

Patient Information

Plastic and Orthopaedic Surgery

Open lower limb injury: your surgery and recovery

This information leaflet is about your surgery and recovery after an open lower limb injury or open fracture. You are having treatment for a serious injury. You may need surgery more than once and there is a long recovery process. Our team are experienced professionals. We are here to support you. Please ask us any questions that you have about your care.

Content warning

This leaflet and video use photographs that show wounds and stages of treatment. We have included these to show the stages of surgery and recovery for open lower limb injury. This may make you uncomfortable. Please do not continue with this content if you do not want to see these photographs.

Patient information video

Please watch our video that goes with this leaflet. In the video, a patient shares their experience of surgery and recovery after their open limb injury. Scan the QR code or follow the link to watch the video (9 min).



<https://uhcw.cloud.panopto.eu/Panopto/Pages/Embed.aspx?id=26f2326b-abda-4dc0-8030-b03e008ed025>



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What is an open lower limb injury?

An open lower limb injury, or open fracture, is where your bone breaks and causes a tear in muscles and skin. The bone comes through your skin and is at high risk of infection. Surgery aims to reduce your risk of infection, fix the bone and rebuild muscle and skin.



An x-ray and photograph showing an open lower limb fracture, with a break in the bone and a wound in which the bone has come through the skin.

Your first surgery

Your broken bone is stabilised with a temporary structure. This may involve plate and screws on the inside of your leg (internal fixation), or a frame on the outside of your leg which acts as scaffolding (external fixation). Your leg is bandaged or put into a cast.



A photograph showing the leg elevated in a cast.

Your wound caused by the broken bone is made bigger to remove skin or muscle that is damaged. This is to make sure that only healthy skin and muscle remains. Your wound will be carefully washed and covered in a vacuum dressing to protect it. The dressing is connected to a machine at the end of your bed until your next surgery.

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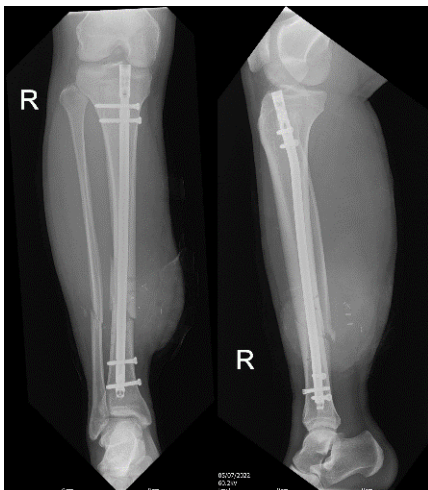
A photograph showing the leg after the first operation with a temporary vacuum dressing.

Orthopaedic surgery: reconstruction

When your wound is clean and healthy, the next stage is rebuilding your bone, muscle, and skin. It may take more than one operation to get to this stage if you have had a severe injury.

Firstly, an orthopaedic surgeon will fix your bone. For lower leg injuries, the most common operation is to insert a metal rod down the middle of the bone. Alternatively, your surgeon may fix the bone with plates and screws.

It is likely that your surgeon will use a combination for very severe injuries. Your surgeon will discuss this with you before surgery. In most cases, your bone will be strong enough to allow you to walk again before you leave hospital.



An x-ray showing the fracture fixed with a long metal rod down the middle of the bone with screws to hold it in place.

Plastic surgery: reconstruction

The plastic surgery part of your operation aims to rebuild your skin and muscle. There are several ways to do this. These include using skin or muscle from other areas of your body. In these photographs, a muscle (gracilis muscle) is transplanted (moved) from the thigh with its blood vessels. This is called the flap. It is placed over the wound caused by the broken bone.

The blood vessels from the flap are re-attached in the new position. This can be difficult and may cause problems during recovery if they stop working. A thin layer of your skin is taken from your thigh and is placed over the muscle. This is called a skin graft. The whole procedure may take 10 to 12 hours.



The site where the muscle flap is taken from (left) and where the skin graft is taken from (right) immediately after the operation.

After your operation: first 2 to 3 days

The blood vessels that were re-attached are the only blood supply to the flap. We closely monitor this to make sure the flap is healthy and the blood vessels work. You may need more surgery if there are problems.

After your operation, you will wake up with your leg bandaged or in a plaster cast. Your leg will be raised up on the bed. You may have a catheter (tube into your bladder). You will be covered by a warming blanket called a “bear hugger”.

Nurses will regularly check your flap. During the first 24 hours, they will check your flap every 30 minutes. During the next 2 days, they will check it hourly. After this, they will check it every 4 hours.

Nurses will check your flaps temperature, colour, and the blood supply with an ultrasound probe. Your first nights after your operation will be interrupted by these important checks.

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The muscle flap 2-3 days after the operation.

Your recovery in hospital

At day 3 or 4 after your operation, your dressings will be removed so your flap can be reviewed. The flap will look swollen and red. It will not look like the rest of your skin and will be raised. This is normal.

Physiotherapists will then review you. They will give you exercises to do in bed to help your recovery.

During the first 5 days you can expect to keep your leg raised on the bed. On day 5 you can start “dangling”. Dangling is where you lower your leg off the bed for 5 minutes at a time, 3 times a day. We will increase the time each day. However, we may reduce the time if your flap becomes swollen or painful.

Around days 8 to 15, you can start gently getting up and moving. You will do this until the time when you are safe to leave hospital. It is very important to keep your knee and ankle moving at this stage. It will help you to avoid stiffness. It is important that you follow the weight bearing instructions that the orthopaedic team give you.



The muscle flap 2-3 weeks after the operation.

After you leave hospital: 2 to 3 weeks

At 2 to 3 weeks, we will check your flap. It will still be very swollen and a different colour to the rest of your leg. It helps to raise your leg up when resting, especially if it becomes more painful or swollen.



The muscle flap 3-4 weeks after the operation.

2 to 3 months after your operation

Your healing continues months after your operation. There will be red areas on your body where your skin grafts were taken from. These will take around 18 to 24 months to improve. You are now likely to be walking more.



The site where the muscle flap is taken from (left) and where the skin graft is taken from (right) 2-3 months after the operation.

6 months after your operation

After 6 months, there is a change in colour, shape and quality. There will always be a scar but your flap will flatten. The difference in colour will soften over time. By now you should be able to exercise. A compression bandage and elevation (raising your leg) will help if you have any swelling.



The muscle flap 6 months after the operation.

Anterolateral thigh flap (ALT flap)

An ALT flap is a different type of flap. You may have an ALT flap and your surgeon will discuss this with you before surgery. An ALT flap takes skin and fat from the outside of one thigh and transplants this to cover your wound. It does not use any muscle.

The recovery process is the same. However, the colour of the ALT flap is more similar to your skin.

ALT flaps often look better straight after your operation. However, this flap does not reduce in size, unlike the muscle flap. You may need further surgery to reduce this.

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These photographs show the ALT flap before the surgery, straight after surgery and then after further surgery to reduce its size. There will always be a scar present, but this will soften with time.



An ALT flap before the operation, immediately after the operation and then after further surgery to reduce its size.

Contact information

Plastics Dressings Clinic

Phone: 024 7696 6474

Orthoplastics Clinic (Wednesday afternoons only)

Phone: 024 7696 6262

Patient Information

The Plastic Surgery Team

- **Miss Joanna Skillman**
- **Mr David Wallace**
- **Mr David Izadi**
- **Mr Nick Rabey**
- **Mr Matthew Venus**
- **Miss Katy Wallis**

The Orthopaedic Team

- **Miss Jayne Ward**
- **Mr John McArthur**
- **Mr Mateen Arastu**
- **Mr Sunit Patil**
- **Mr Farhan Syed**
- **Mr Darryl Ramoutar**

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