

Ilizarov Frame

Patient information - Department Orthopaedic OPD

The Ilizarov Frame is made of aluminium alloy and consists of a number of rods, carbon fibre rings, plates, hinges, nuts, bolts, wires, and washers of various shapes and sizes.

Uses:

Frequently used for the treatment of open fractures, bone lengthening and sometimes in the treatment of post-traumatic osteomyelitis (bone infection). Also for congenital conditions and soft tissue correction as in talipes repair (club foot) where bone and soft tissue is stretched. The apparatus is so versatile that its assembly is adaptable to treat any skeletal condition.



The essence of the Ilizarov technique involves holding a circular external fixation device to the bone using fine wires and threaded rods. The surgeon performs a corticotomy (which is when the bone is surgically cut) sparing the blood supplying marrow, and creating a “growth plate” from which the bone regenerates. The patient widens the distraction gap approximately 1 millimetre daily, by turning knobs on the device. The bone continually fills in the gap, and the gradual nature of the procedure allows muscle, nerves, skin and connective tissue to keep pace with the new growth.

Stages of Healing:

Distraction – can take several weeks, sometimes months as bone is pulled apart and angles are corrected.

Consolidation – can take some months where bone solidifies and the frame needs to stay on to hold the correction. Due to the time that this process takes, it is necessary at the initial stages, preoperatively, to take into account factors that will influence the outcome.

Preoperative Factors:

It is imperative that the affected and the unaffected limb are strengthened to build good muscle tone to aid in the rehabilitation process and to avoid joint stiffness post-operatively. Strengthening exercises such as swimming and gymnastics are recommended to help with the heaviness of the frame when ready to mobilise. With lower limb lengthening, you will require crutches to aid you in this process and therefore, strengthening of the arm muscles is also beneficial.

Post-Operative Factors:

Pain Management

Pain is the most common complaint during limb lengthening. Surgical pain may be quite intense during the first few days after the operation, but this can be well controlled by various methods while in hospital. Contraction of any muscle transfixed by pins is initially painful but resolves within a week or two. Regular analgesics are required to help with mobilisation. It is important to start mobilising as soon as possible as this helps bone growth.

Pin Sites

These occur where the wires go through to the bone to increase stability of the frame. Post-operatively these will require regular cleaning to prevent infection. Sponges and clips will be present for the first 24 to 48 hours, to prevent ooze and keep sites sterile. You will be shown how to care for your pin sites before you go home. An assessment of your management and supplies of equipment required will be supplied by the Orthopaedic Outpatients Department.

Infections

Infections caused by the wires constitute the most common complication. However, it is not usually significant and does not usually influence the final result, even when the apparatus is in place for an extended period of time. Often the patient may require oral antibiotics for some time, especially during distraction process. In some instances, persistent wire infections require the removal and replacement of the wire if not able to be controlled by antibiotics.

Clothes

It is helpful to wear baggy clothes with domes or velcro fasteners to prevent wear and tear and also aid with dressing.

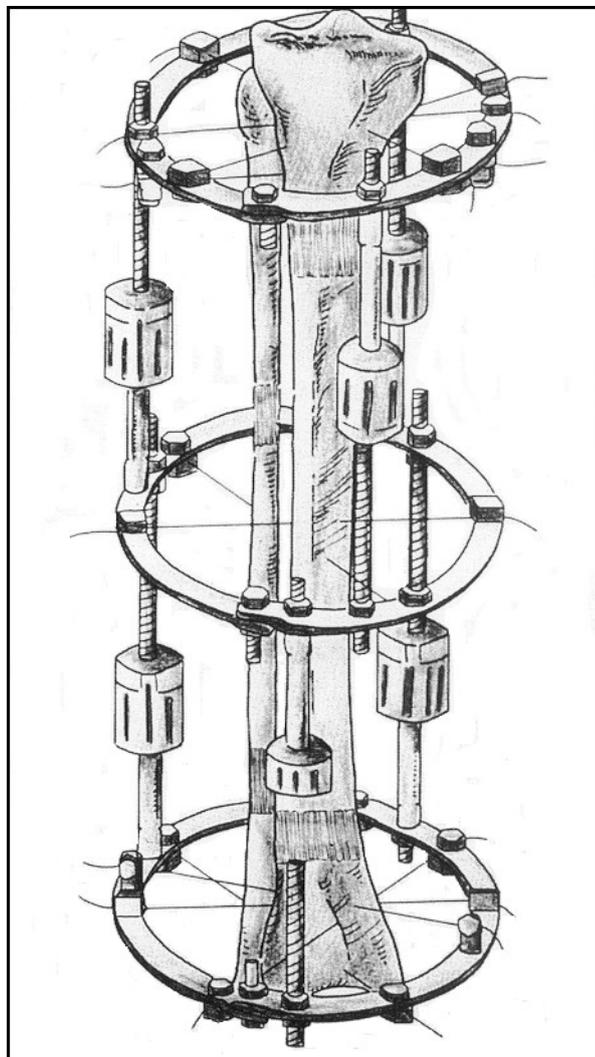
Your Responsibility:

Diet

This is an important factor. A good healthy diet will aid in bone growth and help assist in mobilisation. SMOKING deters bone growth and should be avoided.

Pin Sites

You will be required to clean your pin sites twice daily initially, then once a day when scar tissue has formed. You will also need to turn the nuts on the frame, initially four times a day, a quarter turn each time.



For more information about:

- your health and medication, go to www.healthinfo.org.nz
- hospital and specialist services, go to www.cdhb.health.nz