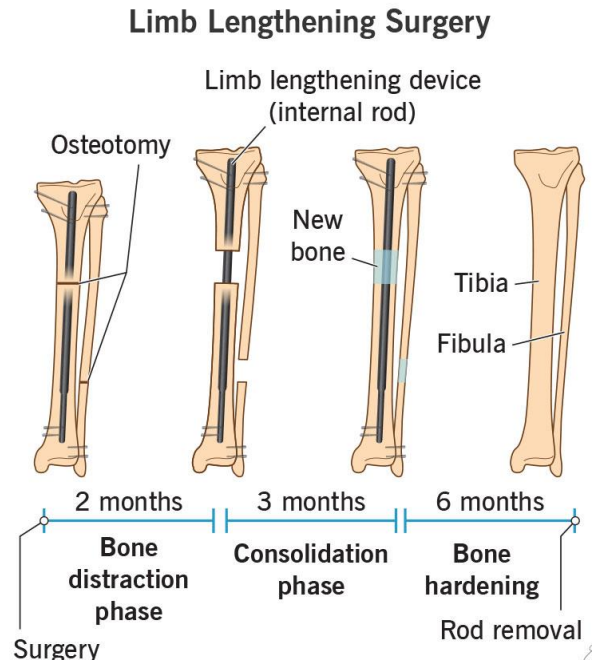




Shohada Educational & Treatment Hospital

Limb lengthening



Limb lengthening surgery done with an internal rod takes place over several months.

Overview

What is limb lengthening surgery?

Limb lengthening surgery is a procedure that can make an arm or leg bone longer. Surgeons may perform limb lengthening surgery on the:

- Humerus (upper arm bone).
- Radius/ulna (forearm bones).
- Femur (thigh bone).
- Tibia (shin bone).

What does limb lengthening surgery treat?

Limb lengthening surgery treats discrepancies (differences) in the length of arms or legs. It can also treat some conditions that cause bone growth irregularities or shorter bone length. Your provider may recommend limb lengthening surgery if you have:

- Benign bone tumor on a growth plate.
- Cerebral palsy.
- Congenital femoral deficiency, a birth condition that causes one femur to be shorter than the other.
- Hemihypertrophy, a rare condition that causes one side of the body to grow more than the other.
- Skeletal dysplasia, inherited conditions that interfere with bone growth, such as dwarfism.
- Growth plate fractures.
- Osteomyelitis.

Procedure Details

What happens before limb lengthening surgery?

Before you undergo surgery, your provider will take X-rays of your bone and measure it. These tests help your provider determine how long the bone should be. In most cases, you can expect your bone to grow up to 2 inches per surgery.

Your surgical team will tell you how to prepare for surgery. Ask your provider:

- Which medications you should take — or stop taking — before surgery.
- When you should stop eating or drinking before surgery.

The day of your surgery, your provider will give you general anesthesia, which puts you to sleep and prevents you from feeling pain. Most people stay in the hospital for about three days after surgery. Then, you'll need a friend or family member to take you home.

Before your procedure, arrange for someone to stay with you for several weeks after surgery. Most people need assistance with everyday tasks like getting dressed, preparing meals and using the bathroom. If you're lengthening a leg bone, you won't be able to walk on it right away. You may use a wheelchair, crutches or other aids.

What happens during limb lengthening surgery?

Limb lengthening surgery involves two main steps. Your surgeon:

1. Performs an osteotomy, cutting the affected bone into two segments.
2. Attaches a limb lengthening device to the two segments of bone.

Your limb lengthening device will be one of two options:

- **External fixator:** Your surgeon attaches a thin, light metal frame to the bones with pins or wires. The frame and most of the device are outside the body. These devices usually stick out several inches from your body, making it hard to wear certain clothes. Many people choose to wear clothing that's loose or that doesn't cover the device, such as shorts or short sleeve shirts.
- **Internal rod:** This newer option is a screw-like device that your surgeon places inside the bone. This device isn't visible outside the body.

What happens after limb lengthening surgery?

You recover in the hospital for several days. Before you leave the hospital, your provider gives you instructions on how to use your limb lengthening device.

If you have an external device, you must clean the pin sites every day to avoid infections. If you have an internal device, keep your surgical incisions clean until they heal.

If you're lengthening a leg bone, you won't be able to walk for several weeks. You may use a wheelchair, crutches or other aids. If you're lengthening an arm, you won't be able to lift things for a few weeks.

How do my bones lengthen after surgery?

After you heal from surgery, you enter the bone distraction phase. This phase lasts about two months. It's when the two bone segments begin to distract (pull apart). As the bones separate, your body creates new bone to fill the gap between the two segments. During this phase, you:

- **Adjust your limb lengthening device:** Several times each day, you make small adjustments to your device. Each adjustment separates the bone segments a small amount. The separation stimulates the body's natural bone renewal process so the two segments grow and slowly fuse together. If you have an external device, adjust it by turning a knob or other mechanism. If you have an internal device, use a remote control that rotates the rod inside the bone.

- **Attend physical therapy:** Physical therapy helps you get the best results from limb lengthening surgery. You may need several sessions each week. Physical therapy helps build muscle strength and range of motion. It also helps your new bone become stronger. Your physical therapist will show you how to perform exercises at home.
- **See your provider for regular checks:** Your provider takes X-rays to check the progress of your new bone growth. If the bone is growing too quickly or too slowly, your provider may adjust your treatment.

What happens after limb lengthening is complete?

After your bone has reached the desired length, it needs time to harden. Providers call this phase consolidation and it can last up to three months. During consolidation, you:

- **Stop making adjustments:** Your bone lengthening device stays in place, but you don't make any more adjustments.
- **Continue physical therapy:** Keep going to physical therapy as directed so your bone will be as strong and healthy as possible.
- **Gradually put more weight on the limb:** At first, you might use crutches or other aids to begin putting weight on your new bone. Toward the end of the consolidation phase, your provider may recommend using the limb without help. Don't try to put weight on it sooner than your provider recommends.

When does my surgeon remove my limb lengthening device?

In most cases, you wear the device for three months per inch of bone growth. For 2 inches of bone growth, you would wear the device for about six months. After your new bone is fully hardened, your provider removes the limb lengthening device with a minor surgical procedure. Some people also wear a cast or brace for several weeks after removing the device.

Is limb lengthening surgery painful?

You may have some pain after surgery when the anesthesia wears off. Your provider can give you pain relief.

You may also experience some pain or soreness during the distraction phase. Many people use over-the-counter (OTC) pain relievers to manage discomfort. Ask your provider which medications are safe for you.

Risks / Benefits

What are the advantages of limb lengthening surgery?

Limb lengthening surgery can make bones longer in people who have bone discrepancies, bone growth abnormalities or shorter bones due to skeletal dysplasia. The procedure has high success rates with positive outcomes. Having limbs the proper length can improve your:

- Gait (walking stride).
- Flexibility.
- Range of motion.
- Strength.
- Complications of leg length discrepancies, like problems with posture or pain in the back, hips, knees or ankles.

Possible risks and complications include:

- Bone that doesn't consolidate (harden) properly.
- Bone that doesn't reach the desired length.
- Damage to muscles or nerves.
- Infections at the incision site or in the bone.
- Pin-site infections in people who have external devices.
- Stiffness in joints or muscles in the lengthened arm or leg.

Recovery and Outlook

What is the recovery time for limb lengthening surgery?

The initial recovery in the hospital takes about three days. Full recovery from limb lengthening takes several months. During this time, you will gradually do more activity and gain more strength.

These steps will help you have a successful recovery and the best possible outcome:

- Don't exercise more than your provider recommends, which could cause injury.
- Follow a healthy diet with fruits, vegetables, whole grains and protein.
- Perform your home exercises and attend physical therapy as directed.
- See your provider regularly for bone checks.

When To Call the Doctor

When should I see my healthcare provider?

See your provider if you notice:

- Blood, pus or fluid draining from your pin sites.
- Chest pain or shortness of breath.
- Fever.
- Nausea and vomiting.
- Numbness or tingling in your lengthened arm or leg.
- Pain or swelling in your lengthened arm or leg.
- Redness or red streaks at your pin sites or incisions.

Limb lengthening surgery can be life-changing for people who have bone discrepancies or bone growth conditions. Newer internal devices can make your limb lengthening process easier and safer than ever before. The success rate of this surgery is high if you work with a skilled provider and follow your post-surgery instructions. Most people live full, active lives with their lengthened arm or leg.

Reference:

<https://my.clevelandclinic.org>