



Akron
Children's
Hospital

Extremity Correction

HANDBOOK





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Hello

Introduction

HOW TO USE THIS HANDBOOK

You are about to have one of the biggest journeys of your life: surgery to start correcting a deformity (flaw) in one of your limbs. This handbook has information about all aspects of your surgery, how to handle the life changes that will be needed while the correction is underway and many other helpful facts.

The handbook is split into sections that should make it easy to find the facts you need. There is also plenty of space for you to make notes and comments. Please use it. Some of the help we are giving you here came from other patients, and we want you to add to this book as well, because we're always learning about how to make things better for our patients.

WHAT IS Extremity Correction?

Not too long ago, someone who had a hurt or wounded limb might have that limb removed. If the limb was twisted or too short the person might have endured a lifetime of pain and had to limit action or how they moved because of the problem. Now, there's a lot that can be done surgically to fix, straighten and lengthen limbs.

There are now devices that can be attached to limbs which lead them to growth and/or straightening. In surgery, you will have a cut made in your bone. The device your doctor has chosen will be attached to your limb. Over the course of the next few months, you will follow safely mapped-out steps with your equipment that will prompt your body to make new bone and/or straighten your crooked bone.

Your surgeon has performed this procedure many times and has a track record of success with patients of all ages. You will be partners in your journey toward better and more comfortable movement, so be sure you share your thoughts and concerns. Carefully follow the program that is custom-crafted for you.

Please ask us if you are not sure of any of the steps. No question is too small.

Dr. Polousky will map out your course of treatment, along with the surgery and the equipment/tools that are best suited for straightening or lengthening your damaged limb.

Dr. John Polousky is Division Director, Orthopedic Sports Medicine Pediatric & Adolescent Orthopedic Surgery. In addition to youth sports injuries, Dr. Polousky's clinical interests include complex limb reconstruction, deformity correction and cartilage restoration.

REGISTERED NURSES (RN)

RNs will provide most of your care and help with daily medical needs while you are in the hospital. They will carry out your surgeon's orders, like giving your medications, tracking your vital signs and keeping an accurate medical chart on you.

ADVANCED PRACTICE PROVIDERS (APP)

These team members are physician assistants (PA) or nurse practitioners (NP). They can take full medical histories and give physical examinations to help decide the need for surgery. They have the skill to translate lab results and x-rays, as well as make treatment plans and therapeutic action for some health problems. The APP may help your surgeon in surgery, start treatment and give care teachings both before and after surgery. You may see the NP while you're hospitalized and for check up after the surgery. The APP may do minor outpatient procedures such as removing pins, wound closure and care and corrections with your equipment.

MEDICAL ASSISTANTS

While you're in the hospital, many times you will need help with things like bathing, changing clothes or using the toilet. The Medical Assistants will be able to help you.

PHYSICAL THERAPIST (PT)

You will have physical therapy each week. Your physical therapist will work closely with you to help you learn what walking assistive device you need (walker or crutches), how to use it the right way, and how to do your home exercises the right way. Doing all the things your PT teaches you will help make sure that you don't lose movement in the joints above and below your affected limb. The PT will record your progress, re-checking and changing your program as you progress.

NUTRITIONIST

The nutritionist makes sure that your food plan covers all the nutrition your body needs to heal and fix itself.

EQUIPMENT VENDORS

We think of the equipment vendors as part of our team because they know the equipment they give very well. They talk to other doctors and patients and pick up valued facts that we can learn from and pass along to our patients. Vendors come to our office many times and are ready to talk with you.

The most vital team member is **YOU**.

Your commitment with following your plan, keeping your skin and equipment clean and letting us know right away if you have questions or concerns, is vital to the successful correction or lengthening of your limb.

Frequently Asked Questions About Insurance Coverage

Each insurance company and insurance policy is different as far as coverage and requirements for extremity correction/lengthening. While our staff can help with the insurance claims stemming from your care, parents need to call their insurance company to get specific facts about coverage/scope, co-payments, preauthorizations/approvals or getting second opinions.

DOES THE SURGEON'S OFFICE PRE-AUTHORIZE MY SURGERY?

Yes. Our authorization department will call your insurance company for pre-authorization before your surgery date. Parents should feel free to contact the hospital insurance office for your pre-authorization number.

WHAT ABOUT GETTING A SECOND OPINION? HOW WILL MY INSURANCE COMPANY HANDLE IT?

Each insurance company is different. Rules for second opinions may differ with each company. Parents should call your insurance company to make sure of the requirements/rules you need to meet before surgery.

WILL MY INSURANCE COMPANY COVER 100 PERCENT OF MY SURGERY AND RECOVERY?

Likely not, so your parents will want to talk with them about the specific limits of your coverage so that they aren't surprised with an unexpected bill. Many insurance companies cover most of the cost of surgery, but not the total cost.

Frequently Used Medical Terms

Sometimes it seems like doctors and other caregivers speak a strange language. We may forget that our patients don't necessarily understand the terminology that's second nature to us. Here are some of the terms you may hear used at Akron Children's Hospital. They may also help you if you do research and reading on your own about your medical situation.

- **ANTIBIOTIC** – drugs that kill bacteria or slow their growth
- **ATROPHY** – smaller in size of an anatomic structure, often linked to its disuse. Put in context, when your limbs aren't used, their muscles atrophy.
- **EDEMA** – swelling from fluid build-up in body tissues.
- **GENU VALGUM & GENU VARUS** – frontal plane deformities of knee angle that are outside the normal range. In plain language, Genu Valgum is “knock knees” and Genu Varus is “bow-legged.”
- **NPO – Nothing Passes Orally** – This means nothing to eat, drink or chew (such as gum). In the hours leading up to surgery, for your safety, it's vital that there be nothing in your stomach.
- **OSTEOTOMY** – Surgery that changes how the bone lines up, with or without taking out a part of bone.
- **RANGE OF MOTION** – This describes how well your joint would move normally. Other terms are “**flexion**,” which is how far your limb can bend and “**extension**,” which is how far you can stretch it out.
- **VITAL SIGNS** – The processes of your body that we measure to see how well you're doing. They involve temperature, pulse (the number of times your heart beats each minute), respiration (how many times you breathe in a minute) and blood pressure.

Do you hear us use a term you don't know? Ask us what it means. We want you to be an active part of our team to know all about your procedure and healing.

The Equipment and Your Individualized Program

Our facility specializes in procedures for straightening or lengthening bones. Advances in medicine have given us the surgical techniques and mechanical devices to be able to help many people get to full movement.

Your doctor will check your limb's deformity/flaw, needed correction and decide which limb reconstruction system device will work best for you.

The Taylor Spatial Frame

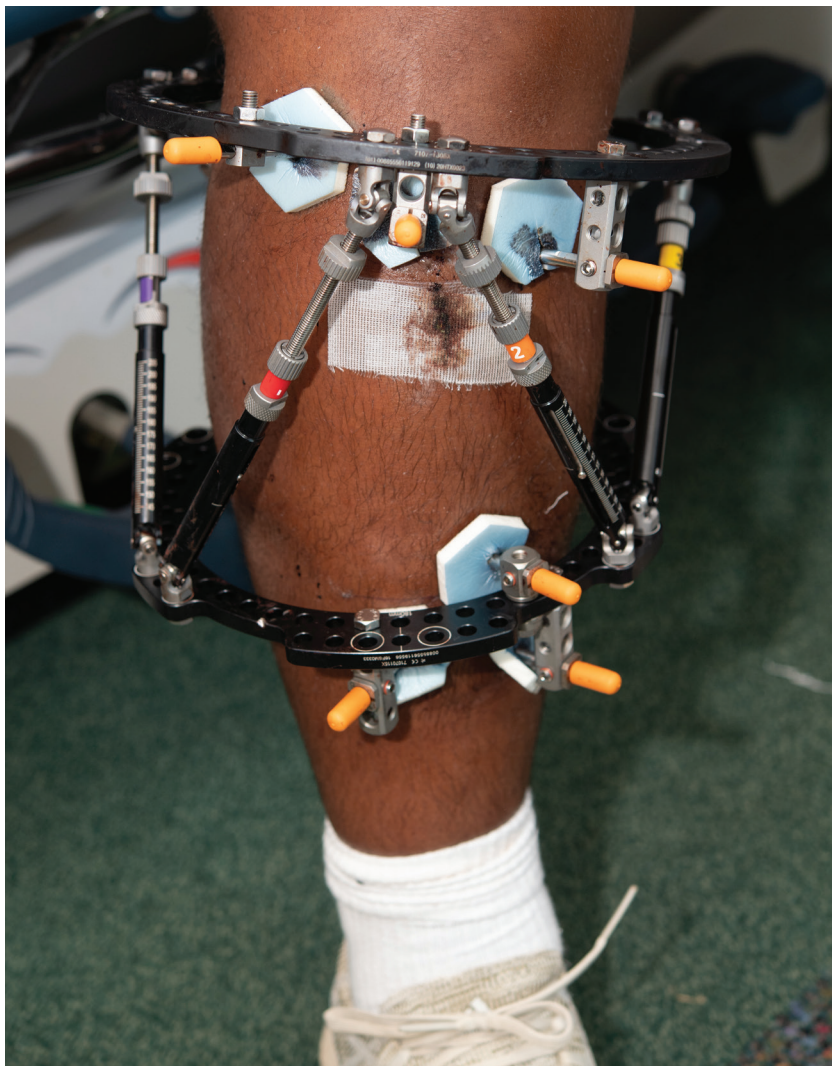
This is a six-strut device that blends aluminum rings, half pins and wires. The rings circle around the affected extremity and the pins go through the skin and connect/link the rings to your bone. Each strut can be lengthened or shortened. You will have a computer printout program tailored to your individual needs for turning your struts to carry out the lengthening or straightening of your bone. Your nurse, doctor or NP will teach you how to turn the struts. You need to follow their instructions and the routine outlined in your computer printout, to the letter.



Following Your Individualized Program

We cannot stress enough how vital it is to follow your program exactly as told. Not following it can cause many problems; speeding up or slowing down without being told to do so by your doctor will make your healing more difficult. If you are not 100 percent sure of what you're supposed to do, please ask. We want to make sure you know what you need to do and how to do it the right way:

- Follow your individual program.
- Turn your struts or pins the right way, as you were taught.
- Call right away if you have questions or problems.



Length of Time You Will Need to Be in Your Device

Your bones' ability to straighten or lengthen is pretty miraculous, but it won't happen overnight. The amount of time it will take your bone to lengthen or straighten will vary based on many reasons, such as your age, because younger people who are still growing often heal faster.

PHASE ONE (DISTRACTION)

The bone will lengthen about one millimeter per day. Since 25 millimeters equal an inch, if your bone needs to be lengthened two inches, it would take about 50 days.

PHASE TWO (CONSOLIDATION)

The Taylor Spatial Frame will stay in place during the second phase while your bone fully heals and gets stronger. That takes about twice the time spent in the distraction phase. So, if it takes 50 days to lengthen or straighten your bone, it will take another 100 days to heal and strengthen, or about 150 days total.

We can't stress enough that these are estimates and the amount of time needed for your bone to lengthen or straighten and heal may be longer or shorter than these estimates. Your doctor(s) will take x-rays to chart your healing process and let you know how it's going each time you visit our office.



Pin Care and Cleanliness

Keeping your device's pins clean is vital during the healing process. Special attention to cleanliness will help prevent infections that could slow down healing.

USE THESE TIPS:

- You may start pin care after your first post-op clinic appointment; usually 5-7 days after surgery.
- A daily shower, using a liquid antibacterial soap, is recommended.
- Do not scrub at the pin sites.
- Rinse and dry the fixator and extremity thoroughly. You can dry using a hair dryer on a cool setting.
- To avoid falling, you may need to sit in the shower while doing pin care. A rubber mat in the tub and/or a shower chair may also be used for safety.
- Pin care will likely be painful at first. You may want to take pain medication before doing pin care until you are used to it.
- Right after the surgery, there will be dried blood around your pin sites that needs to be cleaned off to stop bacteria buildup and infection. Use a clean cotton swap/Q-tip to clean these areas.
- Use a separate washcloth for the pin sites than you use for the rest of your body.
- Your skin may bunch up or "crawl up the pins", so we suggest pushing it down the pin each day. Add this into your daily cleaning routine.
- To keep from getting an infection at your pin sites, make sure you wash your hands before touching the skin around them, and don't let anyone else touch them.

SIGNS OF A PROBLEM

- Redness, warmth and swelling at the pin sites. A small amount of redness is normal.
- Extremely tender pin sites.
- Fever of 101.5 degrees or higher.
- Thick, cloudy, white, yellow, or green drainage from the pin sites. Clear yellow or slightly bloody drainage is normal.
- Odor at the pin sites.

These are all warning signs of infection. Call the office at once. Early treatment is mandatory. To prevent complications and infections from spreading further, oral antibiotics may be needed.

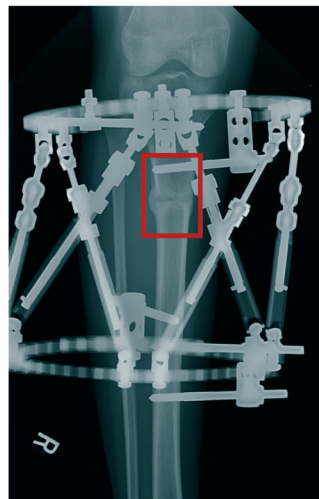
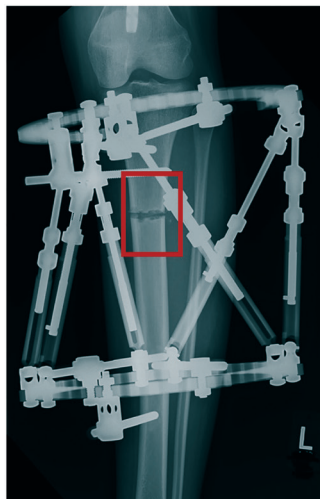
Weekly Clinic Visits

We expect you to come into the office to see the correction team each week until you end your program and your bone lengthening or straightening is done. Then you will be scheduled for monthly visits until your bone is strong enough to remove your device.

Sometimes, you will need to visit between scheduled appointments to have your device adjusted or to deal with any problems you're having. So don't be surprised if you need unexpected visits. Your visits likely will last for an hour to 90 minutes, so please arrange your schedule in line with this. It also may be helpful to keep a written record of questions and concerns that come up between your weekly visits, because it's easy to forget one day to the next.

DURING YOUR VISIT:

- You will have an x-ray to check alignment and healing progress.
- We will check your frame and struts.
- We will look at your pin sites
- We will answer any questions or concerns you have
- We will talk with you about how you're handling any pain. If you need your prescription medication refilled, it is vital to do it during your visit, because some kinds of prescriptions for medication can't be phoned into your pharmacy.



*X-rays showing how bones heal over time.
(Different legs)*

NOTES:

Surgery

GETTING PREPARED

This surgery and the healing process is a big commitment for you and your family. The surgery to fit your frame will take three to four hours. One of the keys to a successful surgery is to be prepared.

- You will have a pre-op visit at Akron Children's where we will go over the procedure with you, so you're comfortable with it.
- We will make sure you have everything you need to take care of yourself once you get home. This may include:
 - **The equipment you need:** crutches or walker, shower chair, pin cleaning supplies
 - **Your home set-up:** number of steps, sleeping accommodations

THE DAY OF SURGERY

Surgery day will be very busy and you will be in several places before you are in your hospital room. There are set tasks that must be done at each place. Let your family or anyone waiting for you know so they will be ready for a long wait.

- **ADMISSIONS** – You, your parents and a nurse will review all your paperwork and go through pre-op education. Your limb will be scrubbed to be ready for surgery.
- **PRE-OP HOLDING AREA** – This is where you will be right before going into the operating room. You will have an IV put in and the anesthesiologist will visit with you and start your medications.
- **SURGERY** – There is a whole team of surgeons and nurses that will be working on your limb. Your anesthesiologist will be here to monitor you. The surgery will take three to four hours, but now and then there are unplanned delays that may make the time in the operating room longer.
- **POST-ANESTHESIA CARE** – This is a special area where you can recover fully from anesthesia. Your vital signs (blood pressure, heart rate, pulse and breathing) will be checked often to make sure your recovery is going as it should. The nurses will also track your level of pain. When you are awake and stable, you will be transferred to your room in the Orthopaedic Unit and your family will be told where they can find you.

During the surgery, the pre-admission nurse will direct your family to the family waiting room. The length of time in the hospital varies from person to person, but you will have at least one overnight stay.

The Surgical Procedure

Your surgery will take place at Akron Children's Hospital. It will last three to four hours and you will be anesthetized during the surgery.

Anesthesia will be managed by an **anesthesiologist** – a doctor who specializes in giving special medication during surgery to keep the patient comfortable and watching your condition during the course of surgery. The medication is given through an intravenous injection into the vein that works in just a few seconds and then you are given a gas to keep up the anesthesia until the end of surgery. Your anesthesiologist constantly monitors the depth of your unconsciousness, making adjustments as needed and making sure your blood pressure and breathing are as they should be. When the surgery is over, the anesthesiologist lowers the medication so you wake up.

REGIONAL ANESTHESIA

Choices instead of general anesthesia are a spinal or epidural block that only affects the part of the body that is to undergo surgery. A small area of skin is numbed with a local anesthetic injection; the anesthesiologist places a hollow needle between the bones of the lower back and then slowly injects an anesthetic drug. As well as the regional anesthetic, you may also get some kind of sedation to help you relax into a deep sleep during the operation.

Your anesthesiologist will discuss your options with you, so you can make an informed choice.

RISKS AND COMPLICATIONS

With surgery and recovery there are always risks, and complications (problems) could happen. While problems are rare, they do occur. Every possible measure to avoid or lessen complication is taken. Problems that could happen are:

- Lasting pain
- Nerve damage
- Infection
- Failure of metal cages or screws
- Blood clots in the legs or lungs
- Stiffness
- Swelling
- Slow healing / non-healing of the bone

Your surgeon will talk about these risks that could happen in detail with you before your surgery and you will be asked to sign a consent form that confirms you understand them.

Frequently Asked Questions About Surgery

HOW LONG WILL I BE IN THE HOSPITAL?

Your stay at Akron Children's Hospital will be one to four days. Your parents should be prepared to pick you up. You will be able to ride in a car, but you will not be able to drive yourself.

HOW SOON BEFORE SURGERY DO I COME TO THE HOSPITAL?

You will be admitted to the hospital 1.5 – 2 hours before your surgery. The clinic nurse will let you and your parents know the exact time you need to arrive at the hospital during your pre-op visit or by our surgical assistant in a phone call.

DO I NEED TO BRING ANYTHING SPECIAL TO THE HOSPITAL?

- **Your routine daily medications** – no vitamins or supplements
- **Comfortable shoes** – you may only need the shoe for the extremity not being fixed with a device
- **Crutches that you will need once you are mobile again** – the clinic nurse will give you this information during your pre-op visit.
- **Personal and bath articles** to last during your visit
- **Proper clothing that has already been changed to fit with your device** – our nurse will give you information about this during your pre-op visit. There is a “Clothing and Covering Your Device” section on page 22 of this handbook about clothing modifications.
- **Do not** bring any jewelry, money or anything else valuable

WHEN SHOULD I STOP EATING OR DRINKING BEFORE SURGERY?

Do not eat or drink anything (even water) after midnight the night before your surgery.

Do not smoke after midnight, either. If you take high blood pressure or heart medication, please take it with a small sip of water early in the morning before surgery. Your doctor can guide you about taking other medications.

ANY OTHER ARRANGEMENTS I NEED TO MAKE?

Make sure that arrangements are in place to help you with meals, bathing and housecleaning for several days after you come home from the hospital. While you will have exercises to do and you will be asked to put weight on your limb, the pain medication may make you a bit fuzzy and it likely will take some time before you are up to caring for yourself fully.

IS THERE SOMEPLACE MY FAMILY AND FRIENDS CAN WAIT WHILE I'M IN SURGERY?

There is a family waiting room. Akron Children's Hospital offers free Wi-Fi to use while waiting, which may be several hours. Family can bring their own things to read, listen to music on their phone, or other items to do while waiting. There is a cafeteria on the third floor of the hospital.

NOTES:

After Surgery

PAIN IMMEDIATELY AFTER SURGERY

Post-surgical pain is one of our patient's main concerns about having surgery. Our goal always is to manage our patient's pain as safely and effectively as possible. We want you to be comfortable enough, so that healing proceeds well. While you are in our care, we will:

- **ASSESS YOUR PAIN** – With your help in telling us where you are having pain, the level and nature of your pain, we will give you the best ways of helping you get comfortable. We will re-check at least every 12 hours, before and after treatment, as well as when you are ready to go home.
- **GIVE SAFE PAIN TREATMENT** – We want you to be comfortable, but it's equally important that we treat your pain safely. As noted above, it may not be possible to get rid of all your pain and since many pain medications have side-effects, we will only provide pain relief that is proper for your illness, condition and body type. Some methods we may use are:
 - **Patient Controlled Analgesic (pain medicine)** using a machine that lets you give yourself medication when you need it, but not more or more often than the doctor has prescribed.
 - **Epidural Pain Control** that puts the medicine into the space around your spinal nerve through a catheter in your back and using a small pump attached to a bag filled with the medicine our doctor has prescribed.
 - **Injections (shots)** of pain-controlling medication
 - **Oral medication** (taken by mouth)

You will be switched from IV medication to oral medication, as soon as possible. Oral medication takes longer to act than IV medication, so it's vital to let your nurse know, as soon as your pain becomes bothersome. It is unrealistic to expect to be without pain after surgery. We will do our best to make you comfortable, but you need to help us. Only you can say how much pain you are feeling.

To treat it effectively and safely, you need to take a careful personal inventory and tell us as exactly as possible:

- The precise place of your pain
- The amount of your pain – on a scale of 0 to 10, with 0 being none and 10 being the worst you can imagine.
- A description of your pain – Use graphic terms like achy, stabbing, fiery, dull, vague, on and off, pressure, deep, numbing, pulling, spreading, sore, throbbing, tender, tight, unbearable.

More information about pain control will be supplied in your admission packet.

Physical Therapy

Activity and physical therapy are very vital to your healing well and they start almost right away after you have surgery. You will have an adjustment period during which you will be figuring out how to get comfortable with your frame. While you're still in the hospital, a physical therapist will begin working with you. Initial PT will include:

- Helping you to get out of bed and learning how to move yourself in and out of bed, the shower, and into a chair. You need to get these actions down well before you leave the hospital.
- Deciding whether you will do better with crutches or a walker and helping you learn how to use them.
- Giving you exercises to help with standing balance, stability, and coordination to prepare to walk.
- Instructing you on how to do exercises to keep up range of joint motion and flexibility of the joints above and below your device.

Your doctor will instruct you on how much weight to put on your affected limb. Most often you will be asked to start putting weight on your limb right away. Be sure to follow his or her instructions.

Even though you will have swelling, it will decrease when you elevate the limb, which you will want to do as much as possible – the best level is above your heart. As you start to heal, you will be able to put more weight on your limb. It's vital to keep on doing this because putting weight on your limb increases blood flow to it and strengthens your bone. You may need pain medicine for a while. Our goal is for you to be able to put your full weight on your leg without your crutches.

Managing Pain At Home

You will go home with oral pain medication. It may be the same medication throughout the initial healing process, though the amount you take likely will lower with time. At some point, you probably will be able to handle pain fully with an over-the-counter medicine for pain such as Tylenol®.

While your frame is in place, please **do not** use any anti-inflammatory medications such as Aleve®, Advil®, Motrin®, ibuprofen, naproxen or aspirin. These anti-inflammatory medications may interfere with the time needed to heal your bone. Tylenol® and acetaminophen are not anti-inflammatories.

You may also want to try to distract yourself from your pain with games, music, TV or movies. Relaxation techniques and/or deep breathing help some patients handle their pain without medication, particularly when getting up from bed.

FEVER

If you have fever **greater than 101.5°**, greater pain, redness or swelling that doesn't get better when you raise your leg, you should call the office at **330-543-3500**. You may have a pin-site infection and need a prescription for antibiotics. These are for use only when you have an infection and you will not have to take them all the time while you heal.

PIN CARE AND CLEANLINESS

See page 12 for information on pin care and cleanliness.

CALL IF YOU HAVE QUESTIONS OR CONCERNS

The office phone number is **330-543-3500**. After hours or on weekends our answering service will find the on-call doctor or NP and have that person call your doctor.

Using Crutches

MANAGING TRICKY MOVES

While we suggest using an elevator if one is available, there will be times when you have to move around on your own. There are a few tricks to managing movement with crutches. You should get the hang of it fairly soon and your physical therapist will help you adapt. You may also want to practice before your surgery.

- Be sure to plan for the extra time involved in getting around on crutches.
- When using crutches, you need to be hyper-aware of your surroundings.
- Slippery floors or pavements are especially hazardous/unsafe to someone in a frame and especially so if you're on crutches.
- Watch for obstacles in your path or unexpected steps or holes.
- Do not try to carry things in your hands while you are on crutches.

Here are step-by-step instructions for dealing with some of the trickiest moves:

SIT TO STAND WITH CRUTCHES

When transferring from standing to sitting using crutches:

- Place yourself so the chair is behind you and the backs of your legs are touching the chair.
- Move both crutches to one side and hold them in your hand. Try to hold them on the side of your good leg.
- With your free hand, reach back for the chair armrest.
- Then, place your affected leg slightly forward as you slowly lower yourself to a sitting position.



To return to standing:

- Hold both crutches in your hand on the one side. Try to hold them on the side of your good leg.
- With your affected leg slightly forward and your free hand on the armrest, scoot towards the edge of the chair.
- Pressing with your arms and unaffected leg, push up into a standing position.
- Once you have your balance, move your crutches so one crutch is under each arm.

GOING UP AND DOWN STAIRS

When going up stairs with crutches:

- Start facing the stairs with crutches under your arms. Make sure to stand as close to the bottom of the stairs as possible.
- Step up onto the first step with your nonsurgical or uninjured leg, using the crutches for weight bearing as taught. Using the muscles in your strong leg, bring your surgical or injured leg and your crutches up onto the same step. Continue this pattern until you reach the top.



To go down stairs with crutches:

- Start at the top of the stairs with crutches under your arms. Make sure to stand with your toes close to the edge of the step.
- Place your crutches on the step below you.
- Place your surgical or injured leg down onto the same step as your crutches, using your crutches for weight bearing as taught, then step down with your strong leg.
- Continue this pattern until you reach the bottom.



Scoot method for going up stairs:

- Use scoot method if you are unsteady using crutches on stairs.
- Sit on the second step facing toward the bottom of the stairs.
- Push your hands and your good foot to move yourself to the next step.
- Continue this pattern until you reach the top.

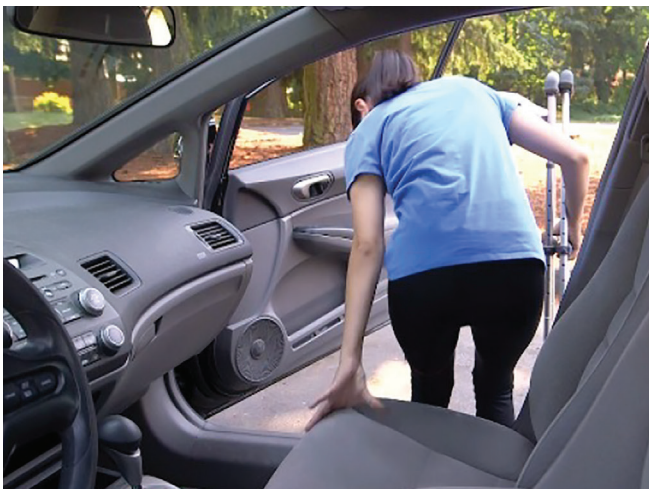
GETTING INTO A CAR WITH CRUTCHES



Position yourself so the car is behind you and the backs of your legs are touching the car.



Move both crutches to the side of your body farthest from the door and hold them in your hand.



With your free hand, reach back for the seat or dashboard and slowly lower yourself into a sitting position.



Carefully bring your legs into the car.

Your doctor has instructed you on how much weight to put on your affected leg. Be sure to follow his or her instructions.

TIP: Make sure you do not pull on the car door while getting in or out of the car – it may swing back and hit you.



MEDBRIDGE

Disclaimer: This program provides exercises related to your condition that you can perform at home. As there is a risk of injury with any activity, use caution when performing exercises. If you experience any pain or discomfort, discontinue the exercises and contact your health care provider.

Clothing

CLOTHING AND YOUR DEVICE

Some of your clothes will have to be changed to be able to fit with your frame. When possible, you can wear baggy shorts or a skirt.

Here are some other choices:

- Pants in a larger size or sweatpants may fit over your device.
- Pants and underwear can have the seams cut apart and replace the stitching with hook and loop tape, snaps or ties.
- Stockings or tights can have one leg cut off.



COVERING YOUR DEVICE

Your frame can be hard on furniture. Making a cover for it will keep it from scratching the furniture, tearing your sheets and scraping your other leg. A cover also protects your limb and the device from both the elements and dirt. The best kind of fabric is heavier and stretchy, such as fleece or sweatshirt fabric. In the summer, a lighter weight fabric works well, such as spandex.



Home Exercises

Clinician Notes: No exercise should cause pain. If an exercise causes pain, **STOP** doing it and tell your doctor or physical therapist.

STEP 1



STEP 2



SUPINE ANKLE PUMPS

REPS: 20 | HOLD: 2 SEC | DAILY: 2X

Setup

Begin lying on your back with your legs straight.

Movement

Slowly pump your ankles by bending and straightening them.

Tip

Try to keep the rest of your legs relaxed while you move your ankles.

STEP 1



STEP 2



SUPINE QUADRICEP SETS

REPS: 20 | HOLD: 5 SEC | DAILY: 2X

Setup

Begin lying on your back on a bed or flat surface with your legs straight.

Movement

Tighten the muscles in the thigh of your surgical leg as you straighten your knee. Hold, then relax and repeat.

Tip

Make sure to keep your toes pointing toward the ceiling during the exercise. Try to flatten the back of your knee towards the bed.

STEP 1



STEP 2



ACTIVE STRAIGHT LEG RAISE WITH QUAD SET

REPS: 20 | HOLD: 2 SEC | DAILY: 2X

Setup

Begin lying on your back with one knee bent and your other leg straight.

Movement

Squeeze the thigh muscles in your straight leg and flex your foot, then slowly lift your leg until it is parallel with your other thigh. Lower your leg back to the starting position and repeat.

Tip

Make sure to keep your back flat against the floor during the exercise.

STEP 1



STEP 2



SEATED ANKLE PUMPS ON TABLE

REPS: 20 | HOLD: 2 SEC | DAILY: 2X

Setup

Begin sitting upright on the edge of a table or bed with both legs hanging off the edge.

Movement

Slowly pump your ankle, bending your foot up toward your body and pointing your toes away from your body, and repeat.

Tip

Make sure to move your foot in a straight line and try to keep the rest of your leg relaxed.



Home Exercises

Clinician Notes: No exercise should cause pain. If an exercise causes pain, **STOP** doing it and tell your doctor or physical therapist.

STEP 1



STEP 2



SEATED HEEL TOE RAISES

REPS: 20 | HOLD: 2 SEC | DAILY: 2X

Setup

Begin sitting upright with your feet shoulder width apart.

Movement

Slowly raise your heels off the floor and lower them back down, then raise your toes off the floor and lower them back down. Repeat.

Tip

Make sure to keep the balls of your feet on the floor when you raise your heels, and keep your heels on the floor when you raise your toes.

STEP 1



STEP 2



SEATED KNEE FLEXION EXTENSION AROM

REPS: 20 | HOLD: 2 SEC | DAILY: 2X

Setup

Begin sitting upright on the edge of a chair and your feet resting flat on the ground.

Movement

Slowly slide your foot forward as far as you can with your toes up. Then slowly slide your heel backward as far as you can.

Tip

Make sure to stay sitting upright during the exercise. Only bend your knee as far as you can without causing pain.

STEP 1



STEP 2



SEATED KNEE EXTENSION STRETCH WITH CHAIR

REPS: 2 | HOLD: 30 SEC - 1 MIN | DAILY: 2X

Setup

Begin sitting upright with a chair directly in front of you.

Movement

Lift one leg off the ground and rest your foot on the chair, then begin to relax your leg, allowing your knee to straighten, and hold this position.

Tip

Make sure to keep your back straight during this stretch.

Exercise Progression

You will have regular physical therapy after you leave the hospital to help keep up range of motion and strengthening. A home exercise program designed exactly for you and your type of correction or lengthening will be prescribed and it is critical that you do your daily home exercise. Make it part of your daily routine.

You are encouraged to swim with your frame or device once the doctor says it's okay. That likely will be two or three weeks after surgery and once your incision has been allowed to heal. Swimming will help with building strength and range of motion. After swimming, be sure to rinse off and clean your pin sites.

Swim only in a clean, chlorinated pool. No hot tubs, lakes, oceans, rivers or soaking in the bathtub.

NOTES:

Life in a Frame

THERE IS LIFE IN A FRAME AND WE WILL HELP YOU TO ADAPT TO THE CHANGES.

You will need to make changes at home, school and work if that applies. It is important to talk to the school your child is going to and prepare them. We suggest that you have books for home and class so as not to have to carry them back and forth. We will write a letter for this. If there are any stairs, check to see if you can get an elevator pass. It may be helpful at first, to be allowed to leave each class 5 minutes early to stay away from crowded hallways, so that no accidents can happen with the frame.

We want you to return to school as soon as you can. Perhaps, you can start half days and increase as tolerated. Always talk to your teachers and make sure you keep up with your homework. We do not want you to get behind in your school year. Please talk to your school before surgery!

We suggest a wheelchair in the beginning to help with long distances. It can also help you to not be bumped by others and will help you to keep your leg raised. You will need to check with the school about where handicapped bathrooms are if you do use a wheelchair.

Many people will be curious about your extremity correction device. It is up to you if you wish to share information about yourself. You need to be prepared and this could be a time to teach others if you choose to do so. Do not allow anyone to touch around your pin sites since we do not want any infection.

You do need to make sure everything is ready at home! Talk to your nurse and physical therapist about your house, especially if you have stairs. The therapist will teach you how to get up the stairs safely.

You may need to make changes for a short time, like sleeping in a room with a bathroom close by. Be sure there is someone staying with you when you come home from surgery. It is very likely, especially early after you come home, that you will need some help.

The nurse will talk to you during your pre-op visit about your home surroundings and any concerns you may have, so that we can make it go smoothly when you get home.

A healthy diet is key for your body to work at its greatest. Eating healthier after surgery will help you feel better and aid in the healing process. It is important to have proper nutrition and not eat a lot of junk food. Skip the soda pop and potato chips. Eat fruits and vegetables. Snacks such as cheese and crackers, fruit and yogurt, granola bars and cottage cheese are good to have on hand. Read the nutrition handout given in your post-op folder for a healthy eating plan. It is important to eat a variety of foods each day such as protein, fruits, vegetables, carbohydrates and dairy and get the recommended servings. If you need help, we can help set you up with a dietician who can give you better ideas for good nutrition. It is OK to take a multivitamin.

Be aware of your surroundings. Safety is an issue in your frame. Know about your surroundings. A wet floor could cause your crutch to slip and you could fall. If it snows or rains, it can get slick outside. Watch yourself on carpets or other objects that could cause you to trip. You may need help on steps or if it is snowing or raining outside. It is **OK** to ask for help.

DO NOT CARRY items while using your crutches because your balance could be off. Use a backpack or see if you can get help from someone else. You want to have your hands free, so you can use your crutches the right way.

NOTES:

Attitude is EVERYTHING!

WE KNOW THERE WILL BE DAYS THAT DEALING WITH THE FRAME WILL BE FRUSTRATING, BUT YOU WILL GET THROUGH THOSE DAYS

It is vital to the healing process to do your exercises, pin care and taking care of you. An optimistic attitude, smile, and sense of humor can make the day go better and ease stress. It is urgent to share how you are feeling with someone and to have someone you can count on. You can do this through journaling, talking with a friend and/or staff. Share your worries, accomplishments, stories. Please know that you're not alone. Each day will get easier. We will help you get from beginning to end.



Removing the Device

ALMOST DONE! CONGRATULATIONS!

You're almost at the end of the process. After your healing is complete, we will schedule a same-day surgery to remove the device. You will still have general anesthesia and the removal will be done in the operating room, you will be able to go home that same day.

You will need to schedule a visit to Akron Children's Hospital orthopedic dept. in two to three weeks, so we can check on your recovery. We may need to put your leg in a cast for a short while after the device is removed. You will need to keep doing physical therapy, as well as home exercises to gain strength and range of motion in your limb.

Be Patient. You will be able to get back to your normal activity level, but it will take some time. You will have to get cleared by your doctor before you are able to go back to sports or other high-impact activities.



Some More Ideas

HELPFUL HINTS FROM STAFF AND OTHERS WHO HAVE GONE THROUGH THE PROCESS:

- In your wheelchair, use a pillow for comfort and support of affected extremity. You do need to elevate the extremity to avoid swelling.
- Check often for any swelling and take time to raise your foot. Rest when needed.
- Be creative with the frame cover. Make it with your favorite sports team fabric and have a variety for the seasons. Fleece is great in winter and in summer. You can use biking short material.
- In winter, don't forget to cover your foot. You can cover it with a stocking cap or larger socks.
- It is OK to complain some, but please thank the ones who care for and help you!
- Make sure you get your prescriptions filled at the pharmacy while here. We cannot call in medication, and it is no fun having to come in and pick up a written prescription.
- Use a syringe to clean an infected pin with saline, it will help a lot.
- Talk to your school to see how they can help with such things as what bathrooms your child might be able to use. Half days at school are a good option at first until your child can go full time.



Learn more at akronchildrens.org