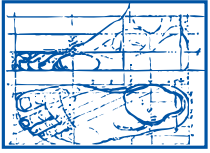


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Ilizarov/Taylor Spacial External Fixation

Beginning the Process

Limb correction is a gradual process, which lengthens and/or straightens bone and soft tissue so a limb can function as normally as possible. There are many reasons why a person, like yourself, may be a candidate for limb correction. For many patients, the procedure is used to straighten or lengthen a bone. Others have need because of a trauma, which resulted in highly fragmented breaks, bone loss or a non-union (a fracture that is not healing).

Your physician has chosen to use the Ilizarov/Taylor Spacial method of limb correction. This method takes advantage of the body's remarkable ability to grow new bone tissue. It involves the surgical application of a circular, metal frame called the Ilizarov/Taylor Spacial fixator. Fixator rings are attached to each segment of the original bone through pins and wires, which hold each bone segment in place while new tissue is growing and maturing.

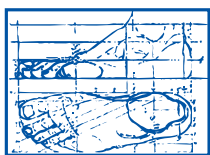
Learning about the mechanics and biology of limb correction can be overwhelming. It is important to know that you will have a great deal of support and guidance throughout this process. From day one, you will have a team of specialists and loved ones who are committed to your successful recovery. Since you have been chosen as a candidate for limb correction, you should know that your podiatric surgeon already has confidence in your potential for success. Together, you will set a realistic lengthening or straightening goal so you will know what to expect at the end of the process. It's the mission of your team to work together to assist in achieving this goal.

As you meet each member of your team, write down his or her name and telephone number so you can call on him or her for support when needed.

You

You are the most crucial team member because your active participation is valuable to the success of the limb correction process. You will be required to assist with fixator adjustments, as instructed. Without your commitment to goals, and your important feedback along the way, other team members cannot operate as effectively in their roles.

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Significant Other

It is important that a parent, sibling, spouse or close friend (someone dedicated to your well-being) be involved in the process from the beginning. They need to understand the procedure as well as you do, and they need to participate in the process of planning.

Podiatric Surgeon

Unlike some areas of medicine, limb correction requires that your surgeon be involved in every phase of the process. He or she makes the initial evaluation, performs the operation to apply the fixator, plans your recovery goal and closely follows your progress. The surgeon may have an podiatric resident, nurse or physician's assistant specifically trained to help with the surgery, and fixator construction and modification.

Clinic/Office Nursing Staff

Your clinic/office nurses coordinate the work of the entire team through each phase of your treatment. Your nurse is often the first person to answer questions, listen to concerns and advise you about problems as they arise.

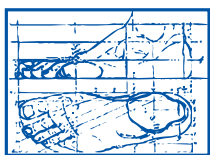
Therapist

Your physical therapist or occupational therapist conducts a pre-op assessment of your movement ability and works with you throughout the process to help you stay as active and independent as possible.

Home Care Discharge Planner

Surgery can be a difficult and emotional time. A home care discharge planner is available before and after your surgery to talk about your concerns. They also can help you solve logistical problems: transportation, temporary housing and the rental of medical equipment such as wheelchairs and crutches.

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Understanding the Process

There are two main phases to the correction process: correction/lengthening and consolidation. The initial correction phase is the time needed to gradually achieve the desired correction/length of the limb. The following consolidation phase is needed for the new bone tissue to harden and mature. Each individual's body is different, but the total time of wearing the fixator is typically four to 12 months.

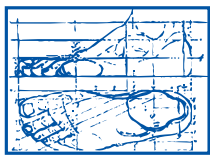
Lengthening refers to the period of time it takes to "grow the bone". This lengthening phase begins after the surgeon cuts the bone and attaches the fixator. During this time you will be working with the physician and your team to make gradual adjustments to the fixator, which increases the gap between the bone segments, adding "length" to the total limb. Over a period of months, new bone tissue will grow in the gap, ultimately hardening the area between the segments of the original bone.

When your physician is satisfied with the length and position of the new bone, the consolidation phase begins. During this phase, the bone tissue matures and becomes solid. You still wear the fixator, but you will not make adjustments. The consolidation phase is the longest part of the Ilizarove/Taylor Spacial process. It takes twice as long for the bone to harden as it does to lengthen it, so the consolidation phase typically doubles the time spent in the lengthening phase.

Physical Therapy

Within several days of your Ilizarov surgery, you will begin a thorough and on-going rehabilitation program designed to improve blood supply to the limb and leg lengthened or straightened, you might participate in physical therapy in the hospital until you begin to ambulate without too much difficulty. Your physical therapist may teach you exercises to help you develop sitting and standing balance, stability, and coordination to prepare you for mobilization and ambulation. Your therapist will prepare a home-exercise program designed to maintain the limb's range of motion and strength. Their object is to help you become as independent as possible in your personal care and daily activities. Aerobic activity increases blood flow and strengthens bones. It burns calories, increase resistnace to disease and decreases ten-

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sion. It also releases endorphines – the body’s own pain-control system.

Your exercise program is your doctor’s prescription. The exercise program designed for you will depend on type of injury sustained and external fixation device in use. To avoid complication, it should be followed with commitment and discipline. You may be able to walk, ride a stationary exercise bicycle and swim in a chlorinated pool (after your sutures are out).

Adjusting the Fixator at Home

If you are having a limb lengthened or corrected, you will be required to assist in the process by making fixator adjustments at home. This is usually done every six hours. Your physician will make sure that you are trained and understand how to make adjustments. You also will receive a specific “turning” schedule at each clinic visit. There may be a time when you experience some failure of the mechanics of the fixator. You may find broken wires, bent rods or are unable to turn the “clicker.” If this happens, call your clinic/office promptly.

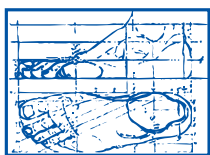
Support Yourself

Although you will have a great deal of support available to you during the process, you are your own strongest support system. Your most important job is to take care of yourself.

Nutrition

Attention to nutrition is an important way to assure the speedy healing of new bone as well as keep the rest of your body in good shape for the extra physical and emotional demands. A well-balanced diet with adequate protein, minerals and vitamins is needed for healthy tissue-and-wound healing. A dietician can instruct you and your family about diet and can answer general nutrition questions. Your physician may prescribe calcium supplements as well. Throughout the process, avoid drinking colas and other drinks which contain excessive phosphoric acid. They may decrease the amount of calcium the body absorbs.

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Stop Smoking

Avoid smoking (even secondary smoke). The nicotine in cigarettes interferes with bone formation and harms the body's ability to heal. Nicotine patches cannot be worn because they produce the same bad effect.

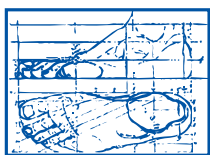
Coping with Pain

Pain management is essential to your well-being and recovery. Pain may decrease your desire and ability to walk and actively participate in physical therapy. Pain also may cause the adoption of protective postures, such as keeping your knee bent or your foot extended, which may lead to joint stiffness and decreased joint mobility. Although the bone transportation itself should not be painful, poor pin care may cause the skin around the pin sites to become taut, causing pain at the level of the skin.

Your attitude throughout the Ilizarov process is important to its success. This means you will have to find ways to cope with discomfort, pain, and frustration, plus the natural ups and downs of your emotions during this long process. Whenever possible, tell your physician or nurse what is troubling you, and be prepared to experience some degree of pain from the beginning. It should, however, always be manageable. Each individual experiences pain differently so it is difficult for medical professionals to discuss norms.

The first few days after surgery, it is likely that you will feel considerable pain or discomfort. Your physician has planned for this and will administer pain medication as needed. You may receive pain medicine intravenously for the first couple of days. After your discharge from the hospital an over-the-counter pain medication, like acetaminophen, may suffice but in some cases a narcotic may be needed. Avoid using over-the-counter anti-inflammatory medications for pain control. These drugs decrease the bone healing rate by reducing the inflammation that is necessary for the process of bone formation. Pain medicines should be taken before therapy and at bedtime as needed for your comfort. Whatever the degree of your pain, it should get progressively less bothersome.

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Pin Care

Skin infection is a common problem around pin sites but may be avoided with proper pin care. A major responsibility that you perform as a team member is making sure the areas of pin sites and wires is cleaned daily.

You may not be allowed to shower for approximately 5-7 days after placement of the external fixation device. If you have an incision, you may not be able to shower until stitches or staples are removed. Until you are able to shower, your surgeon may have you clean the pin sites with cotton swabs and normal saline.

During the first few days after the application of the external fixator, expect clear yellow or slightly bloody drainage from the pin sites. To remove this drainage, saturate a cotton swab in normal saline. Start at the pin site and move outward, using circular motion. Each cotton swab should be used only once and then thrown away. Cotton swabs also may be utilized to remove dried blood and scabs from the pin sites and keep the skin from adhering to the pins. Be careful not to irritate the skin. Excessive skin motion on the pin may cause infection. If you have difficulty reaching or seeing all the pin sites, ask a family member or friend to help you or you can use a mirror.

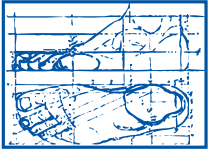
The above method is one of many ways to care for pins and wires. Be sure to follow your physician instructions for pin care.

Showers

Cleaning the pin sites with an antibacterial liquid soap and water while taking a shower has proven to be a simple and effective pin-care method. As long as there are no open wounds and your physician allows it, you can shower with the external fixator in place. Patients are encouraged to wash the external fixator as well as the leg in the shower using the liquid antibacterial soap. Allow the soap and water to run down the extremity. Do not scrub. Rinse and dry the fixator and the extremity thoroughly. Dry using a hair dryer on cool setting.

Any activities that involve soaking the external fixator in potentially contaminated water are discouraged. Your doctor may allow you to swim in a clean, chlorinated pool - no natural ocean waters, rivers, etc.

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For safety purposes consider placing a rubber mat in the tub, using a shower chair, and installing handrails in your shower.

Pin-Tract Infections

Call your doctor if you experience

- Redness, warmth and swelling.
- Extremely tender pin sites.
- Persistent fever of 100.5.↵
- Thick, cloudy, white, yellow or slightly bloody discharge.
- Odor at the pin sites.