



*Better
Together*

Patient information

Ilizarov Frame / Circular External Fixator Application

Trauma and Orthopaedics Directorate PIF 1469 V3

Your Consultant / Doctor has advised you to have frame application surgery (external fixation).

What is an Ilizarov fixator?

The Ilizarov fixator is a circular frame which surrounds your limb and is attached via high tensioned wires or thicker pins called half pins. Wires are inserted through your soft tissues and bone and are attached and tensioned on each side to the rings.

Half pins are stainless steel pins attached to one side of the frame and are used when higher strength fixation is needed. Each frame is individually designed for each patient and depends on the aim of treatment e.g. limb deformity correction, lengthening, fracture healing or joint fusion.



Are there any alternative treatments available and what will happen if I decide not to proceed with surgery?

If you decide not to proceed with surgery, you may receive further advice regarding suitable footwear / orthotics to help manage your symptoms and possibly maintain your mobility. It may be appropriate for you to be referred to an Orthotist for assessment. Without surgery, it is likely that your condition and symptoms will progress further and you will need to discuss your case with your specialist.

Preparation for surgery

It is important that you are fully informed before undergoing any surgery. The multi-disciplinary team involved in your care consists of orthopaedic consultant, nurses, specialist nurse, physiotherapists and occupational therapists.

You will not only be assessed pre-operatively regarding your fitness to proceed with anaesthetic and surgery, you will also be reviewed by the preadmission therapy team regarding suitability of your home environment. This will help you to prepare in advance ready for your discharge home from hospital.

For instance, you may require assistive equipment to enable you to maintain your independence and make life a little easier for when you are discharged home.

A special raised toilet seat may also be required, particularly if your frame extends onto the thigh area. This will depend on your individual circumstances, however any equipment required may be loaned to you by your local community equipment service or purchased privately.

You will also be assessed regarding joint mobility / strength and your ability to mobilise safely post-operatively. You will also be provided with details of simple stretching and muscle strengthening exercises to do before you are admitted for surgery. Information will also be provided by nursing staff about how to care for your frame and pin sites at home.

If you have any questions or need any advice please contact the Specialist Nurse on Tel: 0151 282 6000 ask for bleep 4634. Text phone number: 18001 0151 282 6000

The Foot and Ankle Service Secretaries can be contacted on Tel: 0151 282 6813/6746 and a message left. Text phone number: 18001 0151 282 6813/6747

If your health status has changed you will need to inform us as soon as possible on the numbers above. This is important so that a new date can be arranged for you and it also means another patient can be given your previous admission date, avoiding unnecessary wastage of theatre time.

Smoking

If you smoke then you will need to stop smoking at least two weeks before your surgery. You will need to refrain from smoking for the duration of your treatment as bone and wound healing is delayed due to smoking and can severely affect any treatment. Advice / help on how you can stop smoking is available from your family doctor (GP) and agencies such as “Fag-ends” please see details at end of this leaflet.

How long will the frame be on?

This depends on the individual treatment as well as other factors, such as age, whether you are still smoking (see earlier section re smoking cessation). Your specialist will be able to give you an approximate idea of treatment times.

What are the benefits of having external fixation?

External fixation treatment usually allows you to weight-bear through your operated leg, while maintaining stability of the surgery via the frame and tensioned wires. This is useful in individuals who find it impossible to non-weight bear due to conditions affecting other joints.

The Occupational Therapist will provide you with a specially adapted temporary post-operative shoe which will fit securely around your frame to allow you to put weight onto your foot safely.



This may need to be slightly raised to allow clearance of the frame from the ground and so you may have to wear a suitable height shoe on your other foot to help bring you more level.

External fixation also has the benefit of allowing direct access to skin, e.g. allowing wound care, monitoring infection etc.

Will the operation be painful?

Your post-operative pain will be managed using patient controlled analgesia (PCA), which consists of a pump containing diluted morphine. You will be able to administer a dose yourself when you require it and also anticipate when you are likely to require a dose, for example before a bed bath etc.

You cannot overdose using PCA as there is an automatic lock out system which prevents a dose being delivered too soon after the last one. After around 24 to 48 hours it may be possible to transfer you onto oral strong painkillers.

When you eventually go home you may still be experiencing some discomfort. This is normal and should gradually decrease with time and will also depend on any frame adjustments you may be required to carry out at home.

You will need to continue to take your painkillers regularly as prescribed as long as you require them, particularly if you are carrying out regular frame adjustments. As your pain decreases you will find that you need to take fewer painkillers until eventually you no longer require any.

We do not advise you to take long-term non-steroidal anti-inflammatory medication (arthritis tablets) as this may have a delaying effect on bone healing.

What are the specific risks of having external fixation?

Pin site infection is a risk in this type of surgery. You will need to continue your pin site care / observations at home to ensure any infection is detected at the earliest time.

We have found that patients who get involved in their own pin site care have a lesser incidence of infection as they are more familiar with spotting any potential problems should they arise.

The four key signs to look out for are increased pain, redness, swelling and oozing from around the pin site.

Early pin site infections normally resolve by introducing daily cleaning and redressing of the affected pin site(s). It is important that you clean any infected pin sites last to avoid contamination of non-infected sites.

If you are not visiting the hospital regularly, a pin site swab can be sent to the lab via your GP to identify the infection type, which in most cases is *Staphylococcus aureus*. Also it may be necessary for your GP to prescribe a short course of oral antibiotics to treat infected pin sites if they have not improved with frequent cleansing.

In some cases, it may be necessary for you to be re-admitted for intravenous antibiotics or to have relocation of a pin due to infection but this is unusual.

Nerve problems - It is rare to have nerve damage due to application of external fixation but it is possible you may experience some numbness, tingling sensations which may not resolve.

Deep Vein Thrombosis - this is a risk with any surgery resulting in a reduction of mobility post-operatively. You will be given a course of daily blood thinning injections (low molecular weight heparin) to help prevent blood clot formation.

You may need to give these to yourself for a while when you get home. If so, you will be instructed in the correct method before you leave hospital. You will also be encouraged to carry out limb exercise and you will be mobilised, under supervision, at the earliest time using various appropriate walking aids.

Joint / Muscle stiffness - can be a problem following frame application and it is important that you continue your physiotherapy to exercise your joints for the duration of your treatment. This will also help to prevent any muscle wastage.

Wire or pin breakage can occur due to continual stresses applied from your limb. This causes wire fatigue. Should breakage occur you may hear / feel a “twang”. You will need to contact us to arrange an urgent clinic review for assessment of the broken wire. It may be possible for your specialist to reattach the wire to the frame in clinic. In the meantime, it is important that you do not put any weight through your limb. However it may be necessary to arrange for you to be admitted to replace the wire in theatre, under anaesthetic.

Frequently asked questions

How will I manage at home?

You will be seen again during your hospital stay by the therapy team who will reassess you regarding your ability to safely mobilise and manage your activities of daily living prior to your discharge home.

How do my pin sites need to be cared for?

While you are in hospital your pin sites will be redressed by the nurses on your ward. They are first cleaned and redressed the day after your surgery.

This is then repeated again the following day and then on the third day they are redressed again but this time they are also bandaged in a figure of eight fashion, in order to exert slight pressure at the pin site.

This prevents the collection of fluid beneath the pin site, which would provide an ideal environment for bacteria to grow if it was allowed to remain. By encouraging drainage of the pin sites this helps to prevent infection from occurring.

The bandages also mean that no tape is used to secure dressing, which could potentially cause skin damage and infection.

The pin sites are then left for a ten day period. If any pain or leakage occurs, those individual pin sites will require daily dressings until symptoms have resolved. Should more frequent cleaning not alleviate your symptoms you will need to contact your GP for a wound swab to be taken and course of antibiotics, if required.

You will also need to contact the specialist nurse who will arrange for you to be reviewed in clinic for an early reassessment.

During pin site care all formed scabs and crusts are removed to allow free drainage of the site. It is also important to ensure that the skin is not adhered to the wire, (also known as “tenting”) thereby also allowing free drainage of trapped fluid. This is carried out when cleaning the pin sites, gently freeing up the skin immediately in contact with the wire.



What can I wear comfortably?

Track suits with zips or poppers on the outer edge are ideal to go over the frame. Sometimes patients find they need a size bigger whilst the frame is on. Others like to wear shorts and some ladies like to wear a long skirt. Some patients have adapted their own trousers by adding extra material or sewing on some hook and loop roll (Velcro) to the outer edge.

Patients often complain of feeling cold and previous patients have recommended application of the toe section of a loose sock over the toes or a thicker pillow case over the whole frame. This is particularly useful in bed to prevent damage caused by the frame to other limbs or partners.

Can I sleep with my partner?

Your fixator should hopefully not stop you from continuing your normal relationship. You will need to adapt in order to protect your partner from protruding wires and pins.

Do I have to exercise?

You will be given exercises by the physiotherapist to continue at home to help strengthen muscles and prevent joint stiffness.

Success of treatment is also dependant on normal stresses being exerted through your bones and so exercises are an important part of your treatment in order to achieve maximum benefit.

Can I drive my car?

You will need to check this out with your surgeon as this depends on your treatment. If you are told that you will be okay to drive then you will need to inform the DVLA and your car insurance company before you begin driving.

Can I go on holiday?

This depends on the type of treatment you are having and whether you are flying or not. Please check this out with your consultant and the insurance company, especially if you are going abroad.

Can I go swimming?

You are able to go swimming but not if you have any pin site infections or wounds. Following swimming you will need to shower down your frame with plain water and dry your frame and pin sites using a separate towel. Obviously you cannot swim with the dressings in place. Do not forget that the fixator weighs several kilos.

Can I sunbathe?

It is important not to expose your fixator or pin sites directly to the sun. The wires and pins will heat up rapidly in the sun and will burn skin and soft tissues. The fixator will need to be covered at all times, preferably with a light coloured material which will reflect heat.

What happens if I can't afford my prescriptions?

If you are on income support you can apply for a free certificate which covers all types of prescriptions. If not you can pay for a three or twelve month prescription prepayment form (season ticket), which covers all prescriptions for a period of three or twelve months.

When can I return to work?

This will depend on your job and you will need to check this out with your consultant and your employer. There may be Health and Safety issues e.g. if you work with foods. If you have any problems or need advice you can contact your local Disability Employment Advisor, who is usually based at your local job centre.

How often do I need to be seen in clinic?

You may have to attend weekly if you are carrying out frame adjustments, otherwise you may need to attend two weekly initially.

How is the frame taken off at the end of treatment?

On completion of your treatment you may be able to have your frame removed in clinic but it may be necessary to admit you to have it removed in theatre. Your consultant will discuss this with you at your consultation.

It may also be necessary for you to have a cast or boot applied for a few weeks following frame removal. You will have small dressing covering the old pin site wounds and these wounds normally heal well. The dressings are usually removed at around one week post frame removal. In the case of previously infected pin sites, healing may be delayed. Once these areas are healed and providing you are not having a further cast applied, you may shower / bathe as usual.

The following section has been written by a patient who has kindly agreed to share his experiences of living with his Ilizarov frame, which you may find helpful.

20 Pin Bowling (along) - A patient's perspective

You have been selected for fixator surgery, but don't worry. I have had mine on for 6 months now.

Fixators can be applied for various reasons. I had mine as I had bones removed from my foot due to an infection. I ended up with a short foot & over a couple of months my wife adjusted the nuts every day so my foot is virtually the same size as the other one now.

You will be given a full M.O.T. Pre-op assessment and then you will be admitted for a short all inclusive stay in the hospital. The operation can take a variable amount of time - depending on what is done. You will wake up with the frame on. Don't be scared. The pain is well controlled - in fact it is a D.I.Y. job with the drip machine. I was surprised at how little pain there was. The nurses, physios & OT'S will give you good care. Pain killing tablets can be taken when you are at home but the need gets less as time goes on. People look at the frame & say "That looks painful", but a lot of the time I can't feel mine is on.

At home I have 2 crutches, a bath seat & toilet frame to assist when using the toilet.

Of course, mobility is a problem. At first I had to use a Zimmer but I am good on crutches now. It is very difficult to carry things when on crutches but a shopping bag over the handle is very useful. I also invested in a triangle - a Zimmer on 3 wheels with a shelf and a bag attached. At least I can carry a meal or a brew now.

Getting round the shops is difficult. Many towns have shop mobility where you can hire an electric buggy to bomb around in. Many stores such as Tesco, M&S & B&Q have buggies that you can borrow. Others have wheelchairs but it is better to get one with big wheels and you can wheel it yourself and save your partner a job.

Many people either do not, or refuse to see you in a chair as you are below their sight line. They stop in the way or walk straight across you. I think they are bent on suicide. They are rude and inconsiderate.

I find it useful to have a bed frame to avoid tearing the duvet. Likewise we have a "sheepskin" on the bed to save the mattress. It was handy to have a piece of foam rubber between my legs to avoid knocking chunks out of the other leg.

Boxer shorts are easier to put on than y fronts and I wear tracky bottoms with one leg cut off to the knee and a zip up the side.

Have a positive attitude – don't say "I can't do it". Think of ways that you can do something. Don't become an invalid. It may be possible for you to return to work or school. Some things you won't be able to do but there is a lot that you can do. Try to lead as normal a life as possible.

I am able to drive as I have an automatic.

This affects all of your lifestyle but how much depends on you. It also affects your partner as they will have more to do for you and will also have to put up with your moods and low episodes. They don't deserve your moods. Try not to take it out on them - I know that can be very difficult. You may well feel down at not being able to do what you want but try to remember what you will be able to do after the frame comes off.

Pin-site dressing days mean you can have a shower. It is very important to look for signs of infection around the pins as there are millions of germs living on your skin and some really enjoy trying to cause trouble.

Remember that when you attend for your appointments at the hospital that all the staff from the consultant down give each patient as long as it takes so your appointment could be late. However you will also get as long as it takes. Please be a patient patient with the staff - they are doing their best.

The fixator will be on for a variable amount of time as each patient has a different condition and their healing rates all vary widely. Try not to be too upset if you have to wear yours for longer than the original estimate. It is there for a good reason.

If you run into problems there is always a friendly helpful voice on the other end of the phone to offer advice.

Further information

Orthopaedic Specialist Nurse

Tel: 0151 282 6000 and ask for bleep 4634

Text phone number: 18001 0151 282 6000

Julie Taylor

Senior Occupational Therapist

Tel: 0151 282 6260

Text phone number: 18001 0151 282 6260

Paula Goudie

Senior Physiotherapist

Tel: 0151 282 6276

Text phone number: 18001 0151 282 6276

FAG ENDS

Tel: 0800 1952131

www.stopsmoking.org.uk

NHS 111Service

Tel: 111

Ilizarov web sites

www.ilizarov.org.uk

www.patient.co.uk

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All Trust approved information is available on request in alternative formats, including other languages, easy read, large print, audio, Braille, moon and electronically.

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