

BREAST RECONSTRUCTION

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CONTENTS

About this booklet	4
About breast reconstruction	5
Decisions about reconstruction	9
Reconstruction with breast-conserving surgery	18
Reconstruction using an implant	20
Reconstruction using your own tissue	28
Comparing types of reconstruction	42
Nipple reconstruction, tattooing and prostheses	44
During and after surgery: what to expect	46
Finding support	56
Your notes	58

About this booklet

If you're thinking about having breast reconstruction, it's normal to have questions.

You may be trying to decide whether to have breast reconstruction and want to know which options may be right for you. Or you might be having reconstruction and want to know more about what to expect.

This booklet will guide you through what breast reconstruction involves, the different types of reconstruction, and what to expect after surgery.

If you're reading this booklet, you're likely thinking about reconstruction alongside or after surgery for breast cancer. But you might be considering reconstruction after surgery to reduce your risk of breast cancer.

This booklet aims to answer your questions and help you understand the options that may be available to you.

About breast reconstruction

What is breast reconstruction?

Breast reconstruction is surgery to create a new breast shape. It may be done after surgery to remove your whole breast (mastectomy) or part of the breast (breast-conserving surgery).

When breast reconstruction is done

You may have reconstruction:

- At the same time as a mastectomy or breast-conserving surgery (immediate reconstruction)
- Months or years later (delayed reconstruction)

Some people may be offered reconstruction as a 2-stage operation known as a delayed-immediate reconstruction.

Types of reconstruction

A new breast shape can be created using:

- A breast implant
- Your own tissue from another part of the body
- A combination of an implant and your own tissue

Your treatment team will explain the benefits and limitations of the options suitable for you.

Your treatment team

Your treatment team will usually include a:

- Breast surgeon, sometimes called an oncoplastic surgeon
- Plastic surgeon
- Breast care nurse or breast reconstruction nurse

The aim of breast reconstruction

Breast reconstruction tries to create a breast shape that looks as natural as possible and matches the breast on the other side in size, shape and position.

Breast reconstruction can involve several operations over time to give you the best cosmetic outcome.

The first operation is to create the breast shape. You may need more operations to the reconstructed breast to improve the appearance or to the other breast to improve symmetry.

Even with the best outcome, there will be differences between the remaining breast and the reconstructed one.

Where both breasts are being reconstructed, the aim is to recreate breasts that match and are in proportion to your body shape.

Who can have a reconstruction?

Most women who have a mastectomy, and some who have breast-conserving surgery, can have either immediate or delayed breast reconstruction.

National guidance says the choice of immediate breast reconstruction should be discussed with anyone having a mastectomy. This includes people who may need radiotherapy or have had it previously. However, a delayed reconstruction may be a better option for some people.

All suitable breast reconstruction options should be offered and discussed, even if they're not available at your local hospital.

If you're having radiotherapy

If it's likely you'll need radiotherapy, this may affect the options for and timing of breast reconstruction.

Radiotherapy can increase the risk of scar tissue forming around an implant. It can also affect a reconstruction that uses your own tissue, making the breast feel firmer, reducing its size and possibly altering its shape.

If you're likely to have radiotherapy, your treatment team may talk through suitable options for breast reconstruction in your individual case.

If you're having genetic testing

Your options for breast reconstruction may be different if you're having genetic testing or being considered for genetic testing.

Your treatment team can talk through your surgery options and the timing of your surgery if you're considering having both breasts removed and reconstructed.

You may find it useful to read our booklet **Family history of breast cancer: managing your risk**.

Breast reconstruction and men

Reconstruction is not commonly offered to men who have a mastectomy for breast cancer. But you can talk to your treatment team to find out what options are suitable to improve the appearance and evenness of the chest after surgery.

If reconstruction is not an option

Some people are advised not to have breast reconstruction.

This may be because of the type or stage of their breast cancer, or because they have other medical conditions that increase the risk of complications after surgery.

Your BMI (body mass index) may also affect your options for breast reconstruction. Having a high BMI increases the risk of complications after surgery.

If you're advised not to have reconstruction or have delayed reconstruction due to your BMI, your breast or plastic surgeon should explain the reasons why. You can ask for a second opinion if you think this would be helpful.

Smoking and vaping

Smoking significantly increases the risk of developing complications from surgery and may affect your options for reconstruction.

Your breast care nurse or surgeon is likely to advise you to stop smoking before and after your operation to reduce this risk. You may also be advised not to vape or use other products that contain nicotine.

Decisions about reconstruction

Why have breast reconstruction?

Women choose to have breast reconstruction for different reasons.

You may want to restore your natural appearance after breast cancer surgery.

Surgery for breast cancer is likely to affect how you look and feel. Some women find it harder than others to come to terms with losing 1 or both of their breasts.

You may feel breast reconstruction is necessary to restore your confidence.

Some women may choose to have reconstruction as they think it will help them feel more confident in an intimate or sexual relationship, either now or in the future.

It's important you make a decision based on what's right for you.

Having breast reconstruction will not increase your risk of the breast cancer coming back (recurrence).

You may find it useful to read our booklet **Your body, intimacy and sex**. It explores how physical changes due to breast cancer and its treatment can alter the way you feel about your body, and how they may affect sex and intimacy.

Limitations of reconstruction

Most women who have reconstruction are satisfied with the overall result.

However, not everyone's experience is positive. Some women feel unsure about their new shape or self-conscious about their reconstructed breast or breasts.

It's important to have realistic expectations of how a reconstructed breast will look and feel. You can talk to your surgeon or breast care nurse about what to expect.

Look and feel

A reconstructed breast will not feel, look or move exactly the same as your natural breast.

It will often be a slightly different size and shape.

Any differences should not be noticeable when you're clothed, even in a bra or in swimwear. But when you're undressed, the differences are more obvious.

You'll be able to see your scars, although scarring should fade over time. You may also have scars on other parts of your body depending on the type of reconstruction.

Loss of sensation

There will be loss of sensation in the reconstructed breast and anywhere you have additional scars.

It's common to have numbness or pins and needles in your reconstructed breast. This may improve over time but for many women the numbness can be permanent.

Loss of sensation can be difficult to come to terms with and can take time to adjust to.

Differences to a natural breast

A natural breast will change over time and droop as you get older. Reconstructed breasts, especially those using implants, may not change in the same way.

Over time the differences between a natural and reconstructed breast may become more obvious, and you may need more surgery to improve symmetry.

Recovery and risk of complications

Recovery after breast reconstruction will take longer than if you have a mastectomy without reconstruction.

There's also a higher risk of complications than if you have a mastectomy without reconstruction. Occasionally complications may delay further breast cancer treatment such as chemotherapy or radiotherapy.

Other limitations

You may need more hospital appointments and operations to get the desired cosmetic result.

If you need radiotherapy after your reconstruction, this can affect the appearance of your reconstructed breast.

Will a reconstructed breast have a nipple?

Reconstructed breasts may or may not have a nipple.

Women who have a mastectomy may have their nipple removed as part of the operation. This sometimes includes removing the areola or part of it. The areola is the darker area of skin around the nipple.

For some women it's possible to keep the nipple. This is known as a nipple-sparing mastectomy.

Sometimes the nipple is removed and reattached to the reconstruction. This procedure is known as nipple grafting.

Your surgeon will discuss which type of operation is appropriate for you.

Deciding about reconstruction

Choosing whether to have breast reconstruction or when to have it is a complex and personal decision.

You may need more than 1 appointment with your treatment team before you feel confident deciding what's best for you.

It's important to take time to consider your options without feeling under pressure to decide.

Some women feel they need reconstruction to restore their confidence.

Others choose not to have reconstruction and prefer to wear an artificial breast form, called a prosthesis, inside their bra to restore their shape.

Some women choose not to have reconstruction and not to wear a prosthesis.

You may choose to delay your reconstruction (see page 15), which can be an option if you do not want to decide straight away.

Even if you decide not to have reconstruction, you can still change your mind in future and have surgery months or years later. You may want to talk to your treatment team about what your options might be in future.

There's no right or wrong choice. It's important to do what's best for you.

Helping you decide

It can be helpful to talk to other women who have had breast reconstruction before making your decision.

Sometimes people find it helpful talking to women who have chosen not to have a reconstruction before making a decision.

We can put you in touch with someone who has and who hasn't had a reconstruction through our Someone Like Me service. Call our helpline on **0808 800 6000** or visit breastcancernow.org for more information.

Your breast care nurse or treatment team may also be able to arrange for you to speak to someone.

The charity Keeping Abreast offers information and support specifically about breast reconstruction. Visit keepingabreast.org.uk

Flat Friends (flatfriends.org.uk) offers support and information for women who have had a mastectomy without reconstruction.

You might also find the organisations listed on page 56 useful.

For information on breast prostheses, you can read our booklet **Breast prostheses, bras and clothes after surgery**.

Timing of breast reconstruction

Immediate reconstruction

Reconstruction at the same time as breast cancer surgery is known as immediate breast reconstruction.

Your breast surgeon may discuss a skin-sparing or nipple-sparing mastectomy. This is removal of the breast tissue and sometimes the nipple area without removing the overlying skin of the breast.

Your breast surgeon will discuss which type of operation is appropriate for you.

Benefits of immediate reconstruction

- You'll have a breast shape straight away, which may help you feel more confident with your appearance after surgery
- If the skin of the breast and the nipple are preserved, the cosmetic results can be better than with a delayed reconstruction
- There may be less scarring than with a delayed reconstruction

Limitations of immediate reconstruction

- Your operation and recovery will be longer than having a mastectomy without reconstruction
- If you develop complications after surgery that slow down wound healing, such as an infection, this may occasionally delay any additional treatments such as chemotherapy or radiotherapy
- If you're having radiotherapy after surgery, it can sometimes affect the appearance of immediate reconstruction, which may mean you need more surgery in the future

Delayed reconstruction

You can have a reconstruction months or even years after your breast surgery. This is called delayed reconstruction.

During this time you may adjust to your mastectomy and feel that you no longer want to go through further reconstruction surgery. It's OK to change your mind.

Benefits of delayed reconstruction

- You will have completed most or all your breast cancer treatment before you have reconstruction
- You'll have more time to consider your options and make a decision about the type of reconstruction you would like
- If you have pre-existing medical conditions, having a delayed reconstruction may allow these to be managed so the operation can be done safely

Limitations of delayed reconstruction

- You'll be flat after your mastectomy and may want to wear a breast prosthesis for symmetry until you have your reconstruction. This could be many months or years
- The cosmetic appearance of delayed reconstruction may not be as good as having an immediate reconstruction
- There may be more scarring with delayed reconstruction
- You will not be able to keep your nipple
- If you have had previous radiotherapy, this may limit your options for delayed reconstruction
- While delayed reconstruction is available on the NHS, in some areas there may be a long wait

Questions to ask your surgeon

Discussing your operation with your breast or plastic surgeon before deciding is important.

They'll want to make sure you fully understand the process and, if you're having reconstruction, have realistic expectations of how your reconstructed breast will look and feel.

Make sure you've got all the information you need and have received answers to all your questions before making an informed decision.

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 questions you may want to ask your surgeon.

Making decisions

Which reconstruction would be best for me and why?

What are the benefits, limitations and risks of this type of surgery?

Am I suitable for immediate reconstruction?

Reconstruction and your other treatment

Can reconstruction delay my other cancer treatments, like chemotherapy and radiotherapy?

If I need radiotherapy will this affect my options for reconstruction?

Preparing for reconstruction

Can you show me where the scars would be on my body and what they would look like?

Can I keep my nipple? If not, what are my options to recreate a nipple in the future?

Can you show me any photographs or images of your previous breast reconstructions?

Can I see the type of implant I might have?

Can I speak to someone who has had the same type of reconstruction?

Recovery

How long would I have to stay in hospital?

What drains or dressing may I have?

What is the recovery time for this operation?

How much pain is there likely to be?

When would I be able to move about, exercise and drive?

Would I need to wear a support bra or support underwear after the operation?

After reconstruction

What will my breast look and feel like after surgery?

Will I need any additional surgery or procedures after my reconstruction?

Can I see pictures of breast reconstructions?

People often want to see photographs or pictures of different types of reconstruction.

While it may be helpful to look at images online or in booklets, asking to see photographs from your own surgeon can be a good way to help you prepare.

Reconstruction with breast-conserving surgery

Breast-conserving surgery, also known as wide local excision or lumpectomy, is the removal of the cancer with a margin (border) of normal breast tissue around it.

Most women having breast-conserving surgery will not need reconstruction.

However, surgical techniques can be used to maintain the shape and symmetry of the breast when the cancer is removed.

Combining surgery to remove the cancer with techniques to improve the look of the breast is called oncoplastic surgery.

Repositioning the remaining breast tissue

During the same operation to remove the cancer, the remaining breast tissue can be repositioned to shape the breast and fill the area where the cancer was removed.

This type of surgery is known as therapeutic mammoplasty.

This technique usually reduces the size of the affected breast. You're likely to be offered surgery to your other breast to reduce its size and restore symmetry, either at the same time or later.

Marking the position of the cancer

The surgeon should mark the original site of the cancer using small surgical clips that are left in the breast.

This helps with planning radiotherapy or for future breast screening.

It's also important if tests after surgery show more breast tissue needs to be removed.

Partial breast reconstruction

This involves replacing breast tissue that's been removed using skin and fat from the side of the chest or the back.

Procedures include:

- LICAP (lateral intercostal artery perforator) flap
- LTAP (lateral thoracic artery perforator) flap
- AICAP (anterior intercostal artery perforator) flap
- MICAP (medial intercostal artery perforator) flap

These take their name from the blood vessels in the areas of the body the tissue is taken from.

This type of reconstruction can be used when breast cancer has been removed from the outer or lower part of the breast.

Your surgeon may talk to you about other flap reconstruction options.

Improving the appearance of the breast

A technique called lipomodelling may be used after breast-conserving surgery to improve the appearance of the breast. See page 41 for more information.

Reconstruction using an implant

This type of breast reconstruction uses a breast implant to restore the shape and volume of the breast after a mastectomy.

Most breast implants are made of silicone, though some contain a combination of silicone and salt water (saline).

Implants can be used in immediate or delayed reconstruction.

Who might be offered reconstruction with an implant?

You may be offered an implant reconstruction if you do not have enough tissue elsewhere on your body to create a breast shape.

You may be offered a choice between having an implant or reconstruction using your own tissue.

Having an implant usually involves a shorter operation than other types of reconstruction. It may be suitable for people with existing health conditions that would prevent them from having a longer operation.

How reconstruction using an implant will look and feel

Breast implants are round or teardrop shaped and can often provide a close match to a natural breast shape.

The breast will be firmer and move less naturally than when your own tissue is used for reconstruction.

The reconstructed breast can also feel colder and heavier than your natural breast.

It will not droop with age and may look higher than the other breast, particularly as you get older.

If you lose or gain weight, this will affect the natural breast but not the reconstructed breast, causing a difference in shape and size.

At some point you may need more surgery to the reconstructed breast, or to the other breast, for a better match.

Should I have reconstruction with an implant?

Benefits of having reconstruction using an implant

- The operation is usually quicker than breast reconstruction using your own tissue
- Recovery time is usually shorter than breast reconstruction using your own tissue
- There's usually less scarring and no additional scars elsewhere on your body
- Reconstruction using an implant can give a good cosmetic result

Limitations of having reconstruction using an implant

- Implants can feel firmer and colder and move less naturally than reconstruction using your own tissue
- When you're not wearing a bra, there may be a more obvious difference in shape with the natural breast, as the reconstructed breast is less likely to droop
- You'll have scars on or around the reconstructed breast
- As with all types of reconstruction, the reconstructed breast will have less or no sensation compared to the natural breast
- You may need surgery in the future to replace the implant if it gets damaged or if you develop hardening around the implant (see page 51)
- You may need surgery to the other breast to create a closer match
- If you have an expander implant (see page 23) you may need more hospital visits to expand the implant
- Some people may notice folds or wrinkles on the skin at the top of the implant, known as rippling (see page 52)

Types of breast implant

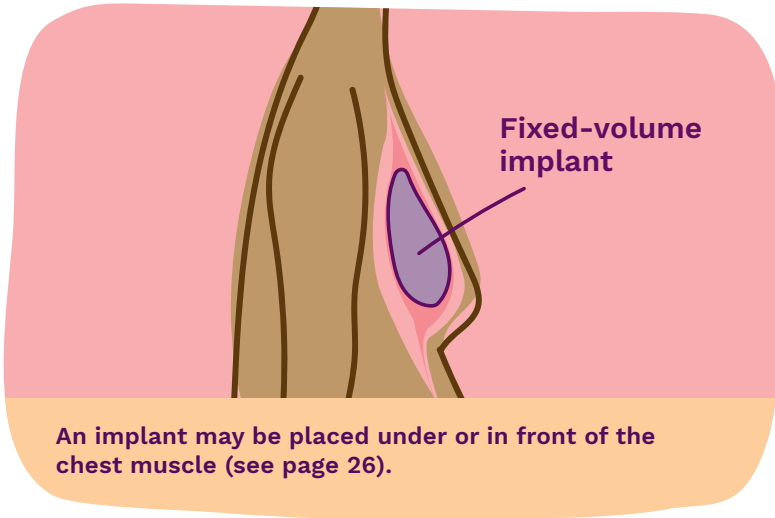
There are 2 types of breast implant.

Fixed-volume implant

A fixed-volume implant has a silicone outer shell and is usually filled with silicone.

Using a fixed-volume implant alone is the simplest type of reconstruction operation.

The recovery time is usually quicker than for other types of reconstruction.



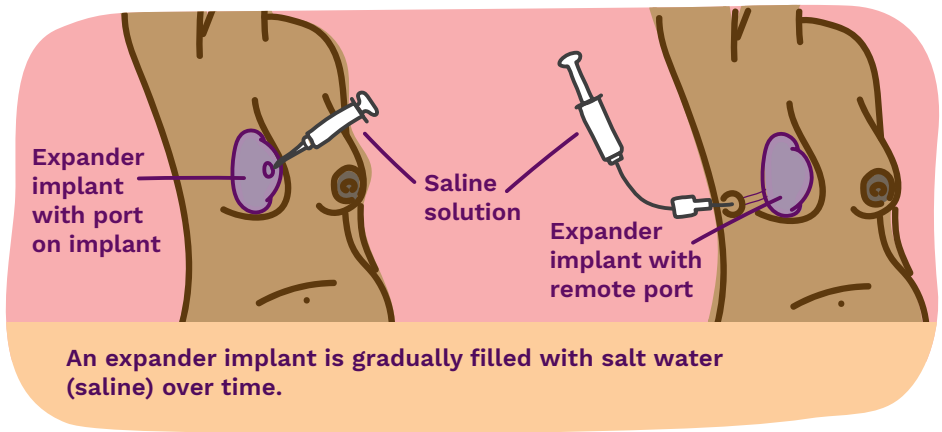
Tissue expander implant

An expander implant is an empty implant or one that's partly filled with silicone, which has a silicone outer lining.

After surgery, the implant is gradually filled or "inflated" over time using salt water (saline).

The saline solution is injected into a valve (port) just under the skin, usually every 1 or 2 weeks though timing may vary. This is to slowly stretch the skin over time.

The port may be on the surface of the implant or connected to the implant with a small tube (remote). If you have an implant with a remote port, you may be able to feel the port under the skin along the bra line.



This type of reconstruction is often considered if you do not have enough skin left on your chest to comfortably cover and support an implant, especially if you're having delayed reconstruction.

A tissue expander implant may also be considered when you have a skin-sparing mastectomy and your treatment team may be worried about wound healing.

It may not be suitable if you have had radiotherapy. This is because radiotherapy reduces the elasticity and quality of the skin.

Tissue expander implants can sometimes feel heavier, firmer and less natural than fixed-volume silicone implants.

How implant reconstruction is done

Immediate reconstruction

Immediate reconstruction using an implant can be done as a single or 2-stage procedure.

Single procedure

A fixed-volume silicone implant is inserted in front of or under the chest muscle at the same time as your mastectomy.

2-stage procedure

Some women have a temporary tissue expander implant which is expanded over time and later replaced with a fixed-volume silicone implant.

This might also be referred to as a delayed-immediate reconstruction.

Delayed reconstruction

A tissue expander implant is placed either in front of or behind the chest muscle, usually through the mastectomy scar.

The expander is gradually inflated over time using saline.

Once it has been fully inflated, the expander implant may be left in place or it may be replaced with a fixed-volume silicone implant.

How long implants last

Most breast implants are expected to last between 10 and 20 years and will probably need replacing at some point.

However, you do not need to have your implant replaced unless you are having problems with it.

Supporting the breast implant

A surgical mesh can be used during breast reconstruction to support the breast implant. It's attached to the chest muscle to create a pocket that holds the implant in place. This helps create a natural droop, shape and contour.

ADM (acellular dermal matrix) is a type of mesh made from animal tissue, usually pig or cow skin.

If you don't want your surgeon to use products made from animal skin, talk to them about possible synthetic alternatives.

An ADM or synthetic mesh may be more suitable for women with small or medium-sized breasts.

Not all implants need a mesh to support them.

If you have larger, more droopy breasts, your surgeon may consider using your own tissue from the lower half of the breast to support the implant. This procedure is known as a dermal sling. Having this type of surgery is likely to reduce your breast size. You may need further surgery to the other breast, either at the same time or in the future, to get a better match.

Placement of implants

Implant under the chest muscle

Inserting the implant under the chest muscle helps to keep the implant in the right place and hide its outline.

A surgical mesh (see page 25) is attached to the chest muscle and used to cover the lower part of the implant. This can give a more natural appearance and avoid overstretching the chest muscle.

Sometimes after surgery the chest wall muscle can contract, causing the breast implant and overlying skin to move. This is known as breast animation deformity. It can sometimes be visible within the cleavage area of the breast and may cause discomfort.

Implant in front of the chest muscle

Placing the implant in front of the chest muscle is a newer technique and may not be suitable for everyone.

A surgical mesh stitched to the chest muscle covers the implant and provides support. This helps improve the appearance of the reconstructed breast and creates a natural droop.

Are breast implants safe?

Implants used in the UK meet specific safety standards and surgeons continue to recommend them to women considering breast reconstruction.

Breast implant-associated illnesses

Two very rare types of cancer have been found in a very small number of women with breast implants. These are called breast implant-associated anaplastic large cell lymphoma (BIA-ALCL) and breast implant-associated squamous cell carcinoma (BIA-SCC).

The most common symptom for BIA-ALCL and BIA-SCC is a swelling around the implant and breast.

If you develop a lump or a swelling around your implant, regardless of how many years later, contact your GP or treatment team so you can get your symptoms checked out.

In most cases BIA-ALCL and BIA-SCC can be treated successfully by removing the implant.

If you're considering having implants, your treatment team will talk to you about the risks of BIA-ALCL and BIA-SCC.

Breast and Cosmetic Implant Registry (BCIR)

If you have breast reconstruction using an implant, you'll be asked to have this recorded on a national registry.

This is so your details can be easily found if implants ever need to be recalled or removed.

Talk to your surgeon or treatment team if you'd like to know more about this.

Your surgeon should give you information about your breast implant such as the manufacturer, serial number and type of implant.

Reconstruction using your own tissue

This type of breast reconstruction uses your own tissue, including the skin, fat and sometimes a muscle, to create a new breast shape.

The tissue used to create the breast shape is called a flap. This type of reconstruction is commonly called flap or autologous reconstruction.

Tissue is most commonly taken from your tummy (lower abdomen), but can also be taken from the buttock, inner thigh or back. The area the tissue is taken from is known as the donor site.

Reconstruction using your own tissue can be used in immediate or delayed reconstruction.

Who might be offered reconstruction using their own tissue?

Women with larger breasts that have a natural droop may be more suited to this technique.

Flap reconstruction is commonly used in delayed reconstruction, particularly if you have had radiotherapy. This is because radiotherapy can increase the risk of complications with implant reconstruction.

Women who do not want to have an implant may feel using their own tissue is a better option.

When it may not be suitable

Flap reconstruction may not be suitable if:

- You have pre-existing health conditions, such as diabetes
- You smoke, as smoking significantly increases your risk of complications
- You're very overweight (have a high BMI), as your risk of complications is much higher
- You're very slim, as you may not have enough tissue to use

How reconstruction using your own tissue will look and feel

Using your own tissue means the reconstructed breast will look and feel more similar to your natural breast, compared to using an implant.

Reconstruction using tissue instead of an implant may also provide a better match with your other breast in the long term. This is because tissue used in flap reconstruction is affected more naturally by gravity, ageing and weight change.

However, a reconstructed breast will usually have less or no sensation compared to your natural breast.

Because the skin used for the reconstruction is taken from another area of the body, it may be a slightly different shade or texture to the rest of the breast.

Should I have reconstruction using my own tissue?

Benefits of having reconstruction using your own tissue

- The appearance and feel can be much closer to your natural breast compared to implant reconstruction
- If you gain or lose weight the reconstructed breast will change in a similar way to the other breast
- The reconstructed breast will develop a natural droop as you age
- Although you may have a longer operation or more operations initially, you're less likely to need further surgery in the future compared to implant reconstruction
- The procedure is suitable for all breast shapes

Limitations of having reconstruction using your own tissue

- You'll have scars on your body where the tissue flap was taken from, as well as scars on or around the reconstructed breast
- It usually involves a longer operation, hospital stay and recovery time than implant reconstruction
- As with all types of reconstruction, the reconstructed breast will have less or no sensation compared to the natural breast
- The area of skin that is transferred from a different part of your body may be a different colour, texture or have more hair than the skin on your breast
- There's a small risk the reconstruction flap may fail if the blood supply is not good enough

How reconstruction using your own tissue is done

During surgery, skin, fat and sometimes muscle are taken from another part of the body (donor site) and used to create the reconstructed breast.

The donor site needs a good blood supply for flap reconstruction to be successful.

There are 2 ways your surgeon can achieve this.

Free flap reconstruction

This involves taking tissue along with its blood supply from the donor site, for example the tummy.

The flap is moved to the chest area. The blood supply is then reconnected to blood vessels in the chest area.

Pedicled flap reconstruction

The tissue from the donor site remains attached to its blood supply. The flap and blood supply are then moved to the chest area to create the breast shape.

Breast Cancer Now's Someone Like Me service can put you in touch with someone who has had the type of reconstruction you're considering. See page 13 for more details.

You can also find further information and support about breast reconstruction on the Keeping Abreast website keepingabreast.org.uk

Why a good blood supply is important

Having a good blood supply is very important, particularly if you're having a free flap reconstruction.

If the flap does not have a good blood supply the tissue may die.

You may have specialised scans before your operation to look at the blood supply to the tissue which will be used to create your new breast.

In the first few days after your reconstruction, the reconstructed breast will be closely monitored to check the blood supply is good and the tissue remains healthy.

If there are problems, you may need another operation to check the blood supply.

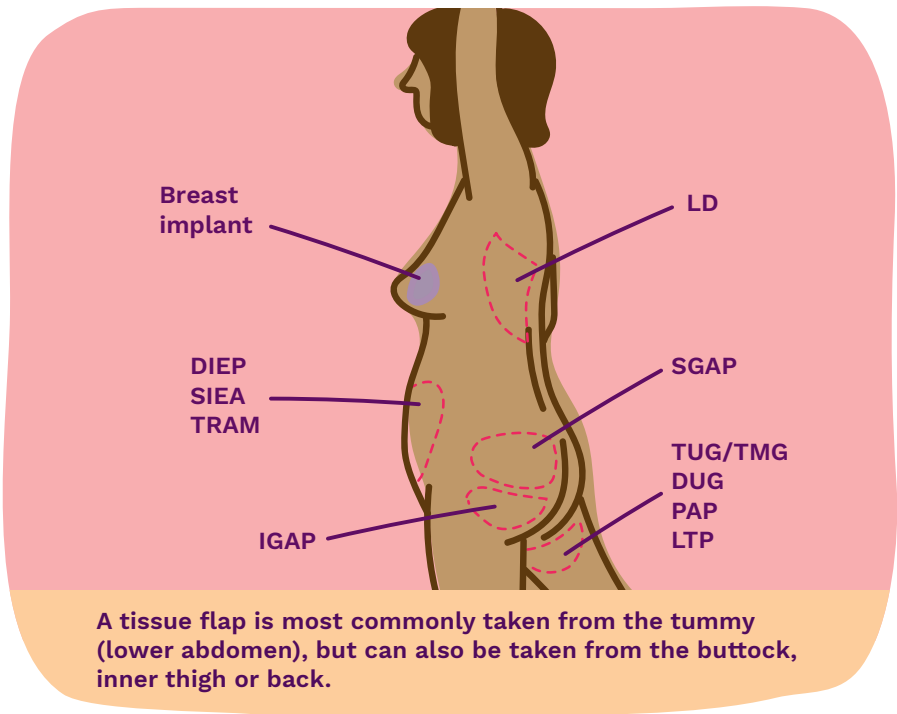
If the blood supply is not good enough you may lose part or all of your breast reconstruction (see page 51). This does not happen very often, and your surgeon can talk you through the risk.

Different reconstruction options

There are many different types of flap reconstruction. Surgeons are constantly developing new ways of improving the cosmetic result.

Your surgeon and breast care nurse will tell you about the reconstruction options that may be suitable for you.

It's important you're given information about all suitable reconstruction options. If a type of reconstruction is suitable for you but not offered at your local hospital, you can ask your treatment team about being referred to a hospital that offers it.



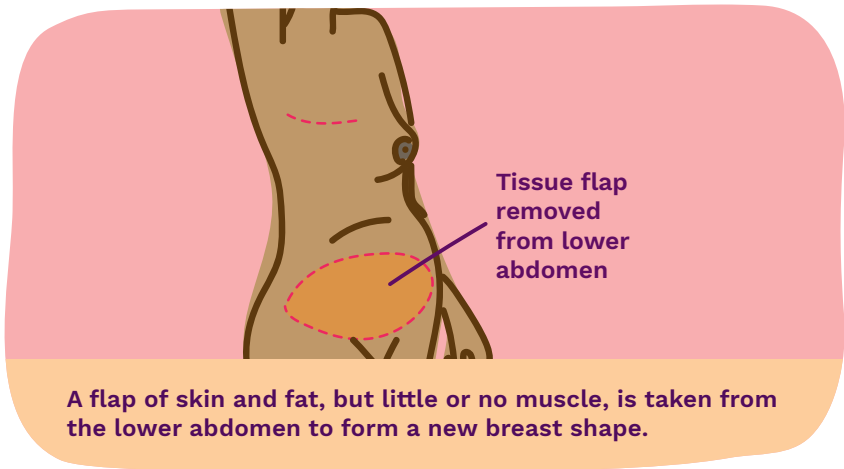
DIEP flap

The most commonly used flap reconstruction is a DIEP flap.

A DIEP reconstruction uses a free flap of skin and fat, but little or no muscle, to form the new breast shape.

The flap is taken from the lower abdomen. It includes the skin and fat between the belly button and the groin, along with the blood vessels.

It's called DIEP because it uses deep blood vessels called the deep inferior epigastric perforators.



As little or no muscle is removed, the strength of the abdomen is usually not affected. This means there's very little chance of developing a hernia (see page 52).

DIEP flap reconstruction is major surgery involving a long and complex operation, and you will need to be in good overall health to go through it.

Scarring after DIEP reconstruction

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

If you have a skin-sparing mastectomy without keeping the nipple, there may also be a circular scar around where your nipple was.

SIEA flap

This is similar to the DIEP flap as it uses skin and fat, but no muscle, from the lower abdomen.

However, the blood vessels taken are nearer the surface than the deep vessels used in the DIEP flap.

SIEA stands for superficial inferior epigastric artery.

The blood supply might not always be good enough to have this procedure.

The operation and recovery time are similar to those for the DIEP flap.

TRAM flap

TRAM flap reconstruction uses muscle, fat and skin from the abdomen to form a new breast shape.

It's rarely used, but may be offered if a DIEP flap reconstruction is not suitable.

TRAM stands for transverse rectus abdominis muscle. This is the large muscle that runs from the lower ribs to the pelvic bone in the groin.

LD flap

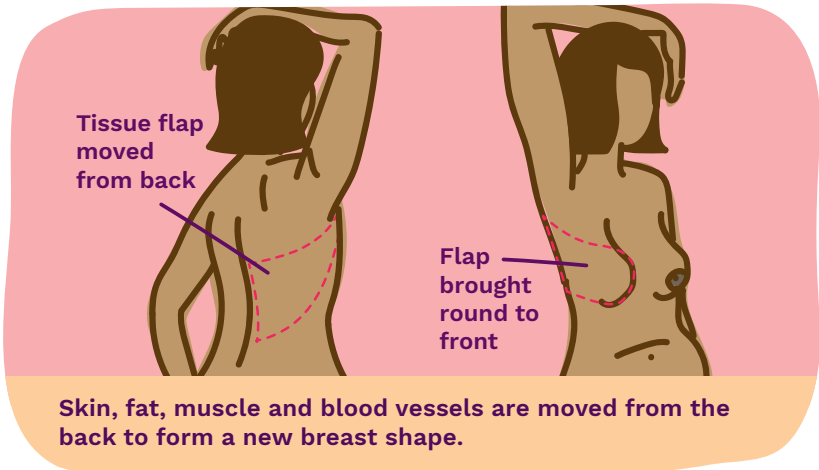
This procedure uses a large muscle in the back just below the shoulder blade, known as the latissimus dorsi muscle.

The skin, fat, muscle and blood vessels are moved from the back but remain attached to the body at the end nearest the armpit.

The flap is then turned and carefully tunnelled under the skin below the armpit. It is brought round to the front of the body to lie on the chest wall and form the new breast.

It's sometimes necessary to use an implant under the flap to help create a breast that's a similar size to the other one.

An expander implant (see page 23) is sometimes used, particularly in a delayed reconstruction. The expansion process starts when the tissue flap has healed, usually 2 or 3 weeks after surgery.



After recovering from an LD flap reconstruction, some women may notice weakness or stiffness in the shoulder during everyday activities. Possible weakness will be an important consideration if you're very active, for example if you regularly swim, climb, row, play tennis or golf.

Scarring after LD reconstruction

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.

Other free flap reconstructions

The following techniques are mainly used when other types of reconstruction are not suitable.

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.

Not all surgeons offer these techniques, so you may need to travel to another hospital if you need this type of surgery.

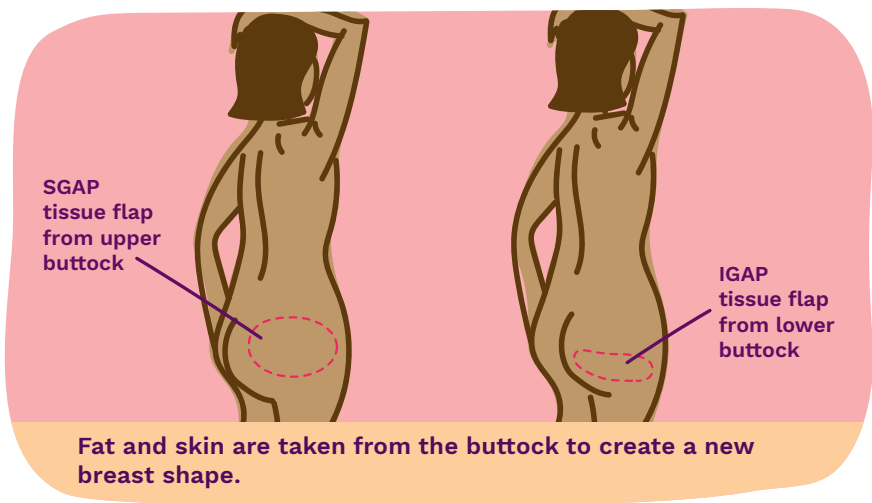
As with all types of flap reconstruction, these techniques are generally not suitable for women who have diabetes, are smokers or are very overweight.

Reconstruction using tissue from the buttock

Two procedures use fat and skin taken from the buttock to create a new breast shape:

- SGAP (superior gluteal artery perforator) flap – tissue from the upper buttock
- IGAP (inferior gluteal artery perforator) flap – tissue from the lower buttock

Tissue taken from the buttock area can feel firmer than your natural breast tissue.



Scarring after SGAP/IGAP reconstruction

There will be a scar and an indentation in the top of the buttock area (SGAP) or lower buttock crease (IGAP). One buttock may be smaller than the other one, which may be noticeable when wearing tighter fitting clothing.

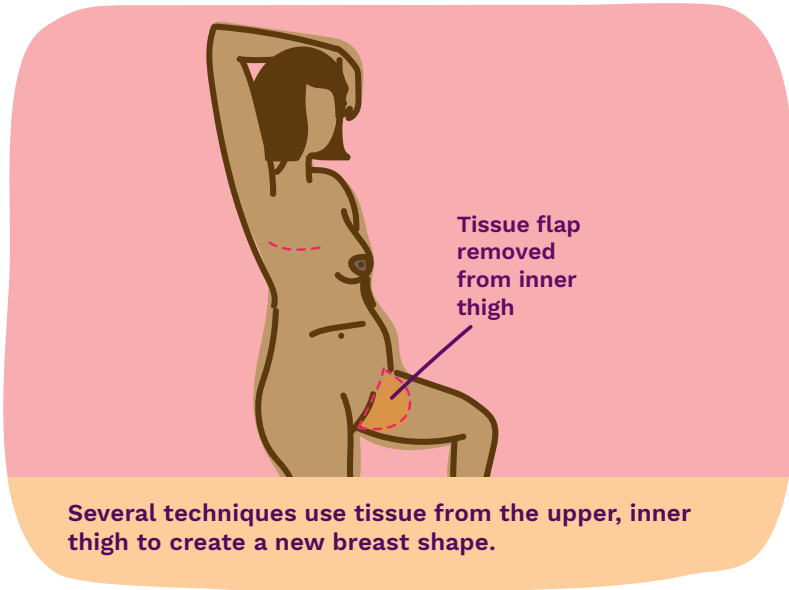
Reconstruction using tissue from the thigh

A number of free flap procedures involve taking tissue from the upper, inner thigh. These include:

- TUG/TMG (transverse upper/myocutaneous gracilis) flap
- DUG (diagonal upper gracilis) flap
- PAP (profunda artery perforator) flap
- LTP (lateral thigh perforator) flap

These procedures may be suitable for women with small or medium-sized breasts.

The inner thigh fat generally feels soft and, therefore, similar in texture to the breast fat.



You may have to wear supportive underwear for some weeks after surgery to reduce the risk of swelling, bruising and fluid collection.

This type of reconstruction can lead to some unevenness of the upper thighs. Your breast care nurse or surgeon will discuss this with you in more detail.

Scarring after inner thigh flap reconstruction

The scar is placed in the fold of the groin and runs to the fold of the buttock area. You will also have a scar on the breast where the flap is placed. You can discuss with your surgeon how the scar will look.

Other techniques

There are other reconstruction techniques using flaps from other areas of the body that are not listed here. Your treatment team may discuss 1 of these if they feel it may be a suitable option for you.

Fat transfer (lipomodelling)

This technique involves taking fat from 1 part of the body, such as the tummy, thigh or lower back, and injecting it into the breast.

Lipomodelling can be used:

- After breast-conserving surgery to improve the appearance of the breast
- After breast reconstruction to adjust the size or shape of the breast, or to hide visible rippling from an implant (see page 52)

Lipomodelling may also be considered:

- After a mastectomy and radiotherapy before delayed breast reconstruction to improve the skin
- To reconstruct a breast

It's usually done under a general anaesthetic as a day case procedure, although it can be done under a local anaesthetic.

The procedure may need to be repeated several times to get the desired shape and appearance.

Most people recover well after this procedure. You'll usually have some small scars where fat has been removed. Bruising, swelling and pain in the area where the fat is taken is common and will usually settle over time.

Sometimes a lump, known as fat necrosis, can form in the area where fat was injected (see page 53).

Comparing types of reconstruction

	Implant	DIEP/SIEA
Implant used?	Yes	No
Surgery time	1.5–3 hours	4–6 hours
Hospital stay	1–3 days	3–5 days
Recovery time	4–6 weeks	6–12 weeks
Scars	Scar on breast only	Scar on breast Scar on bikini line that runs from hip to hip and around the belly button
Effect on muscle?	Sometimes – if implant is placed under the chest muscle, the muscle may be affected (see page 26)	Little or none
Sensation in breast after surgery?	Loss of sensation	Loss of sensation
Other considerations	Suitable if you don't have enough tissue elsewhere for flap reconstruction May need more surgery in future for example to replace implant May not be suitable if you smoke	May not be suitable if you: <ul style="list-style-type: none"> • Have pre-existing health conditions • Have scars on your abdomen from previous surgery • Smoke • Have a high BMI • Are very slim

LD	SGAP/IGAP	TUG/TMG/PAP/DUG/LTP
Implant may be used	No	No
4–6 hours	4–6 hours	4–6 hours
3–5 days	3–5 days	3–5 days
6–12 weeks	6–12 weeks	6–12 weeks
Scar on breast Scar on back	Scar on breast Scar either at top (SGAP) or bottom (IGAP) of buttock(s)	Scar on breast Scar in fold of groin extending to fold of buttock area
Yes – can experience weakness or stiffness in shoulder and back	No	Yes – a small strip of muscle may be used which can rarely cause muscle weakness
Loss of sensation	Loss of sensation	Loss of sensation
May affect your ability to do certain sports such as climbing, golf, weightlifting, racket sports and swimming May not be suitable if you: <ul style="list-style-type: none"> • Have pre-existing health conditions • Smoke • Have a high BMI 	May be visible differences between the buttocks May not be suitable if you: <ul style="list-style-type: none"> • Have pre-existing health conditions • Smoke • Have a high BMI 	May affect ability to do certain sport May not be suitable if you: <ul style="list-style-type: none"> • Have pre-existing health conditions • Smoke • Have a high BMI

Nipple reconstruction, tattooing and prostheses

If it's not possible to keep your nipple when you have a mastectomy and reconstruction, a nipple can be created, usually at a later date.

This can be done using surgery or a nipple tattoo, or a combination of both.

Whether you have nipple reconstruction or nipple and areola tattooing is a personal choice.

Some people feel it's the final part of their reconstruction while others choose not to have it done.

Nipple reconstruction

Nipple reconstruction is usually done several months after your breast reconstruction surgery. This allows the reconstructed breast to fully heal and settle into the correct position.

Your surgeon can then position the new nipple to match the opposite side.

Nipple reconstruction involves using part of the skin from your reconstructed breast to create a nipple. It's usually done as day surgery.

Your surgeon can talk through the operation and the risks and benefits with you.

The reconstructed nipple usually flattens over time.

Nipple and areola tattooing

Nipple and areola tattooing is an option if you have had a nipple reconstruction. It can give a more natural appearance and match with the opposite breast.

It can also be offered to give the appearance of a nipple and areola without having a nipple reconstruction.

Your treatment team will let you know if they offer nipple tattooing or can refer you to another hospital to have it done.

Some hospitals offer 3D nipple and areola tattooing, which gives a more realistic appearance of a nipple through tattooing.

Nipple tattooing may be done over several outpatient appointments. As there is usually no sensation in the breast, the area does not need to be numbed. But sometimes a local anaesthetic may need to be applied if the area being tattooed has sensation.

Nipple prosthesis

Another option is to use prosthetic nipples.

These are artificial nipples made of soft silicone that can be worn on a reconstructed breast.

They are either self-sticking or come with special skin glue that can hold the prosthetic nipple in place for several days.

Prosthetic nipples come in different sizes and skin colours. Some hospitals custom-make them, so they match the nipple on your other breast.

You can find out more about prosthetic nipples and how to get them in our booklet **Breast prostheses, bras and clothing after surgery**.

During and after surgery: what to expect

Your operation

Your operation will be done under general anaesthetic.

How long your surgery lasts will depend on the type of breast reconstruction you have. You can find rough timings on the chart on page 42.

After your operation

When you wake up, you'll have dressings on your reconstructed breast or breasts. If you had surgery using your own tissue, you'll also have dressings on the area the tissue was taken from.

You may have dissolvable stitches, or you may have non-dissolvable stitches that will need to be removed usually 7 to 10 days after surgery. You may also have paper stitches (steristrips) that need to be removed.

Fluid can build in the areas you had surgery. You may have wound drains inserted during the operation. These are tubes that drain blood and fluid from the wound into a bottle or small bag.

Our booklet **Your operation and recovery** covers what to expect before you go into hospital, during your stay, when you have returned home and during your recovery from surgery.

Monitoring the blood supply

If you have reconstruction using your own tissue, your reconstructed breast will be monitored closely. This is to make sure the area has a good blood supply and there's no swelling.

It's important to keep your reconstructed breast warm in the first 24 to 48 hours after your operation. This helps improve blood flow. You may be given padding or a special blanket to help with this.

Pain and discomfort

You'll be given pain relief after your operation.

There are many types of pain relief and different ways of giving it.

It's common after breast reconstruction to have pain relief through a device called a PCA (patient-controlled analgesia). This is a pump that gives pain relief straight into your vein when you press a button. It's usually removed a day or 2 after surgery.

After this you'll usually continue to have pain relief as tablets, and you'll be given some to take home with you.

If you have ongoing pain that does not improve, let your treatment team know so they can assess you.

Exercises after breast reconstruction

A physiotherapist or your breast care nurse or surgeon may give you some exercises to do after your surgery. These exercises may be specific to the type of breast reconstruction you have had.

If you had surgery to the lymph nodes under your arm, you may also be given exercises to help you regain arm and shoulder movement after surgery.

Our **Exercises after breast cancer surgery** leaflet has more information on arm and shoulder exercises.

Bras and underwear after surgery

Your breast care nurse or surgeon will usually tell you what type of support bra you'll need to wear after your surgery.

It's a good idea to have at least 2 support bras so you can wear 1 while you wash the other.

You'll usually be advised to wear a bra during the day and night in the weeks after surgery.

Wearing a bra that's a back size bigger than your usual size can allow for any swelling after surgery.

You may also be advised what cup size you'll need depending on the type of reconstruction you're having.

A front-fastening bra is usually easier to put on and take off if you're having reconstruction using your own tissue. It may also make it easier for the team looking after you to monitor your reconstructed breast.

If tissue was taken from your tummy, buttock or inner thigh, you may also be told what type of support underwear you'll need, such as support pants or shorts. This helps reduce any swelling after surgery.

You may like to read our booklet **Breast prostheses, bras and clothes after surgery**.

Recovery time

Your recovery time will depend on the type of reconstruction you've had and your general health and fitness.

Most people can walk to the toilet a few hours after an implant reconstruction operation. You can usually go home the next day.

If you've had reconstruction using your own tissue, your treatment team will tell you when they expect you to be out of bed and walking around. You may need to stay in hospital for several days.

Returning to normal activities

How long it takes to get back to your normal daily activities will depend on what type of reconstruction you have had. Gradually reintroducing activities slowly is generally the best way.

You can read more about returning to normal activities, including driving and going back to work, in our booklet **Your operation and recovery**.

Getting used to your reconstructed breast

Adjusting to how your reconstructed breast looks and feels can take time.

It can take several months for your reconstructed breast to heal and settle and for your scars to fade.

It's important you're satisfied with the final look and feel.

If you're unhappy with the size or shape of the reconstructed breast or your other breast, let your breast care nurse or surgeon know. They can talk to you about possible options.

You may want to have further surgery to the reconstructed breast or to your other breast to give you a better match and symmetry.

It's not unusual to need several surgical procedures before your breast reconstruction is complete, including nipple reconstruction or tattooing and surgery to the other breast.

Possible problems soon after reconstruction

Bleeding and bruising

Sometimes blood collects in the reconstructed breast, causing swelling, discomfort and hardness. This is called a haematoma.

If a very large haematoma develops in the first few days after surgery, you may need an operation to stop the bleeding.

Bruising to the reconstructed breast, and any area where tissue was taken, is common. It usually goes away after a few weeks.

Wound infection

Contact your breast care nurse, surgeon or GP straight away if you have any signs of a wound infection, such as:

- The wound feeling tender, swollen or warm to touch
- Redness in the area
- Fluid (discharge) from the wound
- Feeling generally unwell with a raised temperature

You may need a course of antibiotics to stop an infection.

If an infection develops around an implant, it may not always respond to antibiotics. In this case, the implant might have to be removed to allow the infection to settle completely. If this happens, your surgeon will discuss your options for further surgery and reconstruction.

Delayed wound healing

Most wounds heal within 6 weeks of surgery.

Sometimes it takes longer and occasionally wounds can reopen along the scar line. Reasons for delayed wound healing include:

- Infection
- Pre-existing health conditions such as diabetes
- Being overweight
- Smoking

Build-up of fluid

A collection of fluid can develop in the reconstructed breast or any area tissue was taken from. This is called a seroma. The fluid is normally reabsorbed naturally over time.

If a seroma causes discomfort, is large or does not reduce in size, your surgeon may draw off the fluid with a needle and syringe.

Tissue failure (after flap reconstruction)

With all flap reconstructions, there's a small risk the flap does not have a good enough blood supply. This can cause part or all of the flap to fail.

Your treatment team will monitor the reconstruction closely in the days straight after your operation. If they're concerned, you may need another operation to try to assess the blood supply.

If the blood supply is not good enough, the surgeon will need to remove the affected tissue.

If you lose part or all of your reconstruction, your surgeon will talk to you about possible options for further reconstruction in the future.

Longer-term problems after reconstruction

Capsular contracture (after implant reconstruction)

After implant reconstruction, a thin layer of scar tissue builds up around the implant to form a capsule. This is part of the healing process.

In most cases this capsule stays soft, but sometimes it can toughen and tighten around the implant. This can make the breast feel hard and may distort the shape of the breast. Some people also have pain.

When this happens, it's called capsular contracture.

Capsular contracture may be more common in people who have had radiotherapy, infections or are smokers.

It may happen less often in people who have textured implants or an ADM surgical mesh (see page 25).

Mild cases often do not need treatment.

If the breast feels hard and looks misshapen, or you have pain, you may need to have the implant and capsule removed. It may be replaced with another implant, or your surgeon may discuss other reconstruction options.

Damaged or leaking implants

Some people worry about damaging their implant if they're doing activities such as sports.

Implants do not get damaged easily. Modern implant linings are strong, and the silicone gel is firm, which makes the risk of leaks and tears small.

Occasionally silicone gel may leak into the breast, forming a lump. If you can feel a lump or a scan shows an implant is damaged, you may need to have the implant removed and replaced.

Tell your GP, surgeon or breast care nurse if you notice any change in the shape of your reconstructed breast, or if it becomes misshapen, uncomfortable or swollen.

Rippling (after implant reconstruction)

Implants can sometimes crease. This can cause wrinkling or rippling which you may notice in any part of the breast.

This is often more common in people who are slim or who have had their implant placed in front of the chest muscle (see page 26).

If you have rippling, your surgeon may suggest injecting fat from another part of your body into the area on the breast to improve the appearance (see page 41).

Bulges or hernias (after flap reconstruction)

After some tissue flap reconstructions, there's a small risk of a bulge or hernia in the area the tissue was taken from.

A hernia happens when part of an internal organ, often a small piece of the intestine, bulges through a weak area in a muscle.

Hernias can be painful and can cause a noticeable bulge in the area tissue was taken from, such as your abdomen. You'll usually need an operation to repair a hernia.

The risk of a hernia is much lower if the tissue flap does not include a muscle.

Loss of sensation or altered sensation

Loss of sensitivity in the reconstructed breast can be difficult to come to terms with. You may also have loss of sensation in the area where a tissue flap was taken.

You may have nerve pain and altered sensation while your reconstruction is healing.

This may improve over time, but for some people the sensation will not return.

Fat necrosis and mastectomy flap necrosis

A lump can form if an area of fatty tissue in the reconstructed breast is damaged or if the blood supply is poor. It can also happen in the area where a tissue flap was taken.

The medical name for this is fat necrosis.

The lump or lumps can feel firm and round but usually soften over time.

In most cases the body will break down the fat necrosis over time. This could take a few months.

If your symptoms continue, your surgeon will talk through possible options to treat it.

If you notice a new lump or any changes in your reconstructed breast, let your treatment team know so they can check it out.

Sometimes a wound does not heal after reconstruction and areas of the skin can change colour, sometimes a dark red or even black. This may differ depending on skin tone. This can cause a scab to form or the scar to reopen. This is known as

flap necrosis. It happens if the blood supply to the skin is not good enough.

A small area of flap necrosis will often heal on its own. If it's larger, you may need surgery to remove the area of dead tissue.

Scars

Scar tissue is produced naturally by the body during healing.

Your surgeon will talk to you about the position and size of any scars you'll have. This will depend on the type of reconstruction you're having and your body shape.

Your treatment team can tell you when you can start moisturising and massaging your scars to help them heal.

It's important to use high factor sunscreen on your scars after your surgery.

At first your scars will feel uneven and may feel tight and tender. Scars are often red to begin with but fade and become less obvious over time.

Sometimes the body can produce too much collagen, causing scars that are more raised than usual. These are called hypertrophic scars and can take several years to settle.

Some people develop keloid scarring. This is similar to a hypertrophic scar but continues to grow and can cover normal tissue even after it has healed. Keloid scars can be painful, tender and itchy.

If you're concerned about your scars, let your breast care nurse, surgeon or GP know. They will assess you and let you know if you need any treatment to help with your healing.

Mammograms after breast reconstruction

You will not have mammograms on the reconstructed breast after a mastectomy. This is because there is no breast tissue to be scanned.

You'll be offered regular mammograms on your remaining breast.

You'll also be offered mammograms if you had breast reconstruction after breast-conserving surgery. This is to check any remaining breast tissue.

If you've had an implant in your other breast to match the reconstructed breast for symmetry, tell the radiographer. They may need to use a different technique to take an additional image of the breast during screening. It involves easing the breast tissue forward away from the implant so that it can be seen more clearly. The radiographer should explain the technique and why they think it's suitable for you.

Checking for changes after surgery

Whatever type of surgery you have, be aware of any changes to the breast, chest or surrounding area afterwards.

This is important even if you're having follow-up appointments or regular mammograms.

Things to look out for 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
- Redness or a rash on the skin or scar line of your reconstructed breast

For more information about how to check for changes after surgery, you may want to read our booklet **After breast cancer treatment: what now?**

Finding support

Useful organisations

Association of Breast Surgery (ABS)

associationofbreastsurgery.org.uk

Has an information section about breast surgery and reconstruction on its website.

British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS)

bapras.org.uk

The website has information on breast reconstruction and gives access to a list of plastic surgery units.

The British Association of Aesthetic Plastic Surgeons (BAAPS)

baaps.org.uk

The website has information for patients about cosmetic surgery, such as breast enlargement.

Flat Friends

flatfriends.org.uk

For women who have had a mastectomy without breast reconstruction. Offers support and information through their website and a closed Facebook group.

Keeping Abreast

keepingabreast.org.uk

Information and support for women considering breast reconstruction, including regular group meetings and expert talks.

Macmillan Cancer Support

macmillan.org.uk

Practical, emotional and financial support for people with cancer.

Medicines and Healthcare Products Regulatory Agency (MHRA)

gov.uk/guidance/breast-implants-and-anaplastic-large-cell-lymphoma-alcl

Has information about BIA-ALCL, a very rare type of cancer that affects a small number of people with breast implants (see page 27).

National Institute for Health and Care Excellence (NICE)

nice.org.uk/guidance/ipg417

Produces guidance on breast reconstruction using lipomodelling after breast cancer treatment.

Restore

restore-bcr.co.uk

Offers information and support to women having breast reconstruction surgery.

Useful publications

You may find it useful to read our publications on:

- **Your operation and recovery**
- **Breast prostheses, bras and clothes after surgery**
- **Family history of breast cancer: managing your risk**
- **Your body, intimacy and sex**

To find out more visit breastcancer.org/publications



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ABOUT THIS BOOKLET

Breast reconstruction was written by Breast Cancer Now'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:
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support charity

Information you can trust, support you can count on

Whatever breast cancer brings, we're here for you.

Whether you're looking for information about breast cancer or want to speak to someone who understands, you can rely on us.

Call **0808 800 6000** to talk things through with our helpline nurses.

Visit **breastcancer.org** for reliable breast cancer information.

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