Preparing for Kyphoscoliosis Surgery with Halo Gravity Traction
A practical guide for families
Preparing for Kyphoscoliosis Surgery with Halo Gravity Traction

What is the purpose of this booklet?
The purpose of this booklet is to help you plan for you and your child's hospital stay, which may range from 4 to 8 weeks, and to help you understand our expectations and your important role in supporting your child undergoing halo gravity traction in preparation for kyphoscoliosis surgery.
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FAQs (frequently asked questions) about Halo Gravity Traction (HGT)

What is Halo Gravity Traction (HGT)?
Halo-gravity traction (HGT) is a way to apply a slow and safe stretch to your child’s spine using a metal ring that surrounds the head (called halo) attached to a pulley system. The halo is attached to the pulley system for 24 hours over several weeks. Weights are added to the pulley system to slowly pull the head upward. This pulling is called “traction.” Your child will stay in the hospital during halo gravity traction.

Why is Halo Gravity Traction (HGT) done?
HGT is done to help correct curvature of the spine (scoliosis and kyphosis) into a straighter position by pulling up on the head and the spine. Kyphosis is the abnormal curvature from back to front. Scoliosis is the abnormal curvature of the spine from side to side. The goal of HGT is to safely straighten your child’s curve gradually as much as possible. This will make the surgery for final correction (kyphoscoliosis surgery) easier on your child’s body. HGT also often improves your child’s health, breathing, and nutrition so that complications after surgery are less likely.

How is the halo put on?
The first part of this procedure is called “application of halo.” A surgeon puts the halo on your child’s head under general anesthesia, while your child is asleep in the operating room. Your orthopedic surgeon attaches the halo with 6 to 10 small pins. These pins go into the bone of the skull and keep the halo from moving. After your child recovers from the surgery, the halo is attached to the pulley system (bed, wheelchair, walker and commode). Over the course of 4 to 6 weeks, we continue to add weights and monitor progress.

Why does my child need HGT before kyphoscoliosis surgery?
Your child might benefit from HGT before surgery if:
- They have a severe deformity that is stiff and it would be hard and dangerous to correct all at once.
- The nerves around their brain and spinal cord require that the spine be straightened slowly, so that they are not damaged or irritated.
- Because recovering from surgery is better if breathing function and nutrition are improved first.
Meet the team

The Seattle Children's team includes:

- Orthopedic surgeon(s)
- Orthopedic residents and fellows
- Nurse practitioners / physician assistants
- Nurses
- Physical therapists (who will help your child with mobility throughout the day)
- Child Life specialist (who will help cope with surgery and your child’s hospital stay)
- Other experts such as Pulmonary and Cardiology Doctors
- Pain team
- Social worker
- Dietitian
- Schoolteacher at Seattle Children's
- Your child’s own teacher
- And most importantly... YOU! (The family)
How to prepare for the hospital stay

We recognize that staying in the hospital can be tough for kids and their families. However, you should know many families comment that their child seems happier, healthier and more comfortable in the halo-traction than at home beforehand.

Before you come

Talk to your child about what will happen at the hospital

In order to prepare your child for the experience, it is important to talk about what to expect during this hospital stay. Let your child know that after the halo gravity traction is on, they will be up and moving around and they can stay busy with lots of activities.

Preparing your family

Ask for support from your child’s school, your church, and your community, to prepare siblings and extended family for this hospital stay.

Preparing yourself

As a parent or caregiver, make sure you have your medications and any medical equipment you need for yourself.

Taking time off from work

We can help you with family medical leave of absence (FMLA) paperwork. Let us know if you will need help filling out these forms.

What to bring

• Bring activities that your child enjoys, such as favorite games, crafts, music or movies.
• Bring something comforting from home like a special pillow, stuffed animal, or toy.
• Your child is not sick, so we encourage wearing everyday clothes. It is best to bring clothes that are easy to put on and off, like button-up shirts or jackets with zippers.

Hoodies will not fit over the halo gravity traction device!
Day to day
Child life specialists can help your child find activities to stay busy and pass the time. They can help with:

- Establishing a routine and building a daily schedule.
- Decorating the hospital room in a fun way!
- Facilitating therapies such as pet, music and art.

The hospital’s school teacher can help with schoolwork and getting ready to go back to school.

Stay connected
Your child can schedule visitors, do video chatting, and phone calls with friends and family to help them feel connected.
The First surgery
Application of Halo

During the first surgery, the halo is attached. Your child will be under general anesthesia. This means that your child will sleep through the surgery.

Your orthopedic surgeon attaches the halo with 6 to 10 small pins. These pins go into the bone of the skull and keep the halo from moving.
The Pulley System

The pulley system that is used with halo gravity is attached to different equipment (bed, wheelchair and walker) that your child will use to ensure 24-hour traction while in the hospital.

The goal is to be out of bed for 12 to 16 hours a day.
During the first few days, the physical therapist will come daily to teach and coach parents and nurses with transfers until everyone is comfortable with HGT.
Most children may have some pain for the first few days of halo gravity traction or when weights are added but are otherwise usually very comfortable. Pain goes away after 1 to 2 days.

Common medicines to help for the first few days include Acetaminophen, Ibuprofen, and Valium.
After the halo is on the head, it is attached to the pulley system with weights. Over 4 to 6 weeks, more weight is added each day by the Orthopedic team that slowly pulls the head and spine upward and stretches the muscles and ligaments around the spine.

You will notice your child getting taller and straighter!
Why does my child have to stay in the hospital?
Your child stays in the hospital during halo gravity traction so that:
• Doctors and nurses can check progress.
• Weights can be added in a slow, progressive and safe way.
• Physical therapy, respiratory therapy/BIPAP and nutrition can be optimized.
• Regular X-rays and breathing tests can be performed to guide their progress.

Because optimal weights for your child’s bed, wheelchair, and walker are determined depending on body weight, only the Orthopedic team may add or adjust weights.
After EACH new weight added by the Orthopedic team (regardless of which device), the nurse will assess on your child’s status frequently by checking:

- Both arms movement, strength and sensation.
- Both legs movement, strength and sensation.
- Cranial nerve function (facial movements and sensation)

*Regular X-rays and breathing tests can be performed to guide your child’s progress.*
A bedside nurse assessing the patient’s movement, strength and sensation
A nurse completing a routine exam of the patient’s cranial nerve function
Pin site care
While the halo is in place, your nurse will do pin site care twice a day. This involves gently cleaning around each pin site using a sterile cotton applicator with normal saline. The nurse will check for signs of any swelling, redness, or drainage around the pin sites.
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We encourage continuation of school work. Here you can see a patient working on his homework.

Although HGT can look scary, most children adapt to it quickly! They soon realize they can walk, play, and do many of the same things they did before the halo gravity traction. Often better!

You may see improvements in many areas like:

- Sleeping better
- Feeling better
- Better mobility
- Easier breathing
- Better appetite
- Look **straighter** and **taller**!
Finding the daily rhythm

The care team will help your child get into a regular schedule that encourages staying active and busy while in the hospital.

Activities that can help your child stay active may include:

- School work.
- Walks 2 to 3 times per day, for minimum of 30 minutes each time.
- Playroom activities.
- Pet, music and art therapies.

Activity goal:
Your child is up and moving around most of the day. The goal is to be out of bed 12 to 16 hours per day.

Weight gain goal:
Eating healthy meals and snacks while also increasing calories to gain at least 5 pounds is often a goal for HGT patients before the second surgery.
The second, BIGGER surgery:
Kyphoscoliosis surgery

The best resource to learn more and prepare for the second surgery is the Scoliosis Surgery handout: PE873 Preparing for Surgery and a Hospital Stay: seattlechildrens.org/pdf/PE873.pdf. Your health care team will help you obtain a copy of it, but there are a couple of things worth repeating:

ICU (Intensive Care Unit)
Sometimes a short stay in the intensive care unit (ICU) is planned following surgery. It may take a night to a few nights to make sure everything is stable before transferring to the floor.

Movement after surgery
Movement will begin either the evening of or the morning after spinal fusion surgery. It is never easy to get up the first time after surgery! However, getting up as soon as possible will help prevent other problems such as buildup of fluids in the lungs and severe constipation.

The physical therapist, the bedside nurse and you are your child’s best movement team!
Going Home

Each child is unique. This means that when your child is ready to go home may vary.

By the third day after surgery, most children have met general discharge goals for home. Such as:

• Taking all pain medicines by mouth or NG-tube or G-tube.
• Getting enough food and liquids to stay hydrated (without IV fluids) and passing gas.
• Work with physical therapy to make sure your child is able to move about safely. This includes getting in and out of bed, walking, and using stairs with a little or no help. This also includes being able to sit up in a chair or wheelchair for several hours a day.

We will tell you when your child has met these goals and can go home!

For more information about how to care for your child after scoliosis surgery see: PE874 Care after scoliosis surgery: seattlechildrens.org/pdf/PE874.pdf
What to expect after kyphoscoliosis surgery

**Wound care**
If your surgeon uses a “prineo” dressing (special glue), keep it on for 2 to 3 weeks after surgery. May shower but no tub baths for up to 4 weeks. If you notice any changes in the skin around the incision such as redness, drainage or opening of the incision, please call your surgeon/PA/RN team immediately.

**Dental appointments**
Avoid dental procedures including routine teeth cleaning for at least 6 months after surgery. If unsure, please discuss with your surgeon.

**Muscle spasms**
Muscle spasms and stiffness are common after surgery. This is normal and will typically get better after the first 2 weeks.

**Prominent hardware**
If the shape of the back near the incision changes from what it looked like after surgery, like something is sticking out, please call your surgeon/PA/RN team.

**Medicines**
We expect that there will be some pain after surgery. After the first week, the pain should be managed with Tylenol/ibuprofen up to one month after surgery. Occasionally, narcotics may be needed at bedtime. Check with your healthcare provider first before giving any type of medicine, other than prescribed, to your child.

**Diet and constipation**
Usually within 7 to 10 days after surgery, appetite should slowly return. Eating fruits and vegetables and taking plenty of liquids will help with constipation, as will going on walks.

**School**
Return to school can happen as soon as your child no longer needs narcotics and has enough energy for a day at school. Some children start with half days. On average, this will be by the third or fourth week after surgery.
Thank you for reading this handbook. We hope this will help you understand this important treatment called halo gravity traction and how to prepare for your surgeries and hospital stay.

If you have questions, call:

**Department of Orthopedic Surgery and Sports Medicine**
Website: seattlechildrens.org/clinics/orthopedics/conditions/scoliosis
Phone Number: 206-987-5678 (General)
To Learn More
• Orthopedics
  206-987-5678
• Ask your child’s healthcare provider
• seattlechildrens.org

Free Interpreter Services
• In the hospital, ask your nurse.
• From outside the hospital, call the toll-free Family Interpreting Line, 1-866-583-1527. Tell the interpreter the name or extension you need.

Seattle Children’s offers interpreter services for Deaf, hard of hearing or non-English speaking patients, family members and legal representatives free of charge. Seattle Children’s will make this information available in alternate formats upon request. Call the Family Resource Center at 206-987-2201. This handout has been reviewed by clinical staff at Seattle Children’s. However, your child’s needs are unique. Before you act or rely upon this information, please talk with your child’s healthcare provider.

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