INSTRUCTIONS FOR PATIENTS WITH AN EXTERNAL FIXATOR

THE INTERNATIONAL CENTER FOR

LIMB LENGTHENING

Contents

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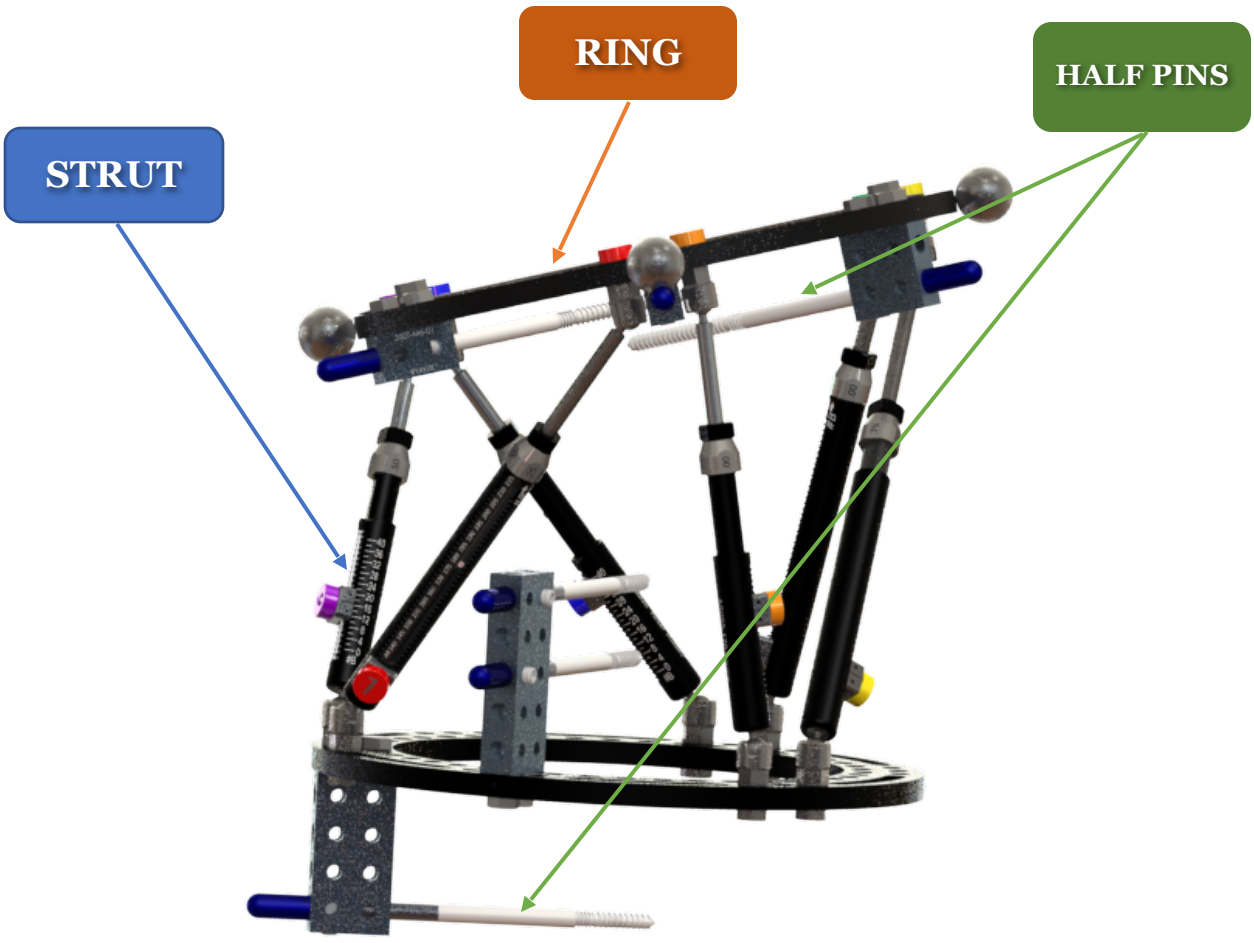
Computerized Hexapod External Fixator (CHEF) Anatomy



https://www.orthopediatrics.com/op_site/product-detail/orthex

Shopping/Supplies List

- € Gentle bodywash/soap (Cetaphil, Aveeno, Dove)
- € Antibacterial hand soap
- € Cotton tip applicators
- € Bottle of sterile saline solution
- € Kerlix gauze (1" preferred, 2" or 3" will work as well)
- € Antibiotic prescription (keep on hand for pin site infection)

Medications

Pain Control

Our team uses a multimodal approach to pain control after surgery

NSAID (Naprosyn/Ibuprofen) + Acetaminophen (Tylenol) around the clock on a regular basis for baseline pain control.

Oxycodone is provided to be used only as needed for severe pain breakthroughs. Narcotic medication comes with addictive qualities and adverse effects. Oxycodone should be stopped first as pain improves.

Sometimes additional medications are added to the regimen including gabapentin (nerve pain) and cyclobenzaprine (muscle spasm). This are provided on a case by case basis at the discretion of the surgical team.

Anticoagulation

To reduce the risk of blood clots after surgery, you will be given a blood thinner. You will most likely be prescribed **enoxaparin (Lovenox) injections** for 1 month following surgery. On occasion, **Aspirin** can be used for less sever conditions/cases.

Antibiotics

Antibiotics are given before and after surgery in the hospital to reduce the risk of infection. When you leave the hospital, you will be given a prescription for an oral antibiotic to be reserved for pin site infections. **Doxycycline** or **cephalexin** are common antibiotics prescribed for pin site infections. You will be provided with a 10 day course with additional refills. **Fill the first prescription to keep on hand until needed**. Review the signs/symptoms of pin site infections in the packet to be aware of what to look for.

Bone Health

Vitamin D3 and **calcium** supplements will be prescribed to assist with bone healing. Maintain a healthy, well-rounded diet with adequate amounts of macro- and micronutrients

Refills

If you are in need of medication refills, do not wait until the last minute. Please send an email request to Chris Sokalski & Dr. Michael Assayag for the prompter response.

Pin site care

Your external fixator is anchored into the bone via half pins and wires that exit the skin and attach to the external fixator. These pin and wire sites are prone to infection due to the natural motion of skin/pin interface and exposure to bacterial organisms living on the skin. 5 days after surgery, you will be allowed to remove dressings and wraps and begin showering. Daily showering is the best recommended pin site care. Cleaning the skin, pin sites, & external fixator in the shower with a gentle soap has shown to reduce the occurrence of pin site infections.

Bacterial infections of pin sites are still expected, and we prepare ahead of time with antibiotic prescriptions. You will be prescribed a 10-day course of oral antibiotic, usually doxycycline, with refills to keep on hand for the moment a pin site infection occurs.

Supplementary pin site care is needed to be performed during a pin site infection. In addition to regular showering, we recommend cleaning the infected pin site and removing the crust with a clean cotton tipped applicator and sterile saline

Signs and symptoms of infection

- **Redness** of the area surrounding the pin
- **Tenderness** of the area surrounding the pin that was not previously there
- **Drainage** from the pin site that differs from the normal "bloody or yellowish" drainage. The drainage will appear pus like and may be odorous.
- **Swelling** of the area
- **Warmth** of the skin
- **Body temperature** greater than 100.4 may occur with more severe infections

Remember, it's not a matter of if, but when a pin site infection will occur. Most patients will experience at least 1 infection of a pin site. When these symptoms appear, it is important to begin the antibiotic and complete the 10-day course. You should see improvement a few days after starting the medication. If the infection has not resolved or improved after completion of a 10-day course of your current antibiotic, it is important that you let your team know. Sometimes a different antibiotic needs to be prescribed in these cases.

Dressing

It is important to keep the pin sites dressed or covered to minimize skin movement and reduce pain and pin site infections. Dressings should be changed daily after showering.

External fixator sponges are typically applied to the pin sites in the operating room and stay in place for 5 days. After discarding the original sponges and the first shower is taken, it becomes your responsibility to dress the pin sites. We recommend using rolled kerlix gauze (1" or 2" width) to wrap pin sites. We call this a compressive dressing that aims to minimize skin motion, reducing skin irritation and pin site infections. When pins or wires are located close in proximity, they can be wrapped together in clusters.

We currently work with a third-party distributor to provide patients with additional sponges to dress pin sites. We will attempt to have a supply of sponges delivered to you after leaving the hospital.

Incisions and larger wounds are dressed in the operating room after surgery. These dressings should also remain in place for 5 days after surgery, unless otherwise noted by your surgical team. After surgical dressings can be removed, incisions can get wet in the shower. Leave incisions open to air if they remain dry. If drainage or bleeding occurs, apply new bandages and change daily as needed. Steri-strips should be left in place to fall off on their own after incisions have healed. Sutures will be removed in the office at your follow up appointment.

Important things to remember

- Most patients will experience at least 1 pin/wire site infection.
- Oral antibiotics are prescribed to be reserved for the occurrences of pin site infections.
- Daily showering is the best recommended pin site care.
- Use saline and a new, clean cotton swab to clean infected pin sites and remove crust.
- Avoid peroxide, lotions, ointments on or near pin sites.

External fixator adjustments

The goal of the computerized hexapod external fixator (CHEF) is to gradually correct a bony deformity or lengthen a limb.

Have you ever heard of 6 degrees of freedom? It refers to the freedom of a rigid body to move in three-dimensional space. The body can move in 3 dimensions on the X, Y, and Z axes as well as change orientation/rotation on those same axes.

Hexapod external fixators utilize the 6 degrees of freedom which allows us to lengthen limbs and correct deformities in a three-dimensional plane and provides the flexibility for your surgeon to achieve these goals. Proximal and distal rings are attached via 6 telescopic struts designed to be adjusted to achieve correction. The device uses a computer software to create a schedule for the adjustments to reach the end goal. **The adjustments will be performed at home** by the patient themselves or with family/support. Education on the device will take place after surgery and your surgeon will provide you with a schedule before leaving the hospital. Each strut is numbered 1 through 6 and color coded to match the schedule. The adjustment nut is turned to match the amount of "clicks" or the number listed for that day's measurement.

Surgery follow-up

Office follow up typically follows the same pattern for all patients undergoing treatment with external fixation. The initial visit will take place 2 weeks after surgery where pin sites and incisions will be examined. Any sutures that are ready to be removed will be taken care of during this visit.

During the correction or lengthening phase, when adjustments are being performed, clinic visits take place every 2 weeks. X-rays and physical examination measurements are taken to closely monitor progress. Modifications or "residual programs" can be created to change and fine tune additional corrections as needed throughout the process.

After the program is completed, office visits are then spaced out to monthly follow up. X-rays are taken to evaluate healing progress and new bone formation.

External Fixator Removal

Removal of the external fixator will be scheduled when adequate healing of the bone is achieved. Depending on the deformity correction or lengthening goal, this stage can take 6-9 months to reach, sometimes up to 1 year. The goal is to safely remove the external fixator when the bone is strong enough to support walking and daily activity.

Removal of the external fixator requires a minor surgical procedure and takes place in the operating room. Patients will go home the same day of surgery. In most cases, patients can walk immediately after removal of the external fixator. We place minor activity restrictions after surgery to avoid impact activity/exercise (i.e. Running, jumping) and open chain exercises for 6 weeks.