breast cancer care

the breast cancer support charity

Breast reconstruction

This booklet is for women considering breast reconstruction after breast surgery to treat breast cancer.

Treatment and side effects

Contents

Introduction

This booklet is for women considering breast reconstruction after breast surgery to treat breast cancer.

It may also be useful for women who are considering breast reconstruction for other reasons, such as uneven breast development or after a bilateral mastectomy (removal of both breasts) to reduce the risk of breast cancer from a significant family history. If you would like more information about family history and breast cancer please see our **Breast cancer in families** booklet.

Reconstruction is not commonly offered to men who have a mastectomy for breast cancer because it is harder to recreate the shape of a man's breast. Also, men usually have less volume of breast tissue to replace. But it's sometimes possible to improve the appearance and symmetry of the chest with surgery, so men may want to discuss some of the techniques described in this booklet with their specialists. For more information, see our resource pack **Men with breast cancer**.

A range of techniques can be used to reconstruct the breast and these change as current methods are improved. The right one for you depends on the assessment by your breast surgeon, your preferences, expectations and personal circumstances. Each operation is adapted to your individual needs and suitability for a particular technique. The outcome of surgery and the final shape will differ from person to person.

Combining breast cancer surgery with plastic surgery to provide the best cancer treatment and cosmetic outcome is known as oncoplastic surgery.

This booklet will give you an understanding of breast reconstruction and the options available.

What is breast reconstruction?

Breast reconstruction is the creation of a new breast shape (mound) using surgery. It may be done after removal of a whole breast (mastectomy) or part of the breast. You can either have reconstruction at the same time as the breast cancer surgery (immediate reconstruction) or months or years later (delayed reconstruction). Breast reconstruction often involves several operations to give you the best result possible.

The new breast shape can be created using an implant and/or your own tissue from another part of the body, usually the back or lower abdomen. Reconstructed breasts don't usually have a nipple but one can be created with surgery. Otherwise prosthetic stick-on nipples can be used (see page 27 for more information).

The aim of breast reconstruction is to try to create a breast shape that looks as natural as possible and to try to match the remaining breast in size, shape and position. However, even with the best outcome, there will be differences between the two and surgery to the other breast may be necessary. Where both breasts are being reconstructed the aim is to recreate breasts that match and are in proportion to the woman's body shape.

There are usually different options available for breast reconstruction and your breast surgeon will explain which one is likely to suit you best. You may be happier with the outcome if you can take some time to consider these options without feeling under pressure to make a decision.

Sometimes surgery on the other breast is suggested to help with evenness and balance. This might be done at the same time as the reconstruction. However, sometimes it's better to wait for the reconstructed breast to settle into position and any swelling to reduce before having surgery to the other breast to achieve the best result.

Having a breast reconstruction will not increase the chances of the breast cancer coming back.

Who can have a reconstruction?

Most women who have had a whole or partial mastectomy can have either immediate or delayed breast reconstruction.

National guidance says the choice of immediate breast reconstruction should be discussed with all patients who are having a mastectomy. However, a delayed reconstruction may be a better option for some women. All appropriate breast reconstruction options should be offered and discussed, even if they are not available locally.

Some people are advised not to have a breast reconstruction because of other existing medical conditions that might increase the risk of problems and complications following surgery. If it's likely you'll need radiotherapy this often influences the choice and timing of breast reconstruction. Radiotherapy can increase the risk of hard scar tissue forming around an implant known as capsular contracture (see page 32) and affect a reconstruction that uses your own tissue, making the breast feel firmer, reducing its size and possibly altering its shape. Because of these factors, if radiotherapy is a likely treatment you may be advised to delay reconstruction for up to 12 months.

If you're advised against reconstruction your surgeon should explain why. You can ask for a second opinion if this would be helpful to you.

Reasons for having reconstruction

Surgery for breast cancer is likely to affect how you look and feel in some way. Some women find it harder than others to come to terms with losing one or both of their breasts.

After having a mastectomy, women can be concerned about the shape of their bodies and the look of their breast area. While some women prefer to wear an external breast form (prosthesis) inside their bra to restore their shape, others prefer not to and remain flat chested without wearing a prosthesis. Everyone is different, and what matters is that you choose what suits you best. There is no right or wrong way to react and every woman should be given the choice to have surgery to restore her breast shape if she wants it. Reconstruction can help emotional recovery and wellbeing.

Like many women, you may choose breast reconstruction because your breasts are an important part of your body image, self-esteem and sexuality. How your partner feels may also play a part. Some women choose to have a reconstruction as they think it will make a difference to their partner, or that it may help them feel more confident during intimacy and sex. However, any decision you make about having a reconstruction should be based on whether it's right for you. If you feel pressurised into having a reconstruction you may feel resentful later.

If you're not in a relationship at the time of your breast cancer surgery, you may be worried about the prospect of meeting someone new. Breast reconstruction may help you feel more at ease when forming new relationships and allow you to decide whether and when you want to talk about your breast cancer.

For more information about relationships, read our our booklet **Your body, intimacy and sex**.

Women who have reconstruction are often satisfied with the result. However, not everyone's experience is positive and some women still feel unsure of their new shape or very aware of their new breast(s).

Limitations of breast reconstruction

- Reconstructed breasts will not feel and look exactly the same as before. They tend to be less sensitive and sometimes very numb.
- Several visits to the hospital for appointments and further operations are often needed to get the best cosmetic result.
- Recovery after breast reconstruction will take longer than after a mastectomy.
- You may have scars on other parts of your body depending on the type of reconstruction.
- The potential risk of complications is greater than having a mastectomy.
- If you need radiotherapy after your reconstruction, this can affect the appearance of your reconstructed breast.
- Reconstructed breasts don't usually have a nipple, but one can be created with surgery usually at a later date.

Breast reconstruction can only reconstruct a breast shape. A reconstructed breast will not look or feel the same as the breast you have lost – it will often be a slightly different size and shape. Any differences should not be noticeable when you are clothed, even in a bra or in swimwear. When you are undressed, the differences are more obvious. You'll be able to see some scarring, although this will fade over time.

You won't get the same feeling as before from a reconstructed breast and you may have no sensation at all. A natural breast will change over time and droop as you get older. Reconstructed breasts (especially following implant-based reconstruction) will not change in the same way. Over time the differences between a natural and reconstructed breast may become more obvious.

However, most women find the results after reconstructive surgery acceptable and say they feel confident about the way they look.

If you want more information about wearing an external breast form (prosthesis), see our booklet **Breast prostheses, bras and clothes after surgery**.

Your breast surgeon

The surgeon you meet at diagnosis of your cancer is likely to be a general breast surgeon or an oncoplastic breast surgeon. They and their team can explain the types of reconstruction, what procedure may suit you best and what techniques are available in your local hospital or linked hospitals. Alternatively they may refer you to another surgeon or breast unit for this advice and guidance.

Every breast unit should have a breast reconstruction pathway. This is to make sure all women interested in breast reconstruction can get the most up-to-date information as well as access to the technique best for them, even if it is not at your local hospital.

Your breast reconstruction may be carried out by an oncoplastic surgeon (a general breast cancer surgeon trained in plastic surgery techniques and breast reconstruction) or a plastic surgeon trained in breast reconstruction.

Some reconstruction operations need plastic surgeons who are trained in microvascular surgery (operating on tiny blood vessels), and you may have to be referred to a plastic surgeon some distance from your home.

You may find it helpful to discuss breast reconstruction with more than one specialist in order to choose the right option for you. If so, your GP or surgeon may be able to recommend someone else in your area.

Finding a surgeon

You can find some information online about which surgeons perform breast reconstruction surgery in which hospitals, although the information is not always complete or accurate. The British Association of Plastic, Reconstructive and Aesthetic Surgeons has a list of surgeons and hospitals with plastic surgery units. See the ‘Useful organisations’ section on page 37 for details.

Your GP, surgeon or breast care nurse may be able to recommend a hospital or particular surgeon for you. If you don't have access to the internet you can contact the Breast Cancer Care Helpline for more information on **0808 800 6000**.

Making your decision about reconstruction

Your surgeon will want you to have the operation with a full understanding of what is going to happen and realistic expectations of how your reconstructed breast will look. Don't go ahead until you feel you've got all the facts and have received answers to all your questions. You may find it helpful to write down any questions you want to ask and to take notes during consultations. Taking someone with you can help you to remember what has been discussed and give you extra support.

Here are some examples of questions you may want to ask your surgeon.

- Can I have an immediate breast reconstruction?
- Which reconstruction is best for me and why?
- What are the benefits, limitations and risks of this type of surgery?
- When can I have my surgery done?
- How long will I have to stay in hospital?
- What is the recovery time for this operation?
- When will I be able to move about, walk and drive?
- How much pain is there likely to be?
- Can you show me where the scars will be and how big/long?
- Will I have scars elsewhere on my body?
- Can I keep my nipples?
- Will reconstructive surgery delay my other cancer treatments, like chemotherapy and radiotherapy?
- When can I exercise again?
- Can you show me any photographs or images of your previous breast reconstructions?
- Can I speak to someone who has had the same type of reconstruction?
- Do I need to wear any special bra after the operation?

Your breast care nurse may be able to arrange for you to talk to a patient who has had this type of surgery. Breast Cancer Care can put you in touch with someone who has had a particular type of breast reconstruction through our Someone Like Me service. Call our Helpline **0808 800 6000** or visit **www.breastcancercare.org.uk/services** for more information.

Breast Cancer Care also run Information Sessions in several locations covering the different types of breast reconstruction available and what your surgeon will look at when making a recommendation. The Information Sessions also cover possible complications for each type of reconstruction and what to consider when choosing a surgeon. Call our Helpline on **0808 800 6000** for more details.

A patient version of the Oncoplastic Breast Reconstruction Guidelines (jointly produced with Breast Cancer Care) is available on the Association of Breast Surgery website (see 'Other organisations' on page 37). These have been developed by a group of experts and provide guidance for best practice in breast oncoplastic and reconstructive surgery.

If you choose private healthcare for your breast cancer treatment, most health insurance plans cover the full cost of breast reconstruction. Contact your health insurance company for further details to check what is covered on your policy.

Immediate reconstruction (reconstruction at the same time as mastectomy)

One of the benefits of immediate reconstruction is that the skin of the breast can sometimes be preserved. Your breast surgeon may discuss a skin-sparing mastectomy. This is removal of the breast and nipple area without removing much of the overlying skin of the breast.

Most women who have a mastectomy have their nipple removed as part of the operation. However, for some women, keeping the nipple (a nipple-sparing mastectomy) may be possible.

Your surgeon will discuss which type of operation is appropriate to best treat your breast cancer.

Delayed reconstruction (mastectomy first, reconstruction later)

You can have a reconstruction months, or even years, after your breast surgery, so you have plenty of time to make a decision if you opt for a delayed operation. During this time you may adapt to your mastectomy and feel that you no longer want to go through further surgery; it is fine to change your mind.

Women who want reconstruction at a later date after completing treatment for breast cancer can still have their operation on the NHS. However, in some areas there may be a long wait.

Types of reconstruction

There are three main types of breast reconstruction:

– reconstruction using only a breast implant

– reconstruction using your own tissue (a tissue flap). This tissue can be taken from a number of places in the body, although the most common sites are the back or the lower part of the abdomen

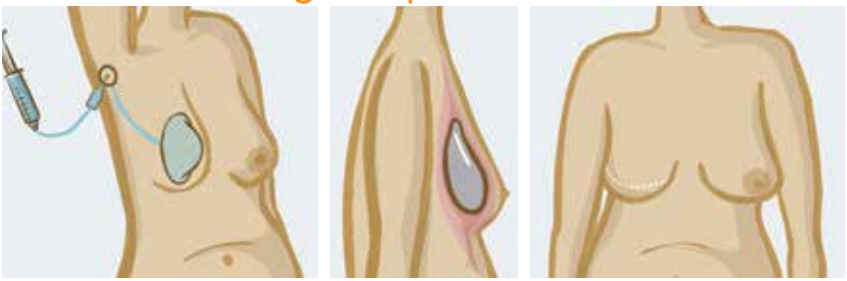
– reconstruction using a combination of tissue and an implant.

You may have a number of choices available to you, although one type of operation may be the most suitable for you depending on your shape and build, general health, your expectations and whether you're having or have had radiotherapy treatment to the breast. You can see animations of the main reconstruction techniques on our website **www.breastcancercare.org.uk**

Reconstruction after a mastectomy

The following pages describe the most common reconstruction techniques used for women undergoing a mastectomy.

Reconstruction using an implant



Implant breast reconstruction involves restoring the shape and volume of the breast using a breast implant. Breasts reconstructed in this way tend to be more round and firm and to move less naturally than those using your own tissue. This can mean it's more difficult to get a natural shape when one breast, rather than both, is being reconstructed. The newly formed breast will not droop with age and may look higher than the other breast.

Implant reconstruction is especially useful for women with small and firm breasts, and it avoids the need for more extensive surgery using tissue from another part of the body. At some point you may need more surgery to the reconstructed breast, or to the other breast, for a better match.

There is also a risk of infection or other problems which may mean that the implant needs to be removed.

There is no set lifespan for a breast implant but it will usually need to be replaced at some point and further surgery will be required at this stage.

There are variations of this method of reconstruction (see below) and surgeons are developing new ways of improving the cosmetic result. Your surgeon will be able to advise you on the best option for you.

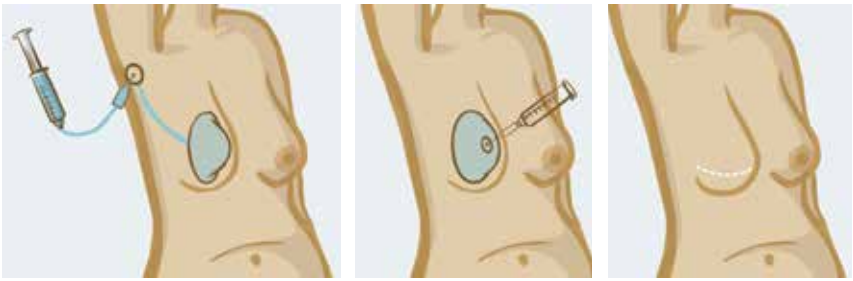
Immediate reconstruction using an implant

If the breast cancer can be removed without taking away too much skin (skin-sparing mastectomy) and the remaining breast is not too large and doesn't have a significant droop, an implant may be inserted under the chest muscle to replace the removed breast tissue. Inserting the implant under the chest muscle helps to keep the implant in the right place and hide its outline.

Using a breast implant alone is the simplest type of reconstruction operation and the recovery time is usually quicker than for other types of reconstruction. It's most often done as an immediate reconstruction operation.

The other option is to have a permanent expander implant inserted at the same time of the mastectomy. See below for details about this procedure.

In some cases, if radiotherapy is required surgeons may be able to insert a tissue expander or implant immediately after a mastectomy to create and preserve a space, with the tissue expander being inflated once radiotherapy has finished. This process aims to reduce the risk of capsular contracture (see page 32).



Delayed reconstruction using an implant

In delayed implant reconstruction a tissue expander is first placed behind the chest muscle – this helps keep the implant in the right place and hides its outline. The implant is gradually inflated with saline (salt water) via a small port by a surgeon or nurse. The saline solution is injected into the port just under the skin. This is located either in the expander so that the solution can be injected directly or is connected to the expander by a short tube. This procedure is done during outpatient appointments usually every one or two weeks.

This slowly stretches the muscle and overlying skin. The number of appointments needed varies from person to person.

When expander implants are being filled, you'll feel a stretching sensation and tightness within the breast reconstruction. It can be uncomfortable for a day or two after each inflation, but it shouldn't be painful. The expander is generally inflated until the new breast is slightly larger than the other breast and then left for a few weeks so the skin stretches. Some of the fluid is then removed through the port so that the new breast flattens and droops slightly, with the aim of mirroring the other breast.

A further small operation may be needed to remove the expander and port, and replace it with a permanent implant, which will be your final breast shape.

If a permanent expander implant has been used, the port can be taken out under local anaesthetic leaving the expander implant in place.

Implant reconstruction with tissue expansion can be particularly useful if you don't have enough skin left on your chest to comfortably cover and support an implant, especially if you're having delayed reconstruction.

Skin is very elastic and has a surprising ability to stretch but tissue expansion is not usually suitable for women who have had radiotherapy treatment as this will affect the elasticity and quality of the skin.

If your tissue expander has a metal port this can sometimes show up on airport security scanners. Because of this, when they are flying, some women choose to have a doctor's letter or note stating they have an implanted metal object.

Reconstruction using an implant and a tissue matrix

A newer implant reconstruction technique uses a material derived from pig or cow skin or a synthetic material that has been treated, processed and preserved so it can safely be left in the human body. This surgical mesh (called an acellular dermal matrix, ADM) looks like very thin white leather and provides a 'hammock' that cradles the breast implant, helping to create a natural droop, shape and contour. The mesh is attached to the chest muscle making a space in which the implant can be placed for internal support. Because it has almost the same structure as human skin it becomes part of your body.

This method is most suitable for small- or medium-sized breasts and can be used to achieve a one-stage implant reconstruction with mastectomy. This procedure can result in a more natural shape and feel than using an implant alone but the technique is not available everywhere in the UK. You can talk with your doctor about using a tissue matrix in your reconstruction.

What scarring should I expect?

Scars will vary following reconstruction surgery using implants, but will often be horizontal across the newly formed breast. With immediate reconstructions the implant may be placed through an incision around the areola (the darker area of skin around the nipple) and will leave different scarring. You can ask your surgeon about the position and length of the scar before the surgery takes place.

What are implants made of?

Breast implants have an outer shell made from silicone elastomer (similar to rubber). The shell is filled with silicone gel or saline. The surface of implants are usually textured although some may be smooth.

Silicone gel

Most implants used for reconstruction surgery contain silicone gel and these tend to look more natural than saline implants. The gel can be firm and feel more jelly-like or may be softer and feel more fluid-like depending on the type of implant used.

Saline

Saline is an alternative to silicone gel. The outer shell of the implant is still made of silicone. These implants contain a liquid rather than a gel so they are more likely to wrinkle under the skin and can sometimes leak. Any leaks are absorbed by the body and are not harmful, but as the saline leaks out, the breast gradually gets smaller and in time the implant has to be replaced. Saline implants are also heavier, which may restrict the size that can be used. For these reasons this type of implant is not commonly used.

Expander implants

This type of implant uses both silicone gel and saline. The outer shell is made of silicone with an inflatable inner chamber. Saline is injected in to the inner chamber to expand it. It's used in both immediate and delayed reconstructions.

Are silicone implants safe?

Experts regularly examine evidence for the safety of silicone gel implants. Implants used in Europe should adhere to specific safety standards and surgeons in the UK continue to recommend them to women considering breast reconstruction surgery.

Modern silicone gel implants are expected to last longer than 10 to 15 years, and there's no need to replace them after this time if there are no problems. The Medicines and Healthcare Regulatory Agency (MHRA) has a publication called Breast Implants: Information for women considering implants, which you may find useful. For details see page 38.

Once inserted, implants are very difficult to damage. You can continue with all your normal activities including travelling by plane and taking part in sports.

Reconstruction using your own tissue (tissue flap)

Another commonly used reconstruction technique uses flaps of your own tissue (with or without an implant), including the skin, usually taken from your back or lower abdomen, or from the thigh or buttock. This is then reshaped to form the new breast. Because the skin used is taken from another area of the body, it may be a slightly different shade or texture to the rest of the breast. This method is particularly suitable for creating moderate-to large-sized breasts that have a natural droop.

It's commonly used in delayed reconstruction when women can't have tissue expansion because they've had radiotherapy. Flaps without implants may also be used for immediate reconstruction for women who are going to have radiotherapy treatment.

You may need to have an abdominal ultrasound (a scan that uses high frequency sound waves to produce an image) or CT scan (a scan that uses x-rays to take detailed pictures across the body) before your flap reconstruction to look at the blood supply to the tissue which will be used to create your new breast.

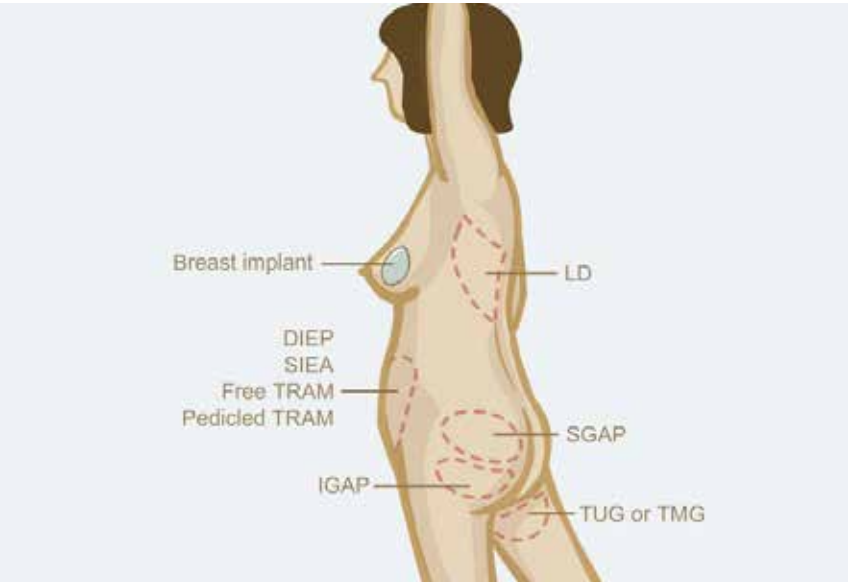
Reconstruction using your own tissue (tissue flap) involves a longer operation and more recovery time than an implant-only reconstruction. But you will be less likely to need further surgery in the future than with reconstruction using implants alone. A reconstructed breast using tissue instead of an implant may also provide a better match with your other breast in the long term. This is because tissue reacts to gravity, ageing and weight change more naturally.

There are two ways in which surgery involving a tissue flap may be done:

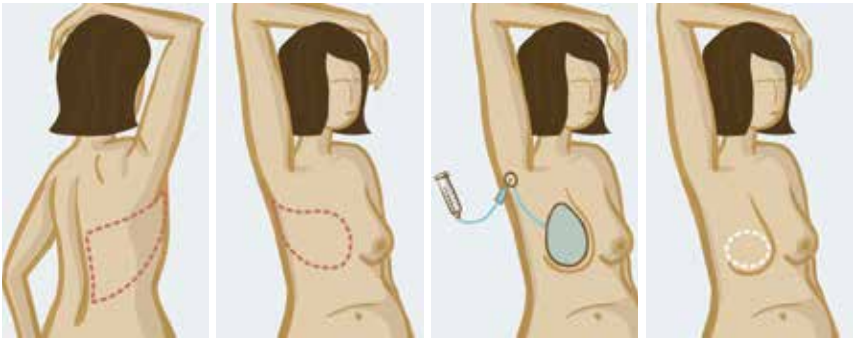
- pedicled flap – the flap remains attached at one end to its blood vessels which means the blood supply to the muscle doesn't need to be cut
- free flap – the flap is completely detached from the body along with its blood vessels and re-attached by microsurgery in the position of the reconstructed breast.

There are variations of these methods (see below) and surgeons are developing new ways of improving the cosmetic result. Your surgeon will advise on the best option for you.

Different reconstruction options



LD (latissimus dorsi) flap – back flap



This procedure uses the latissimus dorsi muscle – a large muscle that lies in the back just below the shoulder blade. The skin, fat and muscle are removed from the back but the blood vessels of the flap remain attached to the body at the end nearest the armpit (pedicled flap).

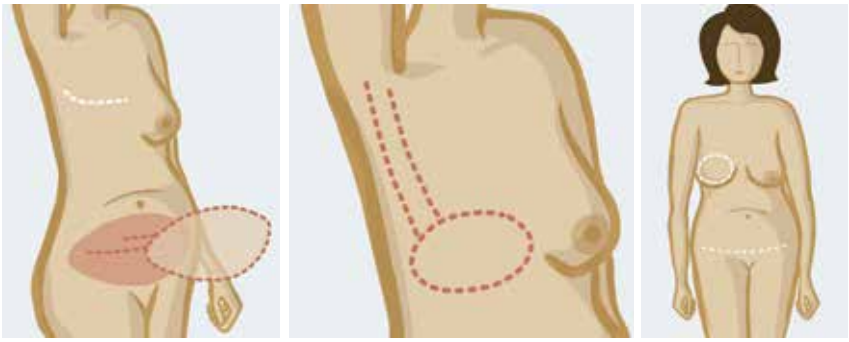
The flap is then turned and carefully tunnelled under the skin below the armpit and is brought round to the front of the body to lie on the chest wall and form the new breast (or part of the breast if being used in breast conserving surgery). Some of the skin on the flap is used to form the new skin of the reconstructed breast while the muscle and the fat are used to form the volume of the breast. It's usually necessary to use an implant under the flap after a mastectomy to help create a breast that's a similar size to the other one.

An expander implant is sometimes used (particularly in a delayed reconstruction) and the expansion process starts when the tissue flap has healed, usually two or three weeks after surgery.

The scar on the back is usually horizontal and hidden along the bra line, or it can be diagonal. The scar on the breast will vary depending on your shape, the size of your breast and whether you have the reconstruction done at the same time as your mastectomy or at a later date.

After fully recovering from an LD flap reconstruction, most women don't notice weakness in the shoulder during everyday activities. However, possible weakness may be an important consideration if you're very active, for example if you regularly swim, climb, row, play tennis or golf. So consider this when deciding which method of reconstruction is best for you.

DIEP (deep inferior epigastric perforator) flap



The DIEP reconstruction uses a free flap of skin and fat, but no muscle, to form the new breast shape. The flap is taken from the lower abdomen and uses the skin and fat between the belly button and the groin along with the artery and veins. It is called DIEP because deep blood vessels called the inferior epigastric perforators are used.

The free flap is transferred to the chest and shaped into a breast while the artery and veins are connected to blood vessels in the armpit or chest wall using a specialised technique involving microvascular surgery. If the flap of tissue doesn't have a good blood supply it will die and the reconstruction will fail (see page 23).

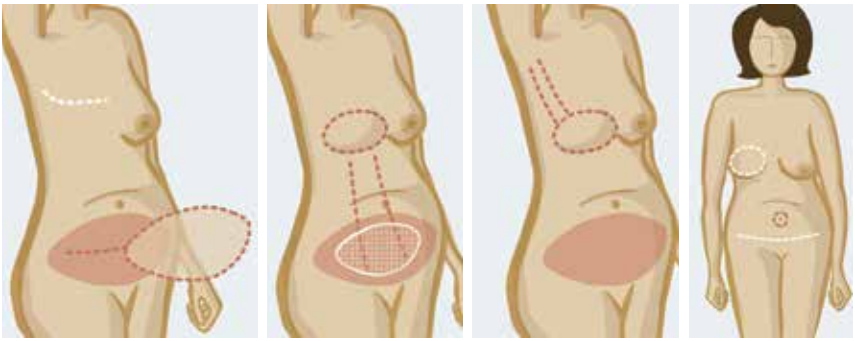
The advantage of this type of reconstruction is that no muscle has to be removed so the strength of the abdomen is not affected. This means there is very little chance of developing a hernia (a bulge or protrusion where the wall of the abdomen has been weakened).

The DIEP flap is major surgery involving a long and complex operation, and you will need to be in good overall health to go through it. Ideally you should be a non-smoker, have no existing scars on your abdomen and have enough fatty tissue in your lower abdominal area.

If you're overweight you may be advised to lose weight before being offered this type of surgery. This is to reduce your risk of complications from the anaesthetic and the surgery.

There will be scarring on the breast, which is usually oval, and on the abdomen – usually below the bikini line stretching from hip to hip. The belly button (umbilicus) is repositioned during this type of surgery, leaving a circular scar around it.

TRAM (transverse rectus abdominis muscle) flap



This technique uses the large muscle that runs from the lower ribs to the pelvic bone in the groin. It is called a TRAM flap because the rectus abdominis muscle (large tummy muscle) is used and because the skin is taken from across your tummy (transversely).

There are two types of TRAM flap operation. A pedicled flap is where the flap remains attached at one end to the original anchoring point and the original blood supply. Or a free flap where it's completely detached and then re-attached.

In a pedicled flap, the rectus abdominis muscle, along with its overlying fat and skin and blood supply, is tunnelled under the skin of the abdomen and chest and brought out over the area where the new breast is to be made. Usually there's enough fat in the flap to make the new breast the same size as the other one without the need for an implant.

In a free flap operation the muscle, fat and skin are removed completely from the abdomen and the surgeon shapes a breast from this tissue. The blood vessels that supply the flap are re-connected to blood vessels in the region of the reconstructed breast using microvascular surgery, either under the armpit or behind the breastbone.

If the flap of tissue isn't getting a good blood supply following this procedure it will die and the reconstruction will fail. This is rare, but if it does happen further surgery will be needed to remove the flap and perform the reconstruction again at a later date, if possible (see page 23).

Both types of TRAM flap operation may weaken the abdominal wall, which you might notice afterwards when lifting or during sporting activities. During the operation the surgeon will put a 'mesh' into the abdomen to help strengthen the muscles and to try to avoid a hernia (a bulge or protrusion where the wall of the abdomen has been weakened). If you do develop a hernia it can be repaired with a fairly simple operation.

The free flap TRAM is a longer and more complex procedure, with a greater risk of complications than the pedicled flap, so a longer recovery time is usually needed.

You will need to be in good overall health to have either type of TRAM flap procedure. You'll need to be a non-smoker, have no existing scars on your abdomen (caesarean scars don't always mean you can't have this procedure) and have enough fat in the lower abdominal area. If you're overweight you may be advised to lose weight before being offered this type of surgery. This is to reduce your risk of complications from the anaesthetic and the surgery.

Both types of TRAM flap leave a scar across the width of the abdomen, usually just below the bikini line. The scar on the reconstructed breast will be circular or oval and vary in size from person to person. The belly button (umbilicus) is repositioned during this type of surgery, leaving a circular scar around it.

SIEA (super inferior epigastric artery flap)

This is similar to the DIEP flap as it uses only skin and fat from the lower abdomen and no muscle, but the vessels taken are superficial (nearer the surface) rather than the deep vessels used in the DIEP flap.

The blood supply might not always be sufficient to have this procedure. The operation, complications and recovery time are like those described on page 19 for the DIEP flap.

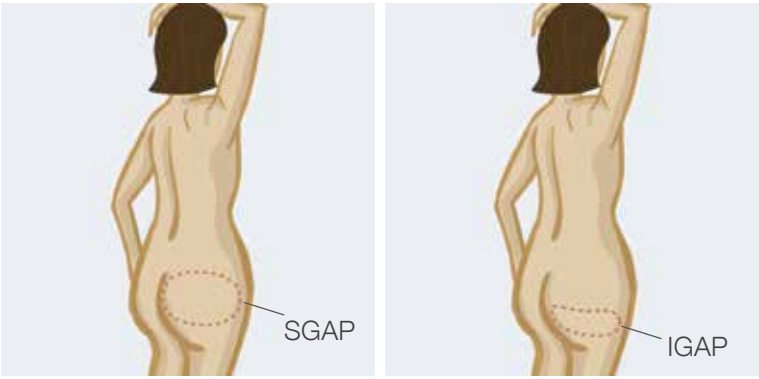
Other free flap reconstructions

There are some other reconstruction techniques using flaps from other areas of the body. The following types of free flap reconstruction use tissue from the buttocks or thighs.

These techniques are mainly used for women who are not suitable for any of the other types of reconstruction. They may be appropriate for women who are too slim for tissue to be taken from their abdomen or who have scarring from previous surgery to their abdominal or back area. Only a few surgeons in the UK offer these techniques and you may need to travel to another centre if you need this type of surgery.

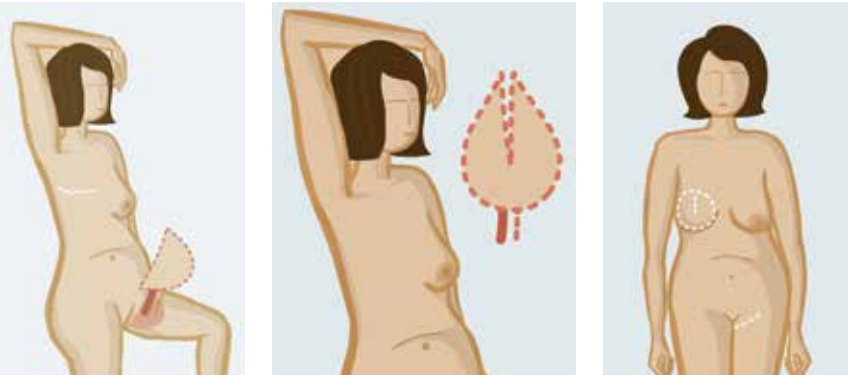
As with all types of flap reconstruction, these techniques are generally not suitable for women who have diabetes, are heavy smokers or are very overweight.

SGAP (superior gluteal artery perforator flap) and IGAP (inferior gluteal artery perforator flap)



The free SGAP (superior gluteal artery perforator flap) and IGAP (inferior gluteal artery perforator flap) use only fat and skin taken from the upper or lower buttock to create a new breast. Microvascular surgery is needed to join the blood vessels. Where tissue has been removed from the buttocks, there will be a scar and an indentation.

TMG (transverse myocutaneus gracilis flap) or TUG (transverse upper gracilis flap)



The tissue removed in this procedure is taken from the upper inner thigh and consists of skin, fat and a small strip of muscle. It is called a free TUG flap because the upper gracilis muscle is used in the operation and the skin is taken from across your thigh (transversely).

The procedure may be suitable for women with small-or medium-sized breasts. The inner thigh fat feels soft and is therefore similar in texture to the breast fat. Microvascular surgery is needed to join the blood vessels. The scar is placed in the fold of the groin and runs to the fold of the buttock area. You may have to wear bandages or lycra shorts to reduce the risk of swelling, bruising and fluid collection for some weeks following surgery.

Tissue failure

With all flap methods of reconstruction, there's a risk that the flap, or part of the flap, will fail if it doesn't have a good enough blood supply. This is rare, but if it happens you may need another operation to remove the affected tissue. Your surgeon will then talk to you about your options for further reconstruction.

Comparing types of reconstruction

The following table compares different forms of breast reconstruction.

	Implant	LD using tissue from your back
Implant or not?	Yes	Implant can be used behind the flap
Scars	Scar on breast only. Possible circular scar around pigmented/coloured area of skin near nipple (areola), either side of nipple or an inverted T-shaped scar under breast	Scar on back near bra-strap line. If skin-sparing mastectomy, there may be a circular scar around where the nipple was
Effects on muscles	Not much change	Slight shoulder/back weakness
Sensation in breast after surgery	Little or none	Little or none
Approx length of surgery	3 hours	6 hours
Average hospital stay	1-3 days	4-7 days
Approx recovery time	6-8 weeks	6-12 weeks
Considerations	May not be suitable for large drooping breasts. Suitable if no excess tissue available. May need further surgery in future to change implants	May not be suitable if you regularly swim, climb, row, play tennis or golf

TRAM	DIEP or SIEA	GAP or IGAP	TMG or TUG
Implant not generally used	Implant not generally used	Implant not generally used	Implant not generally used
Bikini-line scar. If skin-sparing mastectomy, there may be a circular scar around where nipple was	Bikini-line scar. If skin-sparing mastectomy there may be a circular scar around where nipple was	Scar on buttocks and on breast	Scar in fold of groin and runs to fold of buttock area. Scar on breast
Risk of abdominal muscle weakness	No muscle removed	No muscle removed	Small strip of muscle removed but normally with little muscle weakness
Little or none	Little or none	Little or none	Little or none
4-6 hours	6-8 hours	6-8 hours	4-5 hours
5-7 days	5-7 days	5-7 days	5-7 days
6-12 weeks	6-12 weeks	6-12 weeks	6-12 weeks
Need to be in good health. May not be suitable if you are very slim, have abdominal scars, are diabetic, overweight or smoke	Need to be in good health. May not be suitable if you are very slim, have abdominal scars, are diabetic, overweight or smoke	May be suitable if tissue can't be taken from tummy area. May not be suitable if you are diabetic, overweight or smoke	May be suitable if tissue can't be taken from tummy area. May not be suitable if you are diabetic, overweight or smoke

Reconstruction with breast conserving surgery

Breast conserving surgery is usually referred to as wide local excision or lumpectomy, and is the removal of the cancer with a margin (border) of normal breast tissue around it.

Oncoplastic surgery techniques during/after breast conserving surgery are often used. The aim is to remove the cancer and maintain shape and symmetry if there's likely to be a noticeable indentation in the breast after surgery.

There are two ways of trying to maintain shape and replace the volume of the tissue lost from removing the cancer during breast conserving surgery.

Volume can be replaced by moving some of the remaining breast tissue around to shape the breast and fill out the area where the cancer has been removed. This surgical procedure is sometimes called a therapeutic mammoplasty. This usually reduces the size of the affected breast so if this technique is used, you are likely to need surgery to your other breast to reduce its volume and restore symmetry.

Lost volume in the breast can also be replaced with tissue from elsewhere, usually from your back (called a latissimus dorsi flap). There's more information about latissimus dorsi flaps on page 18.

If you are having radiotherapy after either procedure, your surgeon can advise you further.

Nipple reconstruction

Occasionally your own nipple can be preserved safely but mastectomy usually means removal of the whole breast including the nipple and areola. It's possible to have the nipple reconstructed and this may be done at the same time as the breast surgery but it is more commonly done a few months after the reconstruction to give the new breast time to settle into its permanent position. The nipple reconstruction can be done under a local anaesthetic if done after the breast reconstruction.

A reconstructed nipple can improve the appearance of your new breast, but it won't feel the same as a natural nipple. It has none of the nerves that allow it to rise (become erect) or flatten in response to touch or temperature and it has no sensation.

There are several ways of reconstructing a nipple, so you may want to discuss different options with your surgeon. The skin of the new breast is usually used to make the nipple. This involves folding the skin to create a nipple shape. Sometimes part of the nipple from the other breast can be used. However good the initial result, the reconstructed nipple may flatten over time.

For the nipple and areola area to look as realistic as possible, the skin needs to match the shade of the natural nipple and areola. A reasonable match can usually be achieved by colouring the skin using micropigmentation, which is similar to tattooing. This is usually done several weeks later once the surgery has had time to settle. The procedure takes about 30 minutes and may require local anaestetic. Sometimes it needs to be repeated to give a better result. The colour will fade over time but should last for a few years.

Giving your new breast a nipple can be another stage in creating a breast that looks as natural as possible. On the other hand, you may choose not to have nipple reconstruction or you may decide to use stick-on nipples. These can be custom-made, sometimes by the hospital, to match your natural nipple and areola, or they can be bought quite cheaply, ready-made.

Lipomodelling

This is a procedure used to improve the appearance of dents or a change in the outline of the breast that are sometimes noticeable after breast-conserving surgery. It may also be used after breast reconstruction, for example increasing the size of the breast, adjusting its shape or helping to hide visible implant ripples or wrinkles.

The technique uses fat taken by liposuction from one part of the body (usually the abdomen, hips or inner thigh), then injecting the fat cells into the breast. It will be done under a general anaesthetic and may need to be repeated several times to achieve the correct shape. Your surgeon will explain the possible side effects, such as bruising in the area where the fat is taken.

Surgery to your other breast

Surgeons try to create a new breast that matches your natural breast as far as possible. If it is difficult to get the size, shape or position that matches your natural breast, you may want to discuss the option of having an operation on your other breast to improve symmetry. This may mean making the remaining breast a little smaller or larger, lifting it or moving the nipple. These procedures will all leave some permanent scarring, which will fade with time.

Any surgery to the natural breast may be done in a separate operation to give the reconstructed breast time to settle. If you have your reconstruction done privately it is worth checking that any surgery to your other breast is covered under your insurance plan; if it isn't you may have to pay extra.

Breast reduction

Sometimes it may be necessary to remove tissue and skin from the natural breast to make it smaller and more in balance with the reconstructed breast. The nipple and areola usually need moving to be more central on the breast. Breast reduction usually leaves some scarring around the areola, down the central part of the breast and along its underside. This isn't noticeable when wearing a bra. There may be less feeling and sensation in the breast and you may not be able to breastfeed in future.

Breast enlargement (augmentation)

Sometimes the reconstructed breast is larger than your natural breast, especially if you've had an implant. You can have an implant placed either under the breast tissue or behind the chest wall muscle of your natural breast to make both breasts more balanced. Scarring is usually in the fold beneath the breast or around the areola.

The feeling in the nipple and skin can change after breast enlargement and you may find the nipple is less or more sensitive for a few months after the operation. When implants are used, mammograms (breast x-rays) will still be needed in the future (see page 35 for more information). Breast enlargement does not usually prevent you from breastfeeding in the future.

Breast uplift (mastopexy)

Breast uplift is an operation to raise, reshape and firm the breast, which reduces any natural drooping. A strip of skin is taken from under the remaining breast or around the nipple to tighten and lift the skin over the breast. You may have similar scarring to that found after breast reduction, but this can vary. You should still be able to breastfeed.

Recovering from reconstruction

Your operation will be carried out under general anaesthetic. It may take anything from two to three hours to put an implant under your chest muscle, three to six hours for a pedicled LD or TRAM flap reconstruction and five to eight hours for a free flap reconstruction.

When you wake up you'll have dressings on your newly reconstructed breast and, if you have had flap surgery, on the area where the flap has been removed. Flap breast reconstructions will be monitored closely after surgery to make sure there is a good blood supply. So the nurses will look at and gently press the new tissue flap regularly. They'll monitor the warmth, colour, sensation, and any swelling. Initially it's very important to keep your new breast warm and you may have cotton padding and soft blankets to help with this.

You may have drainage tubes coming out of the wounds to get rid of any excess blood or fluid and you may start a course of antibiotics to reduce the chance of infection. Initially your reconstructed breast will look very different to your natural breast.

You'll be given pain relief to help with any pain you're having. There are many types of pain relief and different ways of giving them. If you're still in pain after having your medication, tell the staff looking after you.

Your recovery time will depend very much on which type of reconstruction you have had. After an implant operation you will probably be out of bed within a few hours and may be able to go home the next day. If you've had more extensive surgery it will take a little longer for you to be up and about, and you'll stay in hospital for several days.

You'll be given advice and information from a physiotherapist on breathing correctly and how to go about everyday tasks such as getting in and out of bed and walking – particularly if you have had abdominal surgery.

You will be given some exercises to keep your arms and shoulders mobile. These vary according to the operation you have had and your surgeon's recommendations. You shouldn't feel pain when doing the exercises. However, a stretching or pulling sensation is normal.

Your breast care nurse or surgeon will also tell you what sort of bra or support garment is suitable and may give advice about massaging the area to keep the skin supple and in good condition. This advice will vary from person to person.

You're likely to feel tired following any kind of surgery and you won't be able to do as much as you are used to for up to several weeks. When you get home you'll need to take things easy for a while. Again, how quickly you recover will depend on whether you had implant or flap surgery. You'll be advised how best to look after your wounds and about stretching, bending, lifting and driving during the healing process.

Resuming your normal daily activities will depend on which type of surgery you have had. Gradually reintroducing them is generally the best way. Check with your surgeon or breast care nurse if you aren't sure. Listen to your body and stop if you feel you may be over-exerting yourself.

It is best not to drive or do anything strenuous while your wounds are healing. When you want to start driving again, think whether you would be comfortable enough to wear a seatbelt and be able to do an emergency stop.

The newly reconstructed breast takes a while to settle and resemble a natural breast. It's normal for it to be bruised and swollen for quite a while, and the wounds will take time to heal. If you are concerned about any part of your recovery talk to your breast care nurse or specialist team.

Whether and when to return to work is a personal decision that may take into account not only how you're feeling physically and emotionally but also your financial position. It's law that that an employer must make reasonable adjustments to help you at work if you have breast cancer.

Possible problems following surgery

Immediate problems

Infection

If you have a raised temperature and/or notice any redness, excess swelling or heat in the breast or in the site where tissue has been removed, tell your breast care nurse, specialist or GP straight away as these might be signs of an infection. Treating an infection is easiest and most effective if caught early, so report any changes promptly. Occasionally an infection develops around an implant that doesn't respond to treatment with antibiotics. In this case, the implant might have to be removed to allow the infection to settle completely.

Bruising and bleeding

Bruising to the breast and where any tissue has been removed from is common after your breast reconstruction and usually goes away after a few weeks. Sometimes there can be a collection of blood (haematoma). If this happens, it will usually be within 24 hours after the operation. This may mean another operation is needed to stop the bleeding.

Build-up of fluid/blood

Any drainage tubes put into your wounds during surgery are usually removed a few days after the operation. However, a collection of fluid (seroma) or blood (haematoma) may continue to build up around the wound sites. These will normally be re-absorbed naturally over time, but larger amounts may need to be drawn off (aspirated) with a needle and syringe by your surgeon or breast care nurse. This is usually a painless procedure as the area is likely to be numb. Sometimes a seroma will refill after it has been aspirated so it may need to be aspirated several times over a few weeks before it goes away completely

If you have an implant, the doctor or nurse may use ultrasound (high frequency sound waves that produce an image) to help guide them. This procedure can be done as an outpatient so you will not have to stay in hospital.

Pain and discomfort

You are likely to have some pain or discomfort after surgery but everyone's experience is different. After your operation you will be given pain relief to make you more comfortable.

There are different types and strengths of pain relief available and they can be given as tablets, suppositories (waxy pellets placed into your back passage (rectum)) or injections. What you are given will vary according to your needs. Some people find changing position and using pillows to support the wound can help reduce pain or discomfort.

Sometimes pain relief may be given via a device called a PCA (patient controlled analgesia). This is a pump designed to give pain relief straight into your vein when you press a button. It's usually removed a day or two after surgery.

You may continue to feel sore and stiff for several weeks after surgery, but this should gradually improve over time. You can carry on taking pain relief during this period. Your wound may also itch as it heals. This is natural but try not to scratch it.

Pain can occur in the scar, chest wall and upper arm, where the tissue was taken from for a flap reconstruction, and your shoulder can feel uncomfortable. Some people also have phantom breast pain (pain that feels as though it's coming from the breast although the breast tissue has been removed and reconstructed). These can all be the result of damage to the nerves.

With an abdominal flap operation you will probably feel uncomfortable when you bend over or straighten up, cough or sneeze for a few weeks after surgery. Take things gently and support your wound with your hands if you need to.

If you're experiencing pain around your shoulder, armpit or over your scar that doesn't improve with time or pain relief, talk to your specialist team.

Longer-term problems

Capsular contracture

In the first year or so after an implant operation, tough fibrous tissue builds up around the implant to form a 'capsule'. This happens because the body sees the implant as a foreign object and wants to isolate it. In most cases this capsule stays soft and supple but sometimes it tightens around the implant, making the breast feel hard and sometimes painful. This is known as capsular contracture. Radiotherapy can cause capsular contracture, which is why women having this treatment may not be recommended to have reconstruction using an implant alone.

Fortunately, capsular contracture is now less common. This might be because implants have a textured outer surface that reduces the amount of scar tissue that forms around the implant. There are different degrees of capsular contracture and in mild cases no treatment is necessary. Occasionally the contracture is severe enough to make the breast feel hard and look misshapen. In these cases the implant may need to be surgically removed with or without replacement of the implant.

Leakage and rupture

Silicone implants are expected to last at least 10 to 15 years, and even then are unlikely to need replacing. If they wear out, the silicone gel may leak into the fibrous capsule. Occasionally silicone gel may get into the breast, forming a lump. If this can be felt or a scan shows a ruptured implant, the implant may have to be removed and replaced. Modern casings are stronger and the risk of leaks and rupture is small. If you notice any deflation of your reconstructed breast, or if it becomes misshapen, uncomfortable or swollen, tell your surgeon or breast care nurse.

Creasing and wrinkling

There can be noticeable skin creasing or wrinkling over the implant. It's most common in people who are slim and have saline implants. It's usually less obvious when wearing a bra. If it becomes very noticeable the implant may need to be replaced.

Unevenness

It will take several months for your new breast to settle down and for scars to fade. Only then can you judge whether you are satisfied with the look and feel of your new breast and how well it matches your other breast. If you're unhappy with the size or shape of the breast or the positioning of the nipple there are things that can be done. You may want to consider further surgery to the reconstructed breast or to your other breast to give you a better match and symmetry. It's not unusual for it to take several separate surgical procedures before breast reconstruction is complete, including the nipple/areola reconstruction and surgery to the other breast. Before you make any decision, discuss your options with your surgeon or breast care nurse.

Loss of sensitivity

For many women the loss of sensitivity of the reconstructed breast can be difficult to come to terms with. You may find it useful to read our booklet **Your body, intamacy and sex**.

Fat necrosis

Breasts are made up of lobules (milk-producing glands) and ducts (tubes that carry milk to the nipple), which are surrounded by glandular, fibrous and fatty tissue. Sometimes a lump can form if an area of the fatty tissue is damaged in some way and this can happen following a breast reconstruction. This is called fat necrosis (necrosis is a medical term used to describe damaged or dead tissue). You can read more in our leaflet **Fat necrosis**.

Being breast aware

It is important still to be breast aware after reconstruction surgery. Once your breast has settled down after surgery, get to know the way it looks and feels. If you have had an implant-based reconstruction, look out for hardness or tightness, which may indicate capsular contracture, or wrinkling of the implant.

After any type of breast reconstruction you should look out for changes in the breast. These include:

- a change in appearance or shape
- a lump or lumpy area in the breast or armpit
- a change in skin texture or swelling in the upper arm.

If you notice any changes in either of your breasts you should tell a member of your specialist team or your GP. If there's any concern that your cancer has come back your specialist will arrange further tests. Having a breast reconstruction should not affect the ability of you or your surgeon to detect a recurrence of your cancer.

Having a breast reconstruction will not increase the chances of your cancer coming back.

For more information about being breast aware, you may find our booklet **Your breasts, your health: throughout your life** helpful.

Mammograms and follow-up after breast reconstruction

You will still be offered regular mammograms on your natural remaining breast, and to check any remaining tissue in your reconstructed breast if only part of your breast tissue was removed. If you've had an implant in your natural breast to match the reconstructed breast for size, tell the radiographer in advance so that the best method of screening can be used.

Follow-up after treatment for breast cancer varies from hospital to hospital. You may be invited back to the hospital for follow-up appointments to check how you are recovering physically and emotionally. The time between appointments will vary in each hospital and for each person depending on their individual situation. Some people are given a choice of being followed up by their GP or a mixture of both hospital and GP appointments. Some hospitals provide a system where people have access to a clinic appointment to be seen by a specialist only if or when they have a worry or concern. Others arrange regular telephone follow-up appointments.

You should be given a name and contact number to ring (this will usually be for a breast care nurse) if you have concerns or symptoms that mean you might need to be seen by your specialist team. You should also be given information about future mammograms.

Our booklet **Your follow-up after breast cancer: what's next?** discusses what happens at the end of treatment and looks at some of the common concerns as well as explaining the various options you may have for follow-up appointments.

For many women, appearance can have a big impact on the way they feel about themselves. Any visible changes to your body resulting from breast cancer and its treatment can have a lasting impact on the way you feel. For some, having a breast reconstruction can help improve self-esteem and confidence. Deciding whether or not to have a breast reconstruction is a personal decision based on what feels right for you.

Bras after surgery and Lingerie Evenings

Many women are concerned about finding comfortable and well-fitting bras following breast reconstruction. Initially after surgery your surgeon will advise what bra to wear depending on your type of reconstruction. Sometimes you may be advised to wear a bra during both the day and night initially after your surgery.

Breast Cancer Care organises Lingerie Evenings. These are an opportunity for women who have had breast surgery, including breast reconstruction, to learn more about choosing a bra after surgery.

The evenings include a practical guide of what to look for in a bra, an opportunity to be fitted and a chance to see how the lingerie looks on volunteer models who have had breast cancer. Lingerie Evenings always take place in private areas so they provide a safe, relaxed environment for meeting others in a similar situation and for sharing experiences. For details of your nearest Lingerie Evening, contact our Helpline **0808 800 6000**.

Useful organisations

Association of Breast Surgery
Royal College of Surgeons of England
35–43 Lincoln's Inn Fields
London WC2A 3PE
Telephone: 020 7869 6853
Email: office@absgbi.org.uk
Website: www.associationofbreastsurgery.org.uk

Aims to ensure that breast surgery practice is based on common standards of competence and performance. It does this through education, training, service improvement and provision of information. There is also a patient information section.

BRA Foundation
Website: www.brafoundation.org
Email: info@brafoundation.org

BRA Foundation aims to provide support and information to women considering breast reconstruction following mastectomy.

British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS)
Royal College of Surgeons of England
35-43 Lincoln's Inn Fields
London WC2A 3PE
Telephone: 020 7831 5161
Email: secretariat@bapras.org.uk
Website: www.bapras.org.uk

The professional body for plastic and reconstructive surgeons in the UK. The website has information on breast reconstruction and gives access to a list of plastic surgery units.

General Medical Council
Email: gmc@gmc-uk.org
Website: www.gmc-uk.org

Holds general and specialist registers of doctors practising in the UK. The registration department can also provide free information on specific named doctors.

Medicines and Healthcare products Regulatory Agency (MHRA)
151 Buckingham Palace Road
Victoria, London, SW1W 9SZ
Telephone: 020 3080 6000
Email: info@mhra.gsi.gov.uk
Website: www.mhra.gov.uk

Government agency responsible for ensuring that medicines and medical devices work and are acceptably safe. The leaflet Breast Implants: Information for women considering breast implants is available from the MHRA and was last updated in 2012.

The National Institute for Health and Care Excellence (NICE)
Telephone: 0300 323 0140
Email: nice@nice.org.uk
Website: www.nice.org.uk

The independent organisation responsible for providing national guidance on the good health and the prevention and treatment of illness. There is guidance on breast reconstruction using lipomodelling after breast cancer treatment.

Other organisations

Macmillan Cancer Support
89 Albert Embankment, London SE1 7UQ
General enquiries: 020 7840 7840
Helpline: 0808 808 0000
Website: www.macmillan.org.uk

Provides practical, medical and financial support for people with cancer.

NHS Choices
Website: www.nhs.uk

NHS Choices is the UK's biggest health website and provides a comprehensive health information service. The website can help you make choices about your health, from decisions about your lifestyle, such as smoking, drinking and exercise, to finding and using NHS services in England.

About this booklet

Breast reconstruction was written by Breast Cancer Care's clinical specialists, and reviewed by healthcare professionals and people affected by breast cancer.

For a full list of the sources we used to research it:

Phone 0345 092 0808
Email publications@breastcancercare.org.uk

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breast cancer care

the breast cancer support charity

Breast Cancer Care is the only UK-wide charity providing specialist support and tailored information for anyone affected by breast cancer.

Our clinical expertise and emotional support network help thousands of people find a way to live with, through and beyond breast cancer.

Visit **www.breastcancercare.org.uk** or call our free Helpline on **0808 800 6000** (Text Relay 18001).

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