



Free flaps and Pedicled flaps in lower limb reconstruction

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Why do I need a flap?

A flap has been recommended to you for treatment of your lower limb injury. A flap is used to cover bone, metal work and fractures and other lower limb injuries. It may be that your lower limb injury has left an open wound, exposing bone or metal work, which cannot be stitched back together. The flap will be used to cover and seal the wound and will help your fracture heal.

What is a flap?

A flap is the movement of your own tissue, along with its blood supply, from one part of your body to another and is used to cover an injury.

A flap can involve skin, tissue, fat, muscle, nerve, bone and cartilage (or any combination of these). The most common ones are skin, tissue and fat (fasciocutaneous) and muscle flaps.

There are different types of flaps and your Plastic Surgeon will advise on the most appropriate one for you.

What is a free flap?

A free flap is the movement of tissue from one site on the body to another. The tissue, along with its blood supply, is detached from the original location and transferred to another location (the injured site in order to reconstruct the injury). The Plastic Surgeon re-establishes circulation in the tissue during surgery.

There are various areas on the body where the tissue can be moved from (thigh, calf and back are the most common), but this will be

discussed with you further by the Plastic Surgeon and the Specialist Nurse.



ALT free flap



ALT free flap donor scar



Gracilis free flap and Split Skin Graft



Donor site of Split Skin Graft

What is a pedicled flap?

A pedicled flap is when the tissue is left partly attached to the donor site (pedicle) and then moved to the new location, thereby keeping the tissue with a blood supply.



Pedicled flap and Split Skin Graft

What happens before surgery?

We may need to perform a scan on your lower limb to ensure that you have a healthy blood supply to and from the limb and to help plan surgery.

What happens after surgery?

Your flap will be monitored closely by the ward nurses who will monitor the blood flow in and out of the flap, using a non-invasive machine, called a Doppler.

It is important that you are kept warm for up to 48 hours post-surgery to ensure that the blood flow in and out of the flap is maintained. You will also have a urinary catheter in place following surgery so that the surgical team can monitor your urine output.

You will have your temperature, blood pressure and pulse checked

regularly and you will be given fluids through an intravenous drip (into your vein). You may have a wound dressing around the flap, with a clear window to allow the nurses to monitor the flap. After approximately five to seven days the wound dressing will be removed and the flap left exposed. Following flap surgery, you will have a donor site, where the flap has been taken from and this will have a dressing in place. This will be removed at the time of your first flap inspection.

For the first few days, you will need to remain on bed rest and keep your lower limb elevated on pillows to reduce the swelling and keep a healthy blood flow to your limb. On approximately day five, you can start to 'dangle' (lower the leg over the side of the bed) your limb for short periods of time and the physiotherapists and nurses will explain and advise you on this movement. On day seven, you can start to mobilise with the help of physiotherapy and a possible walking aid (such as crutches or a frame).

Additional information

Depending on the Plastic Surgeon's final decision regarding your surgery, you may also require a skin graft. A skin graft involves taking the top layer of your skin (epidermis) and part of the next layer of skin (dermis), without its blood supply, and moving it from one area of the body (donor site) to another. Once moved to the affected area, the skin graft picks up ('takes') its blood supply from the healthy wound bed underneath.

The skin graft will be covered with an appropriate wound dressing (chosen by your Plastic Surgeon in surgery) and will remain in place for up to seven days. Please note the wound dressing may be removed sooner if there is a clinical reason for this. Following a skin graft you will have a second wound, the donor site. This wound dressing is usually very bulky and will stay in place for up to 14 days.

Problems you may experience

Failing of the flap – following the regular observation, it may reveal that the flap is failing due to a reduced flow of blood through the vessels supplying the flap. If this occurs, you may need to go back to surgery.

Failure of the flap – total loss of blood supply. The blood flow to the flap can be blocked and this can cause some of the skin, fat and muscle to become discoloured and die (black). You may need further surgery if this occurs.

Bleeding – a collection of blood (haematoma) under the wound and results in bleeding.

Infection – infection will be treated with antibiotics and possibly further surgery.

Scars from healing – scars develop when the wound has healed. Once all of the area is healed, massaging with a moisturiser will help to soften the scar.

Numbness and loss of feeling – due to damage to the nerves during the surgery. It may gradually fade over time, but may last up to 18 months after the surgery or be permanent.

Flap appearance – following surgery the flap appearance could be 'bulky'. This usually takes 6 – 12 months to reduce in size. However, if after this time you feel the appearance is still 'bulky', your surgeon may be able to offer a further surgical option to improve the appearance of your flap.

Burns and Plastics Outreach Team: 0121 371 5462



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