BREAST RECONSTRUCTION
USING A DEEP INFERIOR EPIGASTRIC PERFORATOR (DIEP) FLAP

This fact sheet is for women who are having a breast reconstruction using a DIEP flap, or are considering having a DIEP flap reconstruction. It explains what the reconstruction involves, and what to expect before and after the operation.

What is a DIEP flap reconstruction?

In a DIEP flap reconstruction fat, skin and blood vessels are removed from your tummy region (abdomen) and transferred to your chest area to create a breast mound. Breast reconstruction using your own tissue can provide a natural looking mound that will feel soft. This mound will age as a natural breast would and, as it is your own tissue, will vary in size depending on your weight.

The reconstruction may be performed at the same time as your mastectomy (immediate reconstruction) or at a later date (delayed reconstruction).

Your breast surgeon and plastic surgeon will decide whether to perform an immediate or delayed reconstruction in consultation with you. Because of factors relating to your treatment for breast cancer, other circumstances, or your personal preference, immediate reconstruction is not always possible.

Immediate breast reconstruction

Immediate breast reconstruction is a joint procedure. This means that the two operations – the mastectomy (removal of your breast), performed by the breast surgeon and the reconstruction, performed by the plastic surgeon – are done during the same anaesthetic.

A cut (incision) is made to allow removal of the breast tissue, possibly including the nipple and areola (darker area of skin around the nipple) while preserving the breast skin. The incision may be on the breast around the areola or in the fold under the breast. The breast skin is then filled with fat and usually some skin taken from the patient's abdomen. The blood vessels taken with the tissue from the abdomen are connected to blood vessels in the chest. An area of skin from the abdomen is also used to cover the empty space on the newly created breast and to act as a 'monitoring panel' to ensure the transferred tissue is healthy. Most of the skin of the new breast mound is original breast skin.

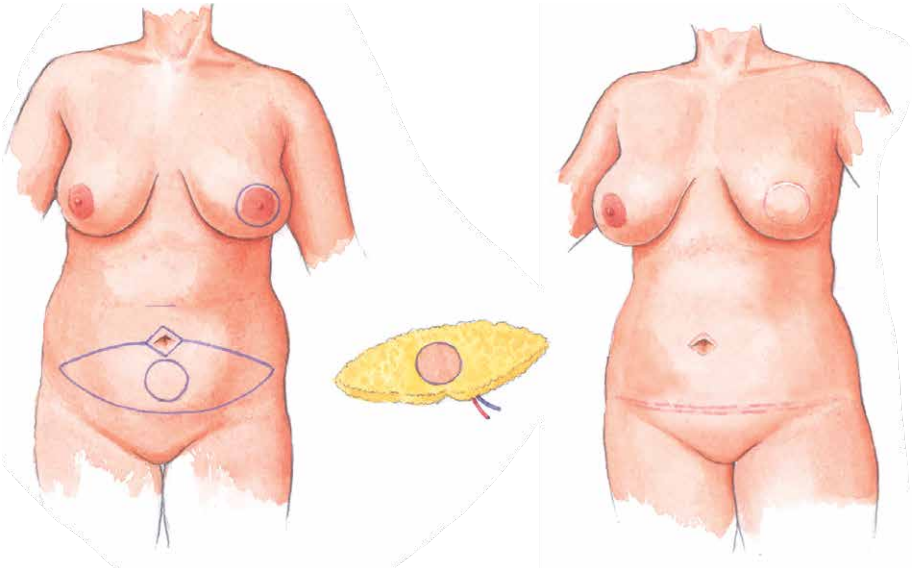


Illustration courtesy of St Andrews Centre for Burns and Plastic Surgery at Broomfield Hospital, Chelmsford UK

Delayed breast reconstruction

This surgery is performed by the plastic surgeon some period of time after your mastectomy. This surgery requires a larger area of skin from the abdomen to support the fat and blood vessels from the abdomen. The end result of this style of reconstruction is still very good and satisfaction studies show that women having delayed reconstruction are equally satisfied with their reconstructed breast as women having an immediate breast reconstruction.

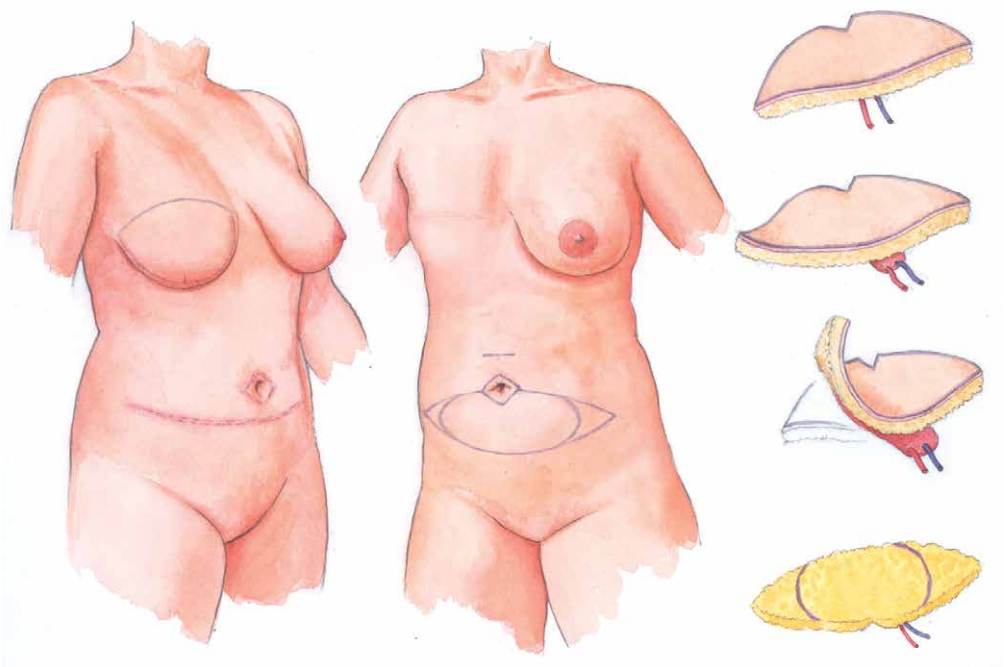


Illustration courtesy of St Andrews Centre for Burns and Plastic Surgery at Broomfield Hospital, Chelmsford UK

Preparation for breast reconstruction

The following steps apply to both an immediate and a delayed reconstruction.

1. **Consultation with a plastic surgeon**. You will have a discussion with the surgeon and a clinical examination. The clinical examination can be confronting as it involves standing in front of the surgeon while wearing only underpants. This lets the surgeon identify what style of reconstruction is best for you. A breast care nurse is available to be with you at this examination if you would like. If you are considered a good candidate for this procedure you will be asked to sign a consent form and you will be placed on the Royal Melbourne Hospital waiting list.
2. **Blood test and CT (Cat Scan)**. The CT identifies the blood vessels in your abdomen that will be used in your reconstruction. You will also be asked to have some clinical photography before surgery.
3. **Appointment with a breast care nurse.** The breast care nurse will discuss your planned surgery in further detail with you. If you wish, you can look at breast reconstruction photographs at this time.

   This appointment can be held before your consultation with the plastic surgeon if you prefer. This may help you feel more informed for your consultation.
4. **Pre-admission clinic appointment at the Royal Melbourne Hospital**. Allow about three hours for this appointment. Your medical history will be reviewed and there will be further preparation for surgery with the anaesthetists, surgeons and nursing staff. You will be asked about any medication you are taking, including prescription, herbal or alternative medicines. You may be advised to stop taking certain medications before your surgery.
5. **If you are a smoker**. Smoking is considered to be a risk factor for this type of surgery. We advise that you stop smoking at least three weeks before surgery and for as long as possible after surgery. We know that stopping smoking is very difficult at any time, and particularly at times of stress; however, smoking increases your risk of wound healing complications.

   Your GP can refer you to the QUIT program if you need help to stop smoking.
6. **A healthy body weight** is preferable for best results. Your plastic surgeon will advise if weight loss is recommended prior to surgery.

What do I need to bring into hospital?

A supportive bra

We recommend a wireless bra that has wide shoulder straps as well as a wide supportive back. A bra with a front opening may be helpful. A lycra-type non-wired one-piece bra (such as the Ahh Bra™) may also be suitable, provided you are comfortable stepping into it.

It can be difficult to identify the correct size before your reconstruction. We advise you buy a size larger (across the band) than what you normally wear to allow room for swelling; for example, a 16C instead of a 14C. Patients are required to wear a bra day and night for six weeks, you will be advised at what stage to start wearing it after the operation (usually day three or four). The bra helps to support the newly formed breast, reducing swelling and bruising while supporting the shape.

A compression garment

We recommend moderate compression pants. Depending on your comfort level these can be either a boy leg or bike pant. As you are required to wear them day and night for six weeks, it is important that these garments are comfortable as well as giving support. We recommend that you buy two sizes larger that you would normally wear. These garments will support the suture line (scar) to your abdomen during your recovery. You will be advised when to start wearing them, often 24 hours after surgery.

Toiletries, slippers and bed wear

Loose fitting short sleeved pyjama tops with buttons or loose-fitting night gowns are recommended while in hospital. Avoid bringing in jewellery (especially rings, as your hands may swell after surgery) and other valuables.

What to expect after surgery

You can expect to spend between five and seven days in hospital.

The length of your operation may be as long as six to eight hours and you will probably feel very drowsy for some time following surgery.

After surgery you will spend some time in the recovery unit before being transferred to the ward. You will be monitored very closely in the first few days; this includes careful observation of your newly created breast mound as well as the donor site on your abdomen. Both surgical and nursing staff will check the areas for any signs of bleeding or problems with the blood supply to the flap. If there are any complications it may be necessary for a return to surgery.

You will be kept quite warm in the first day or two to support good blood supply to the breast flap. You will also be asked to keep your arm movements to a minimum. This allows the newly joined blood vessels to heal. You will receive instruction about this from the physiotherapist.

Incision

The incision to the breast mound, the positioning and size of the scar, and the flap size will vary depending on your specific surgery. Your surgeons will discuss these details with you beforehand. The flap is monitored by checking the skin from the abdomen in its new position on the breast mound. There will be no stitches (sutures) at the surface of your incision. There will be dissolvable sutures under the skin and the incision will be covered with surgical glue.

The incision to the abdomen is quite long. It generally extends from hip to hip and is positioned quite close to the bikini line. The healed scar line will generally be covered by normal bikini briefs. This suture line also has no sutures on the surface. There will be dissolvable sutures under the skin and the incision will be covered with surgical glue or waterproof dressing. It is quite likely a new belly button will need to be created after the removal of the abdominal tissue. Your abdomen will probably feel very tight for some time following this surgery.

When surgical glue is used to cover the suture line it will look like there is no dressing. This glue is waterproof. You will usually be asked to avoid getting this area wet for the first 48 hours. After this time you can shower normally. To avoid increasing the amount of bruising and swelling, it's best to avoid directing the stream of water from the shower nozzle onto the suture line. The temperature of the water should also be warm rather than hot. When a waterproof dressing is used it may stay in place for two to three weeks. If it leaks contact your breast care nurse.

Two weeks after surgery the suture line will be covered with Micropore tape (available at any pharmacy). It is recommended you use the tape for six weeks, changing it every five to seven days. This will help to minimise the scar. Rubbing creams and oils into the suture line is discouraged until after this six-week period.

Drain tubes

You will have several drains inserted following surgery; one either side of your abdominal suture line and one or two near the breast mound. These remove excess fluid from the site of the operation and remain in place until you have less than 50mls of drainage in a 24-hour period. This will generally take two to five days. The drain tubes may cause you some discomfort.

Your surgeon will decide when to remove the drain tubes. It is not unusual for patients to go home with a drain tube still in place, especially in the abdomen. If this is the case, a nurse will visit you at home to remove it. It's advisable to have pain relief half an hour before the drain is removed, as the procedure can be painful.

When the drain tube is removed the small hole will be closed with a dressing. This should be removed after 48 hours.

Discuss any arrangements required for this home visit at your pre-admission appointment.

Catheter

During your operation you will have a urinary catheter passed into your bladder. This will allow you to pass urine in the first 24 to 48 hours after surgery without getting out of bed. Once you are more comfortable this will be removed. You can then start wearing your compression pants.

Oxygen

After your operation you will be given oxygen either by a mask or nasal prongs. This will continue until your oxygen levels return to normal.

Intravenous infusion

An IV drip (intravenous infusion) will be inserted to help keep you hydrated in the first 24 hours after surgery. You may also receive pain relief through the drip.

Sequential Compression Devices (SCD)

Due to the surgery time being quite lengthy, there is an increased risk of developing a deep vein thrombosis (DVT). A DVT is a blood clot that forms in the veins of the leg. To reduce this risk you may be prescribed daily blood thinning injections and be given SCDs or a boot to wear. SCDs are disposable sleeves that are wrapped around a patient's legs following surgery. Air is pumped into the channels within the sleeve, massaging the calves and improving circulation.

Pain

You can expect to have moderate discomfort or pain following surgery. It's often described as a feeling of tightness across both the chest and abdomen. Most patients manage this well with the help of pain medication and support from nursing staff and your physiotherapist. They will be able to show you positions to reduce discomfort, such as having your knees bent and supported by a pillow.

Physiotherapist

A physiotherapist will visit you several times while you are recovering from your surgery. The physiotherapist will show you:

- techniques to reduce the risk of a chest infection following a general anaesthetic.
- ways to protect your healing wounds when moving
- exercises to help you regain strength and movement in your arm(s). The physiotherapist in conjunction with the surgeon will advise when to start these exercises.

When can I get out of bed?

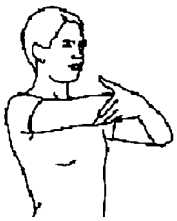
You will usually be encouraged to get out of bed the first day after your surgery.

Arm exercises

Following surgery you may be advised to limit your arm movement to avoid damaging the newly formed blood vessels. Your surgeon and nurses will advise you of any movement to avoid. This restriction of your movement may increase the risk of developing a stiff shoulder. The physiotherapist will show you arm exercises, like the examples below, to reduce this risk.

Short lever abduction

Using your unaffected arm to assist as needed, with your affected arm tucked in to your side, slowly bring your arm out to the side. Stop at 90 degrees or within comfortable range.



Short lever flexion

Using your unaffected arm to assist as needed, with your affected arm tucked in to your side, slowly bring your arm forwards in front of you. Stop at 90 degrees or within comfortable range.

Images and exercises courtesy of the Allied Health Department, Royal Melbourne Hospital

Appearance

It is wise to look at your suture lines and newly created breast as soon as you feel ready. The breast care nurse is available to do this with you. Looking down at your chest and then in the mirror is usually a good idea. By doing this you prepare yourself for change. The more familiar you become with your appearance the more confident you will feel.

The number of scars and the length of the abdominal scar can be quite confronting. While everyone heals differently most patients find that these scars become minimal over time. The breast will initially appear swollen, a little firm and sometimes quite bruised. This will take several weeks to settle.

It will take up to six months for your reconstructed breast to drop and settle into its final shape. It will take a similar amount of time for your abdomen, which will also feel very tight and sometimes a little bloated, to start feeling soft. Most patients will find that both the breast and abdomen will have reduced sensation. The degree to which this sensation returns varies between individual patients.

Discharge planning

The timing of your discharge will be discussed with your surgical and nursing staff. Most patients are ready for discharge between five and seven days after surgery. You should plan to have support in place for the first two weeks at home. During this time you should avoid any physical activity apart from continuing your arm exercises and gentle walks. After these first two weeks you may slowly increase your physical activity, ensuring that you are not doing anything that causes pain.

You are advised to only do light physical activity until six weeks after surgery. At six weeks you will have a follow-up appointment with your plastic surgeon. They will be able to advise when you can return to normal activity.

You can expect to be often tired following surgery. Listen to your body and try to strike a balance between rest and activity. It is expected that it will take 12 weeks before you fully return to your pre-surgery self.

Driving

Because of limited arm movement and the time needed to recover from tiredness as a result of your surgery, it may take six weeks before you are able to drive.

Scar management

Our aim is minimise any scarring as much as possible. We use different techniques at different times to achieve this:

Week 1 to 6

Micropore is paper tape that provides gentle support to your wound and helps to flatten the scar. The tape is to be worn continuously and changed once a week. You are able to shower with the tape on, but ensure you dry it off afterwards. Do not use any creams or oils on your scars during this time.

Week 6 onwards

Massage and moisturising with a gentle cream (e.g. Cetaphil Moisturising Cream, sorbolene) will help soften the scar and break up any underlying scar tissue. This will encourage the scar to become flatter and smoother. Massage should be done in a firm circular motion along the length of the healed scar. Massage any scars three to four times a day for at least five minutes each time.

6 weeks to 12 months

Silicone gels and sheets can be used to help lock in moisture as well as put pressure on a scar to flatten and soften it. Silicone should only be used on wounds once they are completely healed (normally after 6 weeks, but please check with your doctor/nurse). They can be used for many months; however, most silicone sheets need to be applied gradually in case your skin has an allergic reaction to them.

Follow up appointments

Approximately one week after your discharge you will have a follow-up appointment at the Royal Melbourne Hospital's Complex Wound Clinic. This gives the plastic surgeons and the clinical nurse consultants an opportunity to assess how you are healing. The nurses will instruct you on any wound and scar management needed.

Approximately four to six weeks after surgery you will be seen in the Breast Plastics clinic. At this appointment your wound healing will be reviewed and the options for any further surgery needed or desired can be discussed.

For more information

For more information and advice or if you require medical assistance please contact:

Breast Care Nurse

The Royal Women's Hospital
(03) 8345 2000 (switchboard, ask for pager 53100)
(03) 8345 3565 (Monday to Friday during business hours, leave a message if phone unattended)

Breast Care Nurse

The Royal Melbourne Hospital
(03) 9342 8120

Plastics Liaison Nurse

The Royal Melbourne Hospital
(03) 9342 4084