

# Department of Plastic and Reconstructive Surgery

## Breast Reconstruction

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## **Introduction - All about breast reconstruction**

This booklet has been written for women who have undergone or are about to undergo a mastectomy and are considering breast reconstruction. A woman's breasts can be an important part of how she feels emotionally and sexually about herself. Some women are content to wear an external breast form (prosthesis) in their bra to restore their shape whilst others are not. There is no right or wrong way to feel about losing a breast. Everyone is different, and what matters is that you find the solution that suits you best.

Important decisions are involved for any woman considering breast reconstruction surgery to restore the appearance of her breast(s). The following information aims to help you to understand more about the different types of breast reconstruction, what breast reconstruction involves and the potential benefits as well as complications that may occur.

It is not possible in this booklet to tailor the information specifically for you as every woman's needs are different. You are also bound to have more questions than have been answered in this booklet. Therefore it is important for you to discuss these options with your breast surgeon, plastic surgeon and breast care nurse and any family and friends you wish to involve in helping you to decide what is best for you.

## **What is breast reconstruction?**

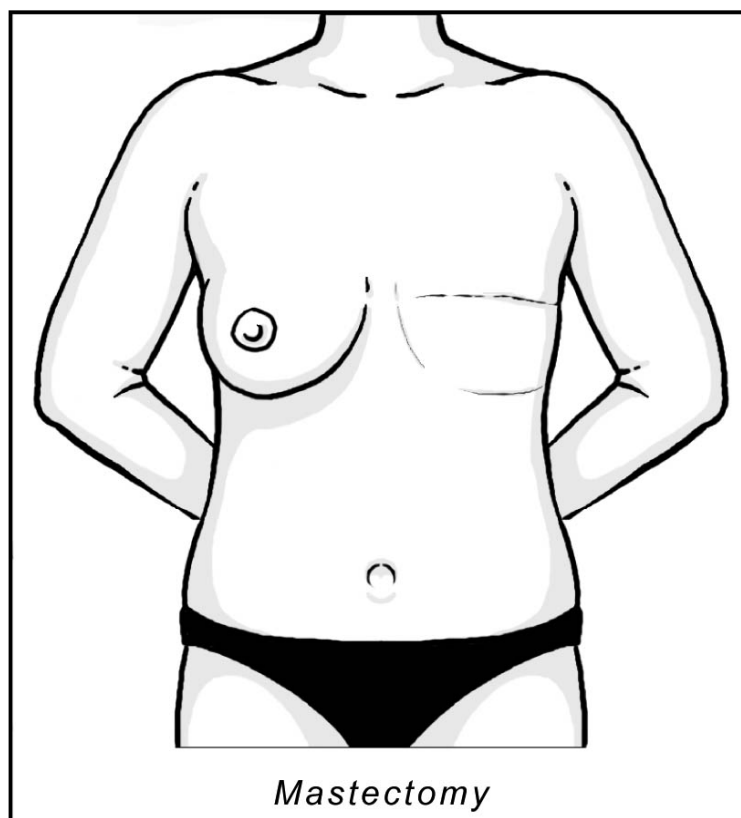
Breast reconstruction is an operation to replace the tissue removed during a mastectomy. The aim is to match the remaining natural breast as closely as possible by creating a breast 'mound' using an implant, your own tissues or a combination of both.

The technique that will be most suitable for you will depend on:

- Your general health and shape of your body
- Previous surgery
- Whether or not you have had or are going to have radiotherapy.
- Your choice and preference

It is not possible to make an exact copy of your own breast. Every effort is made to achieve the best possible breast reconstruction, but results from this type of surgery vary. Breast reconstruction will result in you having a breast 'mound' that will resemble your natural breast best in clothes. When undressed the reconstructed breast will be scarred, have no sensation, no nipple, it may be different in shape and size, may have less of a droop and appear more proud than your natural breast.

Additional surgery to your natural breast can be undertaken at the same time as the mastectomy or in the future to 'lift' it, or increase or reduce its size to make your breasts more even. A nipple reconstruction is also an option for the future. These extra surgical procedures will assist in making your reconstructed breast look more realistic both out of clothes and in. However, your reconstructed breast will never appear exactly as a 'real' breast would. As with all operations there are risks involved. It is therefore important in making your decision to weigh up the advantages and disadvantages of each technique for you personally. Only you will know how you feel about this and it is often helpful to explore these feelings with your family, friends or breast care nurse.



## When to have a breast reconstruction

If you have decided that you would like to consider breast reconstruction you will need to decide whether you would prefer an immediate reconstruction which is performed at the same time as the mastectomy, or delayed reconstruction which can be done at any time in the future after you have recovered from the mastectomy and completed any other treatment you may require. If you need radiotherapy this might affect your decision as this type of treatment may have an effect on the cosmetic result of your reconstruction. This will be discussed with you at your appointment with the plastic surgeon.

There are many reasons why women choose to have an immediate breast reconstruction. These may relate to lifestyle, how they feel about themselves, their relationships with others and having the surgery 'all over and done with'. Alternatively, women may also feel that taking one step at a time is preferable. Having a delayed reconstruction may allow more time to consider options and allow time to concentrate entirely on any possible follow-up treatment. Having breast cancer can be a complicated experience and you may need time to adjust to this experience.

Your surgery may be deferred for approximately one to four weeks whilst you take the time to see the plastic surgeon and make your decision regarding possible reconstruction. A date will then be arranged for your surgery when the breast surgeon and plastic surgeon will be available to perform the operation.

Immediate breast reconstruction may allow the breast surgeon to keep most of the breast skin (a skin sparing mastectomy) therefore minimising scarring on the reconstructed breast. Other cosmetic advantages are that keeping the skin of your own breast helps with breast shaping during reconstruction as it acts as an 'envelope' to fill. This may possibly reduce the extent of balancing surgery needed on the other breast to make both breasts similar in size and shape. The nipple and areola will need to be removed as part of the mastectomy.

There is currently no evidence to suggest that immediate breast reconstruction increases the risk of the cancer returning, nor that the presence of an implant or a flap in the reconstructed breast delays the detection of an abnormality.

If you decide to delay your decision, you have the option of being fitted with a breast form (prosthesis) to wear in your bra following your mastectomy. This not only helps with your appearance but also helps to maintain your posture and balance. If you wish to see some examples of a breast prosthesis do not hesitate to ask your breast care nurse.

Recovery time for each of the reconstructive options varies and is proportional to your age, level of pre-operative fitness and the length and complexity of the surgery performed.

## How is breast reconstruction carried out?

There are three main types of breast reconstruction:

1. Using an implant or expander.
2. Using a 'tissue flap' reconstruction where the muscle, skin and fat from your back or abdomen is moved to the chest.
3. Using a combination of both.

### Breast reconstruction using an implant

Any type of breast reconstruction using an implant may not be the best option if radiotherapy is needed, but does not have to be ruled out altogether.

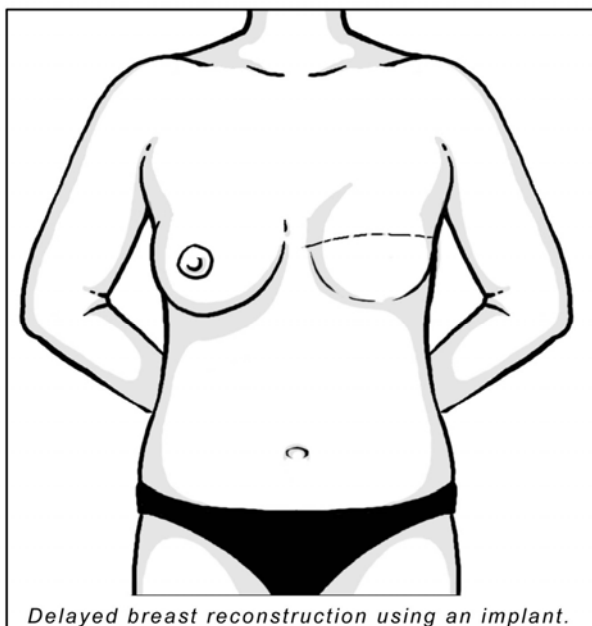
#### a. Using an implant under the chest muscle

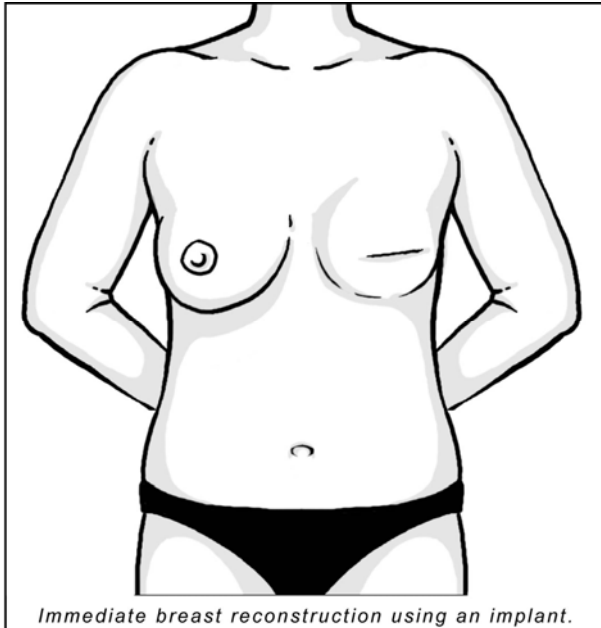
In the simplest form of breast reconstruction, an implant is placed beneath the muscles covering the chest (the main muscle is the pectoralis major). A large or droopy breast cannot be achieved using this method.

The scar from this type of operation is horizontal and may be straight or slightly 'puckered' and located in the centre of the reconstructed breast in immediate breast reconstruction. For delayed breast reconstruction the previous mastectomy scar is used. You should discuss where your scars would be located with your plastic surgeon. This operation involves a general anaesthetic and a stay in hospital of approximately three to five days with a recovery period of four to six weeks. Reconstruction using this method tends to give a 'proud' or prominent breast mound with minimal droopiness and it will not drop to the side when you lie down as a breast normally would.

As the implant is under the chest muscle, the reconstructed breast may alter in shape as you tense your chest muscle. It will return back to its usual shape as you relax the muscle again.

It is possible that you may see the outline of the shape of the implant, or indeed that you may see some folds and 'rippling' of the implant in some areas of your reconstructed breast. Your reconstructed breast may also appear fuller in its uppermost part. The whole reconstructed breast will have reduced touch sensation.





### **b. Breast reconstruction using tissue expansion**

This form of breast reconstruction involves the use of an 'expander' which is an inflatable 'implant' that is placed under the chest muscle. The expander has a port that allows it to be inflated with saline using a needle and syringe. This inflation process is repeated over a period of time, allowing your skin and muscle to stretch gradually until the desired size has been reached. Usually the expander is inflated so that the reconstructed breast is larger than the other side, allowed to mature and then deflated to a more equal size. This helps to

give the breast mound some 'droop' to appear more natural. The 'inflation' process can take up to a few months of weekly or fortnightly visits to the outpatient department.

This method of breast reconstruction can be performed as a one-stage procedure where a silicone implant that has an inflatable inner chamber is used. After the desired volume has been achieved through inflation and deflation, the port can remain in place under the skin (if it is not bothering you) or can be removed or hidden behind the implant. This is usually done as day surgery using general anaesthesia. The port in this type of expander can at times turn over under the skin so that it cannot be reached although this is very rare.

The alternative method involves inserting an expander with an incorporated valve, inflating it to the desired volume and then swapping the expander for a permanent implant made completely of silicone, during a second operation using general anaesthesia. As the valve is under the skin and muscle on the reconstructed breast which is numb, it tends to be more comfortable for inflation.

For both types some discomfort may be experienced when the expander is being inflated, causing the breast to feel tight and firm. This usually lasts for one to two days after each inflation. If you have had radiotherapy to this area in the past, expansion may not be possible as the skin may have lost a lot of its ability to stretch.

Initially following your surgery there is almost always going to be a significant difference in the size of your breasts whilst you are waiting to start inflation. It is possible to use a temporary prosthesis to wear in a bra to help balance your breasts whilst you are waiting for inflation of your reconstructed breast to the desired size. Expansion will not start until your wounds have completely healed, which is usually about two to three weeks after the surgery.

When your reconstructed breast is 'over-inflated', imbalance may be present again for a period of about three months. During this period you can be fitted with a temporary 'shell' prosthesis on the natural breast if desired by speaking to your breast care nurse.

Some possible complications of this type of operation can be seen below under 'Implant Complications'.

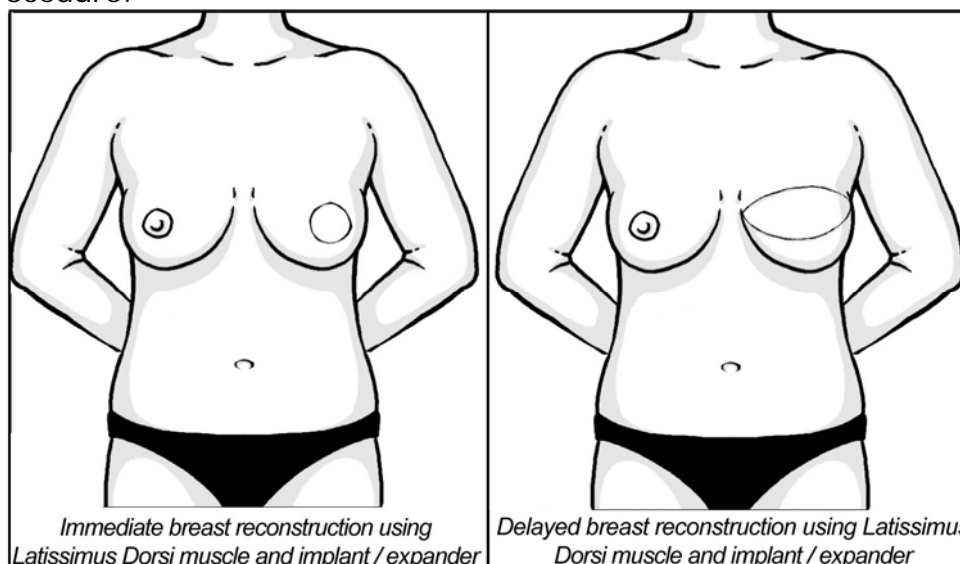
## Breast reconstruction using a combination of a 'tissue flap' and an implant

### a. Latissimus Dorsi breast reconstruction (LD)

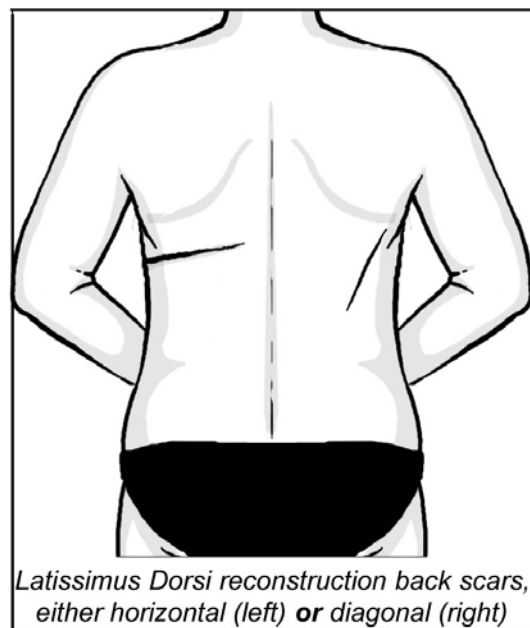
The latissimus dorsi muscle is a broad, flat muscle in the back below the shoulder blade. This operation generally involves raising a flap of this muscle and its overlying fat and skin with its own blood supply, tunnelling it below the armpit and repositioning it on the chest wall to create a breast mound.

This does not usually provide enough tissue to form the entire reconstructed breast. An implant or expander is usually required to be placed behind the repositioned muscle to help match the size of the other breast. The extra muscle and fat covering the implant minimises the visual rippling or wrinkles that can occur at the edge of the implant. It also provides a more natural shape than the implant alone although still quite 'proud' in appearance. Due to the presence of an implant, this form of breast reconstruction may not be the best option if radiotherapy is required.

Your surgeon may discuss either insertion of an implant, an expander or an expandable implant with you and will take other factors into consideration when deciding with you what would be the best option for you. The scars from this type of operation would be both from where the skin and muscle flap is taken from the back and on the reconstructed breast. It will depend on previous breast scars and whether you have decided to have this surgery at the same time as your mastectomy or as a delayed procedure.



The scar on your back would be either horizontal or diagonal (as suggested below).



As the muscle, fat and skin from the back are tunnelled just below the armpit to the chest, a 'bulkier' area will result under the arm. At first this will most likely be swollen from the operation and will settle to some degree, but the remainder of the 'bulk' is the muscle still connected to its blood supply. As with any muscle when not used for a while this 'bulkiness' will get smaller with time (a few months), to what extent varies from person to person, but it will never disappear completely.

Removing the muscle from the back does not affect physical activity greatly, however, you are likely to notice a deficit if you, for example, play a lot of tennis or swim a lot.

The surgery takes about two to four hours. The stay in hospital is likely to be about five to seven days. Recovery time from this operation will take approximately four to six weeks, but will be two to three months until you feel fully recovered.

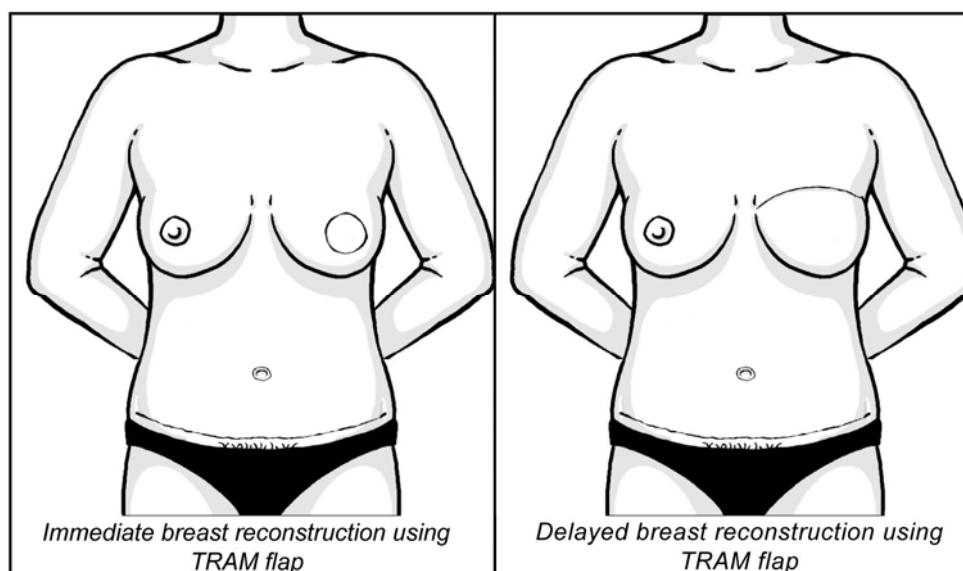
## **Breast reconstruction using a 'free tissue flap'**

### **a. Free/DIEP (Deep Inferior Epigastric Perforator)/TRAM flap (Transverse rectus abdominis myocutaneous flap)**

The free DIEP and TRAM flaps use tissue from the lower abdomen for breast reconstruction. A DIEP flap is made of skin and fat and avoids using the muscle. Instead, the muscle is parted to find the blood vessels that supply the overlying tissue. Occasionally a small piece of muscle is removed with the blood vessels but this is repaired to avoid any weakness in the muscle. A TRAM flap uses the skin, fat and muscle of the abdomen. The muscle used is one of a pair of flat vertical muscles that form a 'six pack'. For both the DIEP and the TRAM flap, the tissue and blood vessels are completely detached and these blood vessels are joined up to a fresh blood supply. This can come from either under the arm or in the chest and is necessary to keep the flap alive. To get to the blood vessels in the chest a small part of one rib sometimes needs to be removed.

This operation aims to lessen abdominal weakness by preserving the majority of the abdominal muscle, but still causes some abdominal weakness. More tissue can be kept alive using this method, however, there is a 5-10% chance of the blood vessels becoming blocked. On your return to the ward from theatre, you will be closely monitored so that any early signs of poor blood flow to the tissue flap will be quickly detected. It may be necessary for you to return to theatre so the surgeons can restore the blood flow. Unfortunately this is not always successful in which case the reconstructed breast will be lost. The free DIEP/TRAM flap is a longer operation (8-12 hours) with a hospital stay of seven to ten days and a recovery time of 8–12 weeks.

The scars from this type of operation would be both on the reconstructed breast and on the abdomen where the skin and muscle flap has been taken. The scars on your reconstructed breast will depend on previous breast scars, the location of the tumour, and whether you are having an immediate or delayed breast reconstruction. They will either be around the nipple and areola or pear shaped, that is – extending down to the fold under your breast. If you have a delayed reconstruction there will be a larger semi-circular scar using your mastectomy scar and continuing around under the reconstructed breast.



As a large amount of skin and fat is taken from the abdomen, the abdominal skin is pulled tightly together to create a scar which will run from one hip bone to the other with the aim of being hidden by bikini bottoms where possible. This usually results in the top of your pubic hair line being raised slightly. Your abdomen will also feel tight after the operation until this skin stretches. You will also have a scar around your navel to enable it to remain in the right position when the abdominal skin is pulled closed.

This type of breast reconstruction will result in you having a numb reconstructed breast and abdomen. They may regain some sensation on the sides as time passes but will have some permanently numb areas as well. This numbness is due to the nerves under the skin being divided.

This type of surgery provides the most natural looking breast of all the types of breast reconstruction as it uses natural tissue rather than an implant. This operation does not generally require an implant as a large amount of tissue is available to form a reconstructed breast. As part of your care, you may require a blood transfusion during or after this operation.

### **b. Pedicled TRAM flap:**

One of the pair of long, flat, vertical abdominal muscles that form a 'six pack' (the rectus abdominis) is used for this method of breast reconstruction. This muscle, with its blood supply to some overlying skin and fat from the abdomen, is tunnelled up under the abdominal skin and folded over onto the chest where it is shaped into a breast mound. The part of the muscle that is folded over near the base of the rib cage is where you may notice a 'bulge'. As with any muscle when not used for a while this 'bulkiness' gets smaller with time (a few months) but to what extent varies from person to person.

As one of the pair of abdominal muscles has been used, you will experience some permanent abdominal weakness. The extent of this varies and is difficult to quantify. There are other abdominal muscles which can compensate to some degree but will never completely restore the function of the missing muscle. For example, if you were to sit up from lying on your back you would need to use your hands to help you. If you have specific activities that you are concerned about please do not hesitate to discuss these with your breast care nurse or plastic surgeon.

The removal of the abdominal muscle and the resultant weakening of the abdominal wall can result in an abdominal hernia. Your plastic surgeon may either use a 'mesh' to reduce the risk of a hernia occurring or may alternatively repair tissue in front of the muscle to serve the same purpose. If a mesh is used there is a small risk of this becoming infected and having to be surgically removed.

Another possible complication of this type of operation is that if the blood supply to some areas of the skin and/or fat of the reconstructed breast is not very good, there is a chance that these areas may die. In this case these areas may need to be surgically removed, but often this is only partial and most of the reconstructed breast remains fine.

## **Implants**

All breast implants are firm, textured silicone shells and can be filled with silicone gel, saline (salt water) or a combination of both.

### **a. Silicone gel implants**

These are filled with a soft semi-liquid silicone gel. This is the softest implant available and feels more natural than others and is less prone to wrinkling than saline implants.

Cohesive silicone gel implants are firmer and have a consistency similar to set jelly so that if the shell ruptures, the gel is less likely to spill out.

### **b. Combination (expanders and expandable implants)**

These have an outer silicone layer and an inner chamber for saline which may be filled through a valve at the time of surgery as well as following surgery to adjust the implant's volume. These are the implants most often used for breast reconstruction.

## **Are silicone implants safe?**

Silicone implants are very commonly used in the UK. In the past there have been some concerns about possible health risks if silicone leaks from the implant. In the UK, the Department of Health has on three separate occasions in recent years asked scientists and medical specialists to assess the safety of silicone implants and have consistently concluded that they are not harmful. The last of these was in July 1998 by the Silicone Gel Breast Implants Independent Review Group (IRG) which found no relationship between silicone gel implants and immune reactions, long-term systemic illness, connective tissue disease or non-specific systemic illness.

Therefore surgeons are satisfied that they can be safely used in breast reconstruction and continue to recommend them to women considering surgery.

## **How long do implants last?**

The manufacturers of breast implants generally recommend that they have a life span of at least 10 to 15 years however, they may last much longer. Implants do not need to be replaced unless there is a problem.

## **Complications of surgery**

As with any surgery there are some risks and possible complications associated with breast reconstruction.

### **a. Wound infection**

With any surgery there is a risk of infection. If a wound infection occurs, oral antibiotics are needed and the wound will be monitored in the outpatients department. Occasionally antibiotics are required to be given intravenously; this would mean a short stay in hospital.

### **b. Fluid collections**

Serum is a clear straw-coloured fluid produced by all wounds. This fluid mixed with some blood will collect in your drains following surgery. When these drains are removed the body learns to reabsorb this fluid.

Some people develop a collection of this fluid called a 'seroma' under their arm or at their abdomen or back. If the seroma is large or uncomfortable the fluid may need to be removed with a needle and syringe by a doctor or breast nurse practitioner.

A collection of blood is called a 'haematoma' and can develop in the immediate post-operative period. If this does occur it may require surgical drainage or may resolve itself with time.

### **c. Discomfort and pain**

After any operation you are likely to experience some discomfort. People vary greatly as to how much discomfort they experience following breast reconstruction.

Depending on the type of reconstruction you choose, a pain relief pump which you control may be used for the first couple of days which will then change to tablets. By communicating with your nurse, your discomfort should be well controlled.

### **d. Flap loss/necrosis**

There is a risk that part or all of the skin and tissue of your reconstructed breast may die due to a compromised blood supply. There are many lifestyle factors which may contribute to this including smoking and body shape together with the type of operation you have chosen. If this does happen there are different options available to try to rectify the problem according to its severity. These include observation or a return to theatre for further surgery.

### **e. Differences between your breasts**

It is not possible to make an exact copy of your remaining breast. Sometimes there will be differences in the size, shape or position of your two breasts. If your weight changes, you may find that one of your breasts changes size more than the other.

### **f. Muscle problems**

Most women who have had breast reconstruction are able to carry on with most of their usual activities without difficulty once they have recovered from the operation. Occasionally muscle weakness causes some problems. For example, women who have had a reconstruction using one of their back muscles may find that they have less strength in their shoulder or arm. This is usually only noticeable when doing heavy work or playing particular sports. Women who have had a reconstruction using their abdominal muscle will experience weakness when sitting forward from a lying position and during activities that involve a similar action.

### **g. Scarring**

Scarring after surgery varies from person to person. Its quality depends on the ability of the person's skin to heal. The colour of the scar will fade with time and become less noticeable. Some people's scars heal in a way that becomes red, raised and thickened. If you have other scars, these will be a good indicator of how yours are likely to heal. Often the ends of the scars on the back or abdomen can have a small area that pokes out called a 'dog ear'. These usually flatten with time, but if not can be surgically removed at a later date.

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## Implant complications

### a. Infection

If the implant becomes infected it will have to be taken out in order to treat the infection successfully. If this occurs it may be necessary to wait three to six months before having another implant inserted.

### b. Capsular contracture

When any foreign object such as an implant is put into your body, the body responds by forming fibrous tissue (or scar tissue) around it. Over a few months this fibrous tissue shrinks as part of the natural healing process but the extent of shrinkage varies from person to person. If this contraction is severe then you may experience hardening of the reconstructed breast. This is called capsular contracture. It can be uncomfortable and may change the shape of the implant. Capsular contracture is the most common complication with breast implants and occurs in approximately 10% of women. This mostly occurs in the first year following surgery but some may take up to three years to form.

If capsular contracture does occur, surgery may be indicated to remove part of or the entire capsule and replace the implant. This does not reduce the risk of capsular contracture recurring.

Radiotherapy significantly increases the incidence of capsular contracture. You may want to discuss this with your plastic surgeon.

### c. Implant rupture

Implants occasionally split or leak. If the implant breaks and is saline, the saline will leak into the surrounding tissue and be absorbed. The breast will become obviously smaller and the implant will need to be replaced. If the implant is silicone gel based and leaks, the gel is usually contained within the fibrous capsule formed around the implant and can be surgically removed with the implant. Occasionally the gel may leak into local surrounding tissues creating a series of lumps which may be tender and result in surgery to remove the silicone and replace the implant.

## Can a breast reconstruction hide a cancer?

Having a breast reconstruction will not increase the chances of your cancer coming back. You will still have regular mammograms of your natural breast as would women who have not had breast reconstruction.

## Could a reconstruction affect your chances of cure?

Having a reconstruction does not affect your chances of long-term cure. After reconstruction you should examine both your breasts every month.

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## Mammography after breast reconstruction

Mammography of the reconstructed breast is not necessary but you will need to continue having mammograms of your natural breast.

## Breast feeding

The milk producing glands of the breast would have been removed during the mastectomy so it will not be possible to breast-feed. However, it will still be possible to breastfeed from the remaining breast.

## Nipple reconstruction

Some people are content with their reconstructed breast without a nipple. Prosthetic silicone nipples are available to use which are moulded from your own nipple to create a similar shape and colour. These are held in place by suction or glue. If you are interested in this, speak to your plastic surgeon or breast care nurse who will arrange this for you.

Some women also choose to have their nipple reconstructed which involves rebuilding of the nipple itself and the surrounding coloured area called the areola. This is usually done some time after the reconstructed breast has healed and settled into its final shape and position. This enables the plastic surgeon to position the nipple accurately, in line with the nipple of your other breast. The timing of this surgery varies with each individual patient depending on any adjustments that need to be made to the reconstructed breast, which are carried out first. Radiotherapy and chemotherapy treatments, if needed after the initial surgery, may also delay the timing of nipple reconstruction. Your surgeon will be able to advise you when you are ready for nipple reconstruction and will then place your name on the waiting list; surgery taking place within the following six months. Once this surgery has settled you will be offered the option to have the area nipple/areola tattooed to achieve a closer colour match; this is usually three to six months later.

The nipple without the areola can also be created from skin and tissue from your reconstructed breast only; this procedure is done under local anaesthesia. The areola may be reconstructed from grafted skin tissue. This is usually taken from the top of the inner thigh (which is slightly pigmented) leaving a long narrow horizontal scar on the inner thigh and often a slight indent. It can also be created from skin obtained during the removal of a 'dog ear' you may have on a back or abdominal scar. Alternatively, it can sometimes be made from the nipple and areola of your remaining breast where the skin is also darker in colour but this depends on the size of your nipple and areola. These procedures are usually done under a general anaesthesia.

Whichever method is used, the skin colour is likely to fade in time and the nipple although initially quite prominent will flatten to differing degrees with time. The reconstructed nipple will have no sensation, will not function as a normal nipple and will not become 'erect'.

## Nipple tattooing

Nipple tattooing can be used alone to create the appearance of a nipple and areola without any projection. Tattooing can also be used for colouring surgically reconstructed nipples and areolae. This is a painless procedure as the reconstructed breast is numb.

## Surgery to the other breast

Surgeons carrying out breast reconstruction aim to match the size and shape of the reconstructed breast to your remaining breast. This is not always possible. Again, you may be content with your surgery results and choose to have no further surgery. Alternatively, you may want your breasts to be more even and opt for surgery to your other breast to achieve a better match for when you are not wearing clothes.

This may involve:

1. Reducing (reduction) or lifting (mastopexy) your remaining breast.
2. Enlarging (augmenting) the size of your remaining breast.

With a breast reduction and mastopexy the shape of the breast is altered and hence the nipple position requires adjusting so that it is in the correct position.



We are currently working towards a smoke free site. Smoking is only permitted in the designated smoking areas.

For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169

### Help with this leaflet:



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