



MANCHESTER LIMB RECONSTRUCTION SERVICE

Circular Frame Treatment

*A guide for patients,
families and carers*



themanchesterframesurgeon.com

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EDITION 2026

A few words before we begin

This booklet is for you and the people who will be supporting you through your treatment. It explains what a circular frame is, what to expect during the months ahead, and how to look after yourself and your frame at home.

Your surgeon will discuss which type of frame is right for you. The time you spend in a frame depends on your injury, your general health and your age. On average, a frame is on for about four and a half months from fitting to removal.

Wearing a frame has its challenges, but most people are able to keep up many of their normal daily activities. Where possible, it helps to plan ahead with work, family and school so that life can continue as smoothly as possible during your treatment.



Types of frame

The Ilizarov frame

AN Ilizarov frame is a device used to lengthen, reshape or heal bones. It is built from rings, arches and rods, connected to the bone using thin wires and pins.

This type of frame is often used for broken bones, particularly where there is also damage to the skin or muscle. It is also used to lengthen the leg or to move bone across a gap, a technique known as bone transport. You can usually put weight through the leg straight away and start walking once the frame is fitted.



Figure 1. *An Ilizarov frame in place.*

The hexapod frame



A hexapod frame is very similar to an Ilizarov frame, with one important difference. Between two of the rings there are six adjustable struts.

You adjust these struts at home, following a printed prescription generated by a computer, to slowly correct the shape of the leg. The adjustment period varies, but is often thirty days or more.

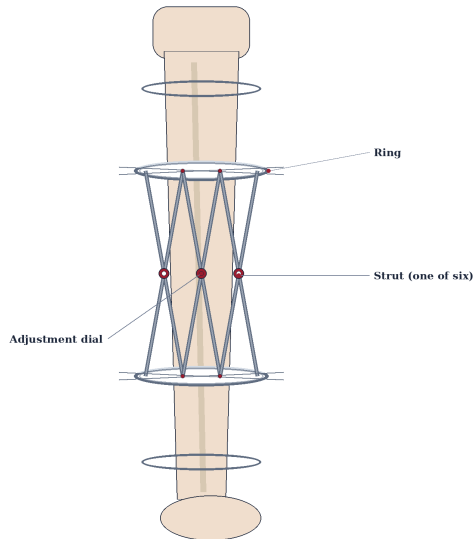


Figure 2. A hexapod frame, showing the six adjustable struts.

Why a circular frame?

A circular frame harnesses your body's natural ability to grow new bone, while giving the surgeon the precision to move bones into exactly the right position. It offers several distinct advantages over other approaches.

- You can usually put weight through the leg, which is helpful when other joints make non-weight bearing difficult.
- It is a very safe way of healing fractures.
- It is kind to the skin and muscles, especially in severe injuries.
- It allows bones to be moved gradually and accurately into the correct position.

Before your surgery

Pre-assessment clinic

Before planned surgery you will be invited to a pre-assessment clinic. The team will take a detailed medical history, blood tests and swabs to identify any issues well before the day of your operation. Please bring all of your medications to this appointment. The pre-assessment nurse may ask you to stop certain medications for a short time before surgery.

Helping your body to heal

Stop smoking and vaping

This is one of the single most important things you can do.

Smoking slows bone healing and can roughly double the time you spend in the frame, to around nine months on average. It also increases the risk of pin site infections and slows wound healing.



ALCOHOL

Alcohol reduces how well your body absorbs calcium and can slow bone healing. Try to avoid alcohol completely throughout your treatment.

NUTRITION

If you are in hospital, ask to see the dietician. Aim for a balanced diet with plenty of calcium, vitamin C and vitamin D. In the summer months, short periods of sunlight on your skin will help boost your vitamin D.

ANTI-INFLAMMATORY MEDICINES

Please avoid non-steroidal anti-inflammatory medicines such as ibuprofen and diclofenac during frame treatment. These can slow bone healing and lengthen your time in the frame. Paracetamol is fine, and we will prescribe stronger painkillers if you need them.

During your surgery

YOUR surgeon will go through the risks and benefits of the operation with you before you sign the consent form. You will also be seen by an anaesthetist.

Most patients have a general anaesthetic, so you are asleep for the operation, combined with a nerve block for pain relief afterwards. Your anaesthetist will discuss the best option for you on the day.

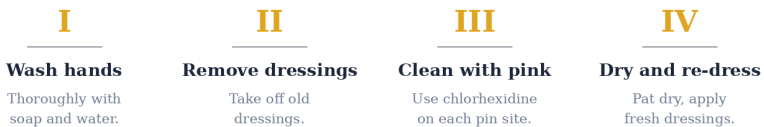
After the operation you will be transferred to the ward. You can go home once your pain is well controlled and the team is happy with your progress. You will be sent home with painkillers, as good pain control helps you get back to your daily activities.

After your surgery

Your treatment is a journey, and there may be bumps along the way. Please contact us if you have any concerns. You are not on your own with this.

Pin site care

Clean your pin sites once a week using chlorhexidine, the pink solution, and change all of the dressings at the same time. Between cleans, keep the pin sites clean and dry. You can shower the frame and the leg once a week, immediately after cleaning. For the rest of the time, keep the limb completely dry.



Keep pin sites clean and dry between weekly cleans.

*Show the frame once a week, immediately after cleaning the pins.
A step-by-step video is available at themanchesterframesurgeon.com.*

Figure 3. *The weekly pin site care routine, step by step.*

Common problems

Pain

You will have some pain throughout your treatment. The aim is to keep it well controlled so you can walk as much as the leg allows. When you are resting, elevating the leg helps with pain and swelling.

Some discomfort at home is normal and should slowly improve. Keep taking your prescribed painkillers, especially on days when you are adjusting the frame. As you do more each day, you should need fewer painkillers, and eventually none at all.

Pin site infection

Around half of patients in a circular frame develop a pin site infection at some point during their treatment. Please do not go to your GP. Instead, send a photograph and a message to our specialist team at Manchester Royal Infirmary so we can sort it quickly.



Signs of a pin site infection

Contact the specialist team if you have one or more of the following:

- Increased pain around the pin site.
- Redness, swelling, or warmth at the site.
- Oozing, either bleeding or yellow and cloudy in colour.
- Feeling generally unwell, with a fever.

Broken wire or pin

A broken wire is not unusual. Please contact the specialist nurse if you feel a sudden twang or think a wire has snapped. In most cases the wire is simply removed and your treatment carries on. Occasionally, we will need to replace it in the operating theatre. Unless we tell you otherwise, you can usually keep weight-bearing even if a wire breaks.

Joint stiffness

The wires and pins can make nearby joints feel stiff. The frame itself can also cause stiffness, particularly during lengthening or deformity correction. It is very important to work with your physiotherapist and to stretch and move these joints regularly throughout your treatment.

Follow-up and frame removal

In the frame clinic

After your surgery, you will be seen in the frame clinic at two weeks, at six weeks, and then every six weeks until the frame comes off.

The exception is during turns or adjustments. While you are doing these, we will see you every one to two weeks to check your progress. You can contact your specialist nurse directly on the number given to you for any questions or concerns about your frame.

Taking the frame off

Before removal, you will go through a period of dynamization, where parts of the frame are loosened to check that the bone has fully healed.

Once we are satisfied, the specialist nurse will take the frame off in the clinic procedure room. Almost all frames come off in the clinic using inhaled gas-and-air for pain relief. Occasionally, if a patient feels very anxious, we will remove the frame in theatre instead.

You may need a boot or a cast for a short period after the frame is removed, while things settle down. The pin sites must be kept dry until they have healed before you can return to daily showering.

Common questions

What can I wear?

A frame is bulky. In winter, tracksuit bottoms with side buttons or stretchy joggers work well. In summer, shorts are easiest. Some patients have custom frame covers made.

Can I sleep with my partner?

Yes. You may both need to find new positions in bed, with your partner usually sleeping on the opposite side to the frame. The frame should not get in the way of your normal relationship.

Can I drive?

We do not advise driving while you are in the frame. Your car insurance may not cover you if you have an accident. Public transport and taxis are usually a good alternative.

Can I go swimming?

No. The pin sites must be kept clean and dry, except on the one day each week when you shower and change the dressings.



Can I go back to work?

If you have a desk or sedentary job, yes, you can usually return to work. Manual or safety-critical jobs may not be possible until the frame is off. Please discuss this with your surgeon.

Can I go on holiday?

It depends on the type of treatment you are having and whether you are safe to fly. Discuss this with your surgeon and make sure you have suitable travel insurance before booking.

CHAPTER TEN

Further information

The following resources offer further reading and support during your treatment.

The Manchester Frame Surgeon themanchesterframesurgeon.com

Limb Healing limbhealing.com

NHS Stop Smoking nhs.uk/stopsmoking

Drinkaware drinkaware.co.uk

Transport for Greater Manchester tfgm.com



MANCHESTER LIMB RECONSTRUCTION SERVICE

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COLOPHON

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*Set in Palatino, typeset in L^AT_EX.
All illustrations are original.*



EDITION 2026