What about the anaesthetic?

Taylor Spatial Frame is performed under general anaesthetic. Your anaesthetist will also discuss with you techniques for pain relief after the procedure.

What happens before the operation?

On the day of surgery you will be seen on the ward by the operating surgeon who will discuss your surgery and sign the consent form with you. If it is possible, you should see the frame before it is applied. This will help in the process of accepting the frame. You may be asked by your surgeon to stop taking certain medication due to their potential impact on bone healing. Therefore please ensure your doctor knows what medications you take on a regular basis. Please ensure you ask any questions you have prior to having your surgery.

You will also be seen by the anaesthetist to discuss your anaesthetic. This is a good opportunity to discuss any concerns you may have with the anaesthetic such as nausea or vomiting. The foot and ankle specialist practitioner will discuss the important things to remember following your discharge after surgery. During your stay on the ward you will be assigned a nurse who will look after you until you are ready to go to theatre. If at any stage of your visit you have any questions or concerns please feel free to ask any member of staff for help.

What happens after the operation?

Patients generally stay in hospital for up to five days following surgery. You will be seen by the physiotherapy team to mobilise you safely according to your weight-bearing status. It is essential that your pain levels are controlled well before you go home. You are sent home with the appropriate painkillers to keep you comfortable. You will also be reviewed by the Occupational Therapist to discuss your home living circumstances to allow you to perform daily living activities, such as washing, dressing etc, taking into account support from relatives or carers.

The surgical care practitioner will arrange a time on the ward to show you and your relative/carer how to look after your frame at home.

Immediate Postop Rehabilitation

In most cases the surgeon will allow you to place full weight on the affected leg once the frame is in situ. It is therefore important to start mobilising on the frame, using a walking aid, the day after surgery. It is very likely that you won't feel like mobilising, but it is crucial you try your best. Weight-bearing will help to minimise the risk of joint contracture, muscle shortening and general deconditioning of your muscles. It is also very important in the formation of new bone. The physiotherapist on the ward will show you how to get in and out of bed correctly and help you to mobilise with the appropriate walking aid.

Practicing some simple exercises post-operatively will also help to keep your joints flexible and muscles strong. These exercises can be found in the next section of the booklet. You should aim to do these exercises 10 times each, 3 times per day. You should aim to practice full joint range of motion exercises from day 1 post op. Keeping your pain controlled will enable you to do these more easily. Please note that simply wiggling (small range of motion exercises) your joints is not adequate.

Where possible, you should aim to get back into normal footwear as soon as you are able. In the early stages following the operation, you may not be able to get your normal footwear on. A flat shoe can be provided to allow you to bear weight on the affected leg. When resting a strap will be placed under the foot and secured to the frame to hold your foot in a neutral position. This will help to prevent shorting of your Achilles tendon and help to keep your foot in a good posture. Very often, this strap will be made of elastic to allow you to strengthen your calf muscle when resting.

To be discharged by the ward Physiotherapist you must be able to demonstrate:

- Getting in / out of bed independently
- Mobilising safely with a walking aid (including on stairs – if indicated)
- Have the appropriate foot wear in situ
- Your understanding of the exercise programme

From 2 weeks

You will be followed up in the fracture clinic at 2 weeks post op. This will be a useful opportunity for the Physiotherapist working in the clinic to check your progress. They will assess your joint flexibility and muscle control to ensure there have been no complications with your movement since the application of the frame. They may choose to adjust, progress or add to your existing exercise programme.

It is also important that the Physiotherapist sees you walking with your walking aid to ensure you are demonstrating a safe and 'normal' gait pattern.

Outpatient / Gym based rehab

You will be referred to your local Physiotherapy department on discharge from the hospital. Please ensure you attend these appointments wearing sportswear (T-shirt, shorts and trainers). It is here that you will really get going with your rehab once your pain has settled. The team here will keep a close eye on your joint flexibility and muscle length to ensure you are not getting tight. They will also help you to discard your walking aid and walk unaided.

Once happy that there are no concerns with your movement, a rehabilitation programme will be devised to improve your strength, balance and stamina. It will be useful to practice activities such as:

- Step-ups
- Squats
- Wobble-boards / Balance cushions
- Treadmill
- Exercise bike
- Cross-trainer

However, these activities will depend on the amount of weight your surgeon is happy to place on your leg or any other restrictions.

PLEASE REMEMBER, PHYSIOTHERAPISTS CAN TEACH, ENCOURAGE AND SUPERVISE HOWEVER YOU MUST BE PREPARED TO TAKE AN ACTIVE PART IN YOUR REHABILITATION.

Diet / Lifestyle

It is important to maintain a healthy balanced diet whilst your frame is on. You should ensure you eat foods rich in calcium; these include milk, cheese, eggs and yoghurt. Vitamin D is also important as it helps your body absorb Calcium. Vitamin D is found in products such as milk and cereals, saltwater fish, egg yolk and liver. Vitamin D can also be obtained from sunlight in the summer months. It is also sensible to limit the amount of carbonated drinks you consume. Phosphoric acid, which is used in many soft drinks has been linked to lower bone density. Furthermore caffeine, which

Underwear normally has to be in a bigger size. Sometimes the seams of underwear need to be taken apart and refastened with Velcro to enable it to be worn.

Emotional Support

Getting used to wearing a frame can take time. Whether it is the frustration of being less mobile, difficulty accepting the frame or the pain associated, it is normal to have up and down days. It is not uncommon for friends and family to go through a similar emotional rollercoaster. As time goes by it becomes easier to cope with the frame.

Whereas plaster-casts are accepted as 'normal' by society, frames are something the general public will stare at. This can be quite upsetting, particularly in the early stages.

Do not try to deal with these emotions alone. Share your feelings with your family and friends or indeed the team caring for you at the hospital. Very often concerns you may have can be addressed quickly through simply talking to someone.

A positive attitude and good motivation is so important when being treated with a frame. Give yourself the time and get the support you need to maintain this.

Other

Remember the metal frame is a good conductor of temperature. The temperature outside the body can be quickly transmitted to the bone inside the limb. Therefore do not let the frame rest for long.

CARING FOR YOUR PIN SITES

(Based on the Royal College of Nursing Guidance on pin site care, consensus project 2010)

What is a pin site?

Your surgeon has fitted you with an external fixator frame to hold your fractured or misaligned bones correctly in place whilst the bones heal and reunite. The sites that the pin or wire enters the skin are called the pin sites. Your consultant in charge of your care will tell you how long you will have the fixator in place for.

You will have to look after your pin sites. Keeping the pin sites clean reduces the risk of infection and allows soft tissue around the pin site to rest. It is very important that infection does not enter the pin site as this can lead to infection in the bone or surrounding skin. These infections can be very difficult to treat and delay or prevent recovery. It is also very important to allow the soft tissue to rest as regular fiddling with these tissues can cause pain, inflammation and allow infection to set in.

It is important to avoid changing the dressings too soon after your initial surgery to apply the external fixator frame. The nursing staff will start the care of your pin sites. Once you feel able they will teach you, your carer or family how to look after them.

Please keep this information leaflet to hand to guide you once you are discharged from hospital.

How often do I need to clean my pin sites?

Good personal hygiene is very important. This includes keeping the frame clean. You should wash yourself every day. However, normally, you should clean the pin sites and change the dressings no more than once a week. You will need to clean the pin sites and change the dressings more often if there is concern or if the dressing becomes soaked. Step-by-step guidance is given later. Do

Pin sites that are oozing should be dressed with a sterile dressing and very gently compressed. Oozing pin sites need regular review by the orthopaedic team.

Discharge from hospital

Once your pain is well controlled, you are able to mobilise safely and home circumstances are arranged you may be discharged home. You will leave with all the dressings and equipment needed for your regular dressing and wound management.

What problems can occur after the operation?

Nerve injury

Permanent damage to major nerves with muscle weakness and/or skin numbness is extremely rare. Nerve irritation is possible but rare. This may cause some tingling or, in rare cases, pain but usually resolves once the frame is removed.

Infection

Persistent infection at the site of a pin or wire once they have been removed is rare but occasionally happens. If this does happen an operation is required to address this.

For localised infection around a pin site, a single course of antibiotics is usually sufficient. If a patient has persistent problems with a particular site, then they may have to be admitted to hospital for Intravenous antibiotics and possible change of wire under anaesthetic.

Deep vein thrombosis (DVT) / Pulmonary Embolus (PE)

Deep vein thrombosis and pulmonary embolus are a possible problem, but is uncommon. If you are at particular risk then special precautions will be taken to reduce the risk. Moving your legs and feet as soon as you can after the operation and walking about early, all help to stop thrombosis occurring. If you have certain risk factors or have a history of DVT/PE plans can be implemented to minimise the risk to you.

Compartment syndrome

Compartment syndrome occurs where there is an increase in pressure within one or more of the leg compartments containing muscle and nerves resulting in inadequate blood supply to these tissues. You will be monitored closely following your operation every one or two hours. The first sign of this developing will be uncontrolled pain or pain on straightening your toes. Thankfully this is a rare complication but if it occurs, further emergency surgery may be necessary.

Amputation

This, fortunately, is very rare. If patients continue to have recurrent progressive infection or where the limb fails to respond to treatment or correction then amputation may be considered. This is after careful consultation between the surgical team and patient where it is considered to be in the patient's best interest.

Wound problems

It is normal for the wound to ooze within the first two weeks. Don't worry about this unless the bleeding comes through the dressing (strike-through). If this happens please contact the foot and ankle team for advice and/or dressing review.

Keeping the foot elevated after your operation will reduce swelling and allow your wound to heal well. **THIS IS ESSENTIAL.** Increased swelling may put tension on the wound edges leading to a delay in healing. We understand that you need to prepare meals and maintain personal hygiene. It is good for you to mobilise from time to time but this must be kept to minimal activity every couple of hours. You will have a scar on your foot or toe(s). This will be red, firm to touch, rubbery and may be tender for 6-8 weeks. We will advise you to massage the area regularly with an unscented moisturising cream once it has healed.

Non-union

There is small risk of bones failing to heal/knit together. This risk is greatly increased in smokers of tobacco, e-cigarettes or other substances. You will be actively encouraged to stop smoking before your surgery to increase the chances of good bone healing and reduce the time needed for frame use. Help and support is widely available online or through your GP.

Also the classes of pain killer medication, **Non-Steroidal Anti-Inflammatory Drugs (NSAIDS)**,

such as ibuprofen (Brufen), Naproxen or diclofenac (Voltarol), have been shown to slow bone healing.

Metalwork problems

On rare occasions the frame may become loose or some wires may break. If this happens you must offload your limb and let us know as soon as possible. This rarely causes a problem and can be easily resolved in our outpatient clinic. On very rare occasions a new wire may need to be replaced under a short general anaesthetic. All concerns with the frame construction must be discussed with us even if you think you are being over-cautious. We want to keep you safe and allow you to recover with the minimum of stress or concerns.

The risks of a general anaesthetic

General anaesthetics have some risks, which may be increased if you have chronic medical conditions, but in general they are as follows:

Common temporary side effects (risk of 1 in 10 to 1 in 100) include bruising or pain in the area of injections, blurred vision and sickness, these can usually be treated and pass off quickly.

Infrequent complications (risk of 1 in 100 to 1 in 10,000) include temporary breathing difficulties, muscle pains, headaches, damage to teeth, lip or tongue, sore throat and temporary problems with speaking.

Extremely rare and serious complications (risk of less than 1 in 10,000). These include severe allergic reactions and death, brain damage, kidney and liver failure, lung damage, permanent nerve or blood vessel damage, eye injury, and damage to the voice box. These are very rare and may depend on whether you have other serious medical conditions.

What should you do if you develop problems?

If you have any problems following your operation please contact the surgical care practitioner on the number below. In the event of absence there is always a member of the foot and ankle team who can help you. In emergency situations please contact your GP or Emergency Department. Useful telephone numbers are given later in this booklet.

Do you need to return to hospital for a check?

may develop complications -1.2 Tde