeries
- The full field **digital mammography system** which uses a digital detector. This is the latest generation of mammography equipment, and offers new facilities for processing images (zoom, contrast adjustment, computer assisted diagnosis etc.) and is showing the way forward to the development of equipment in the future.



In order to obtain a mammogram, the breast must be compressed using a compression paddle, which has been specifically designed for this type of examination.

Precise X-Ray images are obtained from a variety of angles. The compression ensures that the diagnosis can be correctly made. It enables all of the breast structures to be examined without the use of excessively high doses of radiation. Compression may be uncomfortable for a few seconds only, but should not be a painful procedure.

A specialist technician, or radiographer, controls the level of compression and adjusts the compression paddle. This is done progressively and precisely so that it is completely acceptable to the patient.



You experience only a slight sensation of discomfort.

A radiologist will then examine the different X-Ray images and interpret them. He will communicate the results directly to the patient, and forward a report to her own doctor.

MAMMOGRAPHY

IS RELIABLE

For over 35 years, millions of women have undergone mammography. As with all radiography, it involves exposure to X-Rays, but the dosage levels used are very low.

MAMMOGRAPHY

IS ACCURATE

Mammography is the most reliable method of early screening for breast cancer, when a tumour is only a small, round, non-sensitive lump, and when palpation alone is unable to detect it. Since the 1960s, the precision of examination by mammography has continually improved. Diagnosis is accurate in 90% of cases.

THE SIGNS THAT INDICATE

BREAST CANCER

The earlier breast cancer screening is carried out, the greater the chances of survival. It is therefore essential that any signs that might indicate breast cancer can be recognised:

- Lumps of any size, or thickening of the breast tissue.
- Changes in the shape of the breast or persistent discomfort.



- Discharge from the nipple that is not associated with pregnancy (or breast feeding).

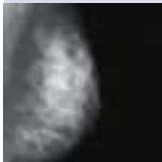
A great many doctors today turn to mammography as a method for early screening of breast cancer, and recommend that their patients start undergoing examination by this method from the age of 50 onwards.



AND IF THE RESULT IS POSITIVE...

Today, more and more women recover from breast cancer. Progress made in the fields of chemotherapy and surgery means that full amputation of the breast can often be avoided.

It is important that you discuss your treatment with your doctor, and that you understand their recommendations in order for you to subsequently make decisions.



HOW CAN YOU PROTECT YOURSELF?

If a round lump develops, if you experience discharge from the nipple or persistent discomfort, then you should see your doctor immediately.

For women who do not display any symptoms, the medical recommendations are as follows:

- Women over 20 years old should carry out self-examination every month.
- Women over 50 should have a mammogram carried out about every two years.
- Women with a personal or family history of breast cancer should consult their doctor to see if they need to undergo mammography before this age, or need to have mammography carried out more frequently. It is estimated that 5 to 10 % of breast cancers are genetic in origin.

Follow these recommendations and your doctor's advice.

This will spare you a great deal of anxiety. Mammograms are not a luxury; they can save your life!

No-one likes to think about breast cancer. Here are three reasons however, why everyone should think about it:

- In Europe, about 1 woman in 11 will develop breast cancer, what's 350,000 new cases every year. Breast cancer represents 26% of all cancers in woman and results in over 130,000 deaths every year.
- If detected early enough, breast cancer is curable in the majority of cases.

This last point is extremely important. The smaller and more localised the tumour, the better the chance of recovery. Breast cancer that is treated early enough, before it reaches the axillary lymph nodes, is curable in nearly 100% of cases.

This shows the importance of self-examination every month. It is also the reason why an increasing number of doctors turn to mammography for the early diagnosis and treatment of tumours.



3 Steps that could save your life

How do I carry out **self examination**



IN THE SHOWER

Examine your breasts in the shower or the bath. Hands move more easily over wet skin. With your fingers stretched, move your hand over the whole surface of your breasts. Look out for any unusual lumps, nodules or thickening.

Self examination carried out regularly will allow you to become familiar with the normal appearance of your breasts, and will make your examinations more effective.

IN FRONT OF THE MIRROR

Examine your breasts with your arms alongside your body. Then raise your arms above your head. Look for any changes in the shape of your breasts, for swellings or depressions in the skin, as well as for any changes to the nipples.

Then place your hands on your hips, and push firmly downwards to stretch your pectoral muscles. There are very few women who have two identical breasts.

nation?

LYING DOWN

To examine your right breast, place a pillow or a folded towel underneath your right shoulder. Place your right hand behind your head in order to improve the distribution of the breast tissue on your chest. Using your left hand, palpate the breast by making concentric circles, as if you were following the outline of a clock face.



First of all follow the outermost circle. Start palpating the imaginary clock dial at the twelve o'clock location. Slide your fingers to one o'clock, and so on.

The presence of firmer tissue in the lower part of the breast is quite normal. To start following a new concentric circle, move your fingers about 2cm towards your nipple, and in this way examine the whole of your breast, including the nipple. In order to palpate the entire breast, you should have to make about five circles.

Repeat this procedure for the left breast by placing a pillow under your left shoulder and your left hand behind your head.

Finally press the nipple of both breasts gently between your thumb and index finger. If there is any discharge, you should see your doctor immediately.

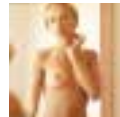
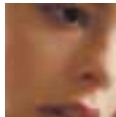




WHY SHOULD I EXAMINE MY BREASTS EVERY MONTH?

Breast cancer is most often discovered by women themselves.

Because breast cancer that is detected early and treated with minimum delay is usually curable by means of a minor operation (which doesn't change the shape of your breast), learning to carry out a self-examination could save your life. Follow the procedure described above step by step.



WHEN SHOULD I CARRY OUT A SELF EXAMINATION ?

Carry out self-examination once a month, a week or so after your period, when your breasts are not sensitive or swollen. After the menopause, palpate your breasts on the first day of the month.

If you have had a hysterectomy, you should consult your doctor, who will determine with you the best time to carry out a self-examination. Self-examination every month will give you reassurance. Get your doctor to confirm your self-examination regularly.

WHY CARRY OUT A MAMMOGRAM?

Mammography is a low dose breast X-ray that can detect small cancers that palpation alone cannot detect. It's an examination that can help to effectively protect you against breast cancer. From the age of 50 onwards, women should have a mammogram carried out about every 2 years.



WHAT SHOULD YOU DO IF YOU FIND A SUSPECT LUMP OR MASS/CLUSTER?

If you find a lump, depression or mammary discharge during self-examination, then see your doctor as soon as possible. Don't be alarmed. Most tumours are not cancerous; however, only your doctor can make a proper diagnosis.





Officially, the recommendations are for an initial, reference, mammogram to be carried out before the age of 50, with check mammograms every two years thereafter.

But this should be brought forward if there is evidence of:

- a family history of breast cancer
- colon cancer
- cancer of the neck of the womb
- pregnancy after 30 years of age

You should also be aware that women who have never had children should be doubly vigilant, since they are more liable to breast cancer than the average.

Do I really need a

In all instances, any woman who discovers these warning signs, whatever her age, should consult her doctor immediately:

- abnormally hard breast tissue
- changes in the shape of the breast
- persistent discomfort and discharge from the nipples

Although most of these warning signs will come to nothing, there is nothing to be gained by delaying the diagnosis.

QUESTIONS THAT YOU ASK YOURSELF

The figures for breast cancer are rising sharply. It is estimated that 1 in 11 women will develop breast cancer during their lifetimes.

The number of new cases of breast cancer in Europe has risen to about 350,000 per year. It is estimated that the number of cases of breast cancer and deaths resulting from it will increase in the next 20 years. However, many of these deaths can be prevented by self-examination, routine clinical examination and mammography.

If breast cancer is detected early enough, 97% of women will be alive five years

remedial or preventive treatments are developed, systematic mammography will remain the best method of reducing mortality rates.

Given that diagnosis by mammography is only reliable in 90% of cases, self examination and complementary examinations will continue to be of great importance.

Because many women are reluctant to undergo mammography, they invent excuses to avoid being examined ...

mammogram?

later. If detection is late, recovery and survival percentages fall considerably. Many studies have shown that mammography is the most effective and reliable method for early detection of breast cancer. However, the method is still not used widely enough.

In Europe, there already exists an organised screening system, but most women developing breast cancer detect the cancer themselves. Until adequate



■ ***There's no history of breast cancer in my family, so I don't need to worry.***

70% of women who develop breast cancer have NO family history of the disease. Any woman can develop breast cancer. Women who use this sort of argument are increasing their risk dying from breast cancer, since it is unlikely that it will be detected at an early stage.



■ ***Having a mammogram carried out is painful. I've been told that the compression of the breast can cause the disease.***

It's essential that the breast be compressed if a useful mammogram is to be obtained. Breast tissue is spread out to allow breast structures to be seen. Compression also means that the X-Ray dose required can be reduced.

Compression doesn't affect the breast tissue at all, and most women who undergo mammography do not experience any pain. Women with very sensitive breasts may experience slight discomfort. The breast is only compressed for a very short time.

■ ***Compression may not cause cancer, but what about X-rays?***

The improvements made in mammography equipment enable much reduced levels of radiation to be delivered. Radiation emitted during a mammogram is less than the radiation that you are exposed to if you spend a day in bright sunlight. The radiation will not increase the likelihood of breast cancer.

■ ***I have breast prostheses. I've heard that this means that there's no point in having a mammogram.***

Women with prostheses should also have mammograms carried out. It may even be necessary to take additional X-Rays.

■ ***Will ultrasound replace mammography?***

No. Ultrasound scanning of the breasts is an additional examination, used to identify the nature of any abnormalities detected by

mammography. It can also be used to precisely locate lesions when a sample is being taken.

■ ***I just don't have the time. My job/family take priority.***

The "loss" of the couple of hours required for the examination may save your life. Not undergoing the examination, on the other hand, could put your very existence in jeopardy. If your family are your primary concern, than you'll need to stay in good health to continue to look after them properly. If your career is important to you, then you'll recognise that it's essential for you to be in good health in order to do your job properly.

■ ***I can't examine my breasts because of the number of cysts in them. I've been told that the breast tissue is too dense to allow a proper mammogram to be carried out.***

Cysts occur commonly in breasts. They may be due to non-harmful changes in hormone levels. Lumps or cysts don't necessarily mean that breast tissue is abnormal, or that there is an increased risk of breast cancer. However, the appearance of new lumps or changes of any kind should be discussed with your doctor. Of course, dense breast tissue makes self-examination more difficult. Regular



examination will allow a woman to identify "normal" lumps. If a new lump then appears, you won't miss it. Improvements in mammography equipment, especially in digital mammography, allow accurate results to be obtained, even with dense breast tissue.

■ ***I have a chest X-Ray every year. If I had a breast tumour, wouldn't it be spotted then?***

Mammography is a very accurate method of examination. It requires special X-ray film and equipment, as well as the involvement of a technician and radiologist who have undergone special training. For early detection of breast cancers, it is essential to be able to distinguish the very finest details. The equipment, X-Ray film and procedures used in chest X-Rays are completely different.

■ ***At my age, I don't need to undergo mammography. I'm too old to develop breast cancer...and we've all got to die of something...***

In fact, the chances of developing breast cancer increase with age. The older you are, the greater the chances are of developing breast cancer. Sadly, the incidence of breast cancer in younger women is also increasing. This is why initial mammograms should be carried out before the age of 50. When breast cancers are detected early enough, the percentage of patients who survive is high, irrespective of their age. We'll all die one day, that's for certain, but why die of an illness that can be treated?

■ ***Unless I can get an immediate appointment, it might be difficult for me.***

Mammography centres don't usually make appointments too far in advance. Be patient. The examination needs to be carried out in a specialist centre by skilled professionals. Your life is involved, and you certainly wouldn't want to place it in just anyone's hands.



■ *I've already undergone several biopsies. Until now, only benign tumours have been found, and I'm sure that it'll stay that way in the future.*

Today, because of the improvements in mammography equipment, diagnoses



are more accurate, and it's no longer necessary to carry out a biopsy for every lump that you find.

■ *I've had one mammogram, and everything was OK. Why do I need to do it again?*

The initial mammogram was carried out as a reference or "comparative" examination. Having mammograms regularly will enable checks to be made for abnormal breast tissue, and ensure that no suspect lumps can develop. This is one method of detecting tiny tumours that clinical examination can't detect.

■ *My breasts are very small. It there was a problem, I'm sure that I'd notice it.*

There is no relationship between breast size and whether cancer develops or not. Naturally, a lump will be easier to detect in small breasts; however, mammography allows cancers to be detected even before they can be detected by palpation of the breasts. When you can detect

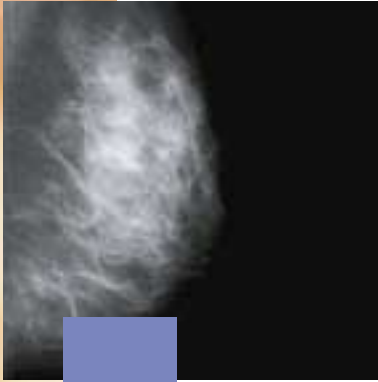


a tumour in this way, it may already be fairly well developed.

Pre-surgical location

The location procedure

If a mammogram reveals an abnormality, the best way to be certain and to minimise risk involves taking a sample of tissue from the breast. A radiologist



would first of all carry out pre-surgical location of an abnormality. Location is a simple procedure that is associated with mammography. It takes place before surgical intervention is carried out, and enables the tumour to be precisely located within the complex breast tissue. Once the exact zone where location

needs to be carried out has been determined, your breast will be compressed using a compression pad that has been specially designed for this purpose. When the appropriate compression has been performed, a needle fitted with a wire and marker is inserted. The needle is then withdrawn, but the wire and the marker remain in place and act as a guide for the surgeon. Surgical samples can then be easily taken from any abnormal tissue. However, this technique of insertion of a fine needle can also be used to obtain cytological samples, in which case the needle is guided by mammographic stereotaxy and/or ultrasound, when there is good ultrasound visibility of the abnormality. The analysis of the slides obtained by trained cytologists often enables benign lesions to be diagnosed without having to carry out unnecessary



surgical biopsies and pre-operative location procedures described above.

Instructions Associated with the Location Procedure

- *Don't use any deodorant or talc on the day of the examination.*
- *Avoid intake of caffeine for a few days before the examination (this includes coffee, tea, chocolate and most fizzy drinks containing coca).*
- *Wear two-piece clothing. If you wear clothes like this, it will be easier to remove your top for the examination.*

1 The operator will take X-Rays of your breast, just as in mammography. This will help with location of the abnormality.

2 The radiologist will insert the needle towards the precise area being located, with or without local anaesthesia (depending the country).



3 A further X-Ray is then taken to make sure that the needle has been inserted into the correct area.





4

The needle is then withdrawn, leaving a small marker at the end of a wire in the area of the abnormality, which will indicate its position to the surgeon. Two further X-Rays will be taken. These will be used by the surgeon to identify the exact location of the marker indicating the region where the abnormality is.

5

When the radiologist is certain that the marker is correctly located, the wire will be fixed to your skin by means of a dressing. Your surgeon can then operate with the best chances of success.



Read this brochure carefully, and put any questions that you may have to the radiologist and technician; this will help you prepare for your examination. It is important for them that you fully understand the pre-surgical location procedure.

Over the last 35 years and more, millions of women have undergone mammography.

This involves exposure to X-Rays, but the dose received is very low. Moreover, the European Health Authorities have laid down very precise quality control procedures which are scrupulously respected by your radiologist to ensure you are fully protected.



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