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Flaps

What is a flap?

A flap consists of tissue taken from one part of the body (donor site) to another part of the body (recipient site) where tissue such as skin, fascia, muscle or bone, is missing. Flaps differ to grafts in that a flap is transferred with an intact blood supply, while a graft is a transfer of tissue without its own blood supply. Surgeons specialising in plastic and reconstructive surgery (including some dermatologic surgeons) usually perform flap surgery.

Why do you need a flap?

A flap is required when the injury or area that has lost tissue is too big to sew the edges together directly. The flap covers the wound and continues to be fed by the same blood supply from where it was taken from the donor site. In some flap surgery the flap is cut off from its native blood supply and reattached to blood supply at the recipient site, this is known as a "free flap". A flap will help a wound to heal much faster and also reconstruct the damaged area so it is aesthetically acceptable. The site where the flap is taken (donor site) is also called a secondary defect.

What are the different types of flap surgery?

There are many different types of flap surgery. One of the first recorded flap surgery dates back to 600BC where a nasal reconstruction was performed using a cheek flap. Flap surgery has evolved over many years and there are many different classification systems. The following table is a summary of the most commonly used classifications into 3 simplified categories.

Category	Flap Classification
Blood Supply – based on the type of blood supply to the flap	<ol style="list-style-type: none"> 1. Random – blood supply for these types of flaps comes from many little unnamed vessels. Many local skin flaps fall into this class. 2. Axial – blood supply comes from a recognised artery or group of arteries. Most muscle flaps fall into this class and have been further sub-classified by Mathes and Nahai <ol style="list-style-type: none"> I. One vascular pedicle II. Dominant pedicle(s) and minor pedicle(s) III. Two dominant pedicles IV. Segmental vascular pedicles V. One dominant pedicle and secondary segmental pedicles <p>(A pedicle is the attachment of the blood supply to the flap)</p>
Tissue Type – based on the type of tissue that is being transferred	<ol style="list-style-type: none"> 1. Skin (cutaneous) 2. Fascia (fibrous connective tissue) 3. Muscle 4. Bone 5. Visceral (e.g. colon, small intestine)

	6. Composite – a flap may be made up of several different types of tissue, e.g. skin and fascia (fasciocutaneous), skin, fat and muscle (myocutaneous)
Donor Site Location – based on the site where the tissue flap is being taken from	<ol style="list-style-type: none"> 1. Local – tissue transferred from an area next to the defect (recipient site) <ol style="list-style-type: none"> a. Advancement flap – the flap moves directly forward without lateral movement b. Rotation flap – semicircular flap that rotates about a pivot point into an adjacent defect c. Transposition flap – the flap moves laterally about a pivot point into an adjacent defect d. Interpolation flap – the flap rotates about a pivot point into a nearby but not adjacent defect, with the pedicle passing above or below a skin bridge. 2. Distant – tissue transferred from a different part of the body from the recipient site <ol style="list-style-type: none"> a. Pedicled – transferred while still attached to their original blood supply b. Free – flap is detached from its native blood supply and then reattached to vessels at the recipient site.

What is involved in having a skin flap?

Your dermatologist or surgeon will explain to you why a skin flap is required and the type of skin flap you will need. He or she will explain the procedure involved, including the area of the body from where the flap will be taken, common complications, and whether surgery will be done under general or [local anaesthesia](#). You may be asked to sign a consent form indicating that you agree to and understand the procedure. Tell your doctor if you are taking any medication (particularly aspirin or warfarin, which could make you bleed more), or if you have any allergies or medical conditions. Remember to tell your doctor if you take any herbal remedies as a number of these can also lead to abnormal bleeding.

The procedure may create two wound sites, the site receiving the flap and the site where the skin flap was taken from. The recipient site may be stitched and left uncovered or may have a surgical dressing covering it. Often some part of the skin flap is left exposed so that its colour and temperature can be monitored. Usually stitches are removed 5–10 days after the operation. The donor site is usually covered with a dressing. Both wounds should be kept as dry as possible until your dermatologist advises that you can wash them. If the wounds become red or very painful, consult your dermatologist as they could be infected.

Draft 10 June 2007

Related information

References:

On DermNet NZ:

- [Skin grafting](#)

Other websites:

Emedicine:

- [Flaps, Random Skin Flaps](#)
- [Flaps, Classification](#)

Books about skin diseases:

See the [DermNet NZ bookstore](#)

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DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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