

Scoliosis Surgery



For more information about parking, the hospital, places for family to stay and where to find things in the hospital, see our booklet **Family Issues**. You can get a copy at the Family Resource Library or download it at www.cw.bc.ca/library.

This booklet has been developed by the health professionals of the Orthopedic Department with assistance from Learning & Development.

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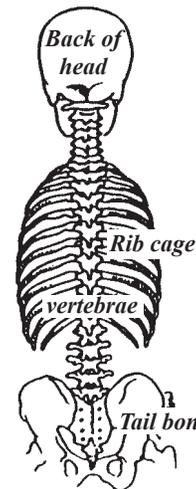
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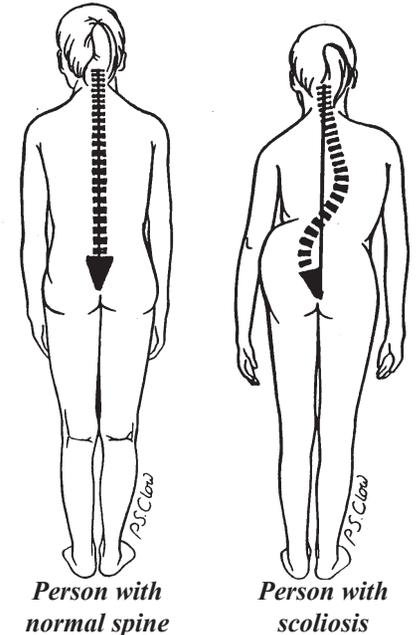
Scoliosis Surgery

If you are reading this booklet, your doctor has likely told you that you need surgery to correct your scoliosis. You might be worried or alarmed that you need surgery. We have put this booklet together to tell you all about scoliosis and the surgery that will help to correct it. We suggest you read the book and then write down any questions or concerns you have or circle any parts you have questions about or want to talk about. Talk about these concerns with your parents and your doctor. If you like, you can phone the clinic nurse and talk to him or her. Knowing the facts can take away a lot of worry. Surgery is not fun but we are all here to help you get through it as easily as possible.



Looking at a normal spine from the back

In a person with scoliosis, the spinal column is twisted. The twisting curves the spine to one side and can produce a hump the same side. Some people have more than one main curve.



What is Scoliosis?

Scoliosis comes from a Greek word that means *crooked* or *twisted*. The medical term refers to a spine that is twisted and curves to the side.

A normal spine is made up of 33 bones called vertebrae. The vertebrae are stacked one on top of the other to form a column that runs from your head and finishes at your tailbone. If you look at it from behind, this column is quite straight, with the head directly over the tailbone.

What causes it?

In most cases we do not know what caused it. In some cases (about 20%), there is another condition that is affecting the spine. A disease which affects muscles is an example of this. This disease is called **muscular dystrophy**.

Don't believe people who tell you that "if you stood up straight your spine wouldn't have curved" or "it must be from the volley ball injury" or "it's from carrying a heavy bag on the same arm all the time." Science has shown that these things make no difference to curves and twists of the spine. One important scientific finding is that scoliosis tends to run in families. This means that your brothers and sisters should be checked.

Actually, about 1 school child in 10 has scoliosis. It is much more common in girls than in boys. No one knows why.

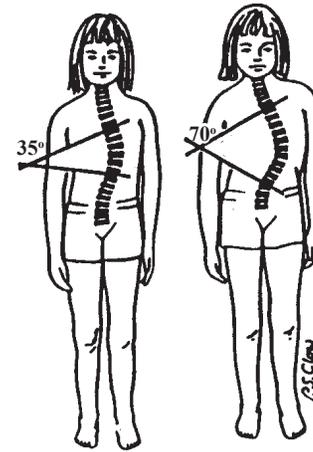
How is it treated?

In some people, the size of the curve is small and does not cause any problems. The curve may never change and these people will never need treatment for their scoliosis. Some of your friends probably have a curve without even knowing it.

In your spine, the scoliosis has likely gotten worse over time. The medical term for this is called **progressing**. If a curve progresses it must be watched. Sometimes your doctor will recommend you wear a brace.

Each case of scoliosis is different in some way, just as each person is different. Before suggesting a treatment your doctor will check:

- Where the main curve is. It can be in your neck, chest or lower back.
- How big or twisted the curve is.
- How quickly it is progressing.
- How much more growing you still may do. Tests of your bone age will tell us this. If you want to know more about bone age and tests, ask the doctor or nurse to explain how these work.



You have probably had x-rays of your spine. X-rays are a good way to measure the progress of your scoliosis. The doctor called an orthopaedic surgeon has been using these to measure the angle of the curve. The curve of your spine is now large enough that the doctor has recommended surgery. The decision to have surgery is never easy. The orthopaedic surgeon has likely already discussed this with you and your family and together you decided it was the best way to treat your scoliosis.

Why is surgery the best treatment for me?

"My spine isn't hurting. Most of the time, I don't even think about it – so why should I go through this surgery?"

That's a good question. Scoliosis can affect you in ways that you will not even think about. Here are the three main reasons for surgery:

1. When your vertebrae are not lined up in a column, there is more wear and tear on the discs between them. The discs between the vertebrae act like cushions. If the discs wear down you are likely to get bad backaches.



2. Your ribs attach to the spine in the back and to the breastbone in the front. They form a "cage". Your heart and lungs are inside this cage. As your spine curves, it squeezes your ribs on one side and stretches your ribs on the other side. If your ribcage becomes out of shape, your lungs and heart cannot work easily.
3. Your curve may not be obvious now but as it progresses it will twist your body. Your shoulder will look humped. Your hip will jut out. Your chest will stick out more on one side than the other.

How does surgery work to correct the curve in my spine?

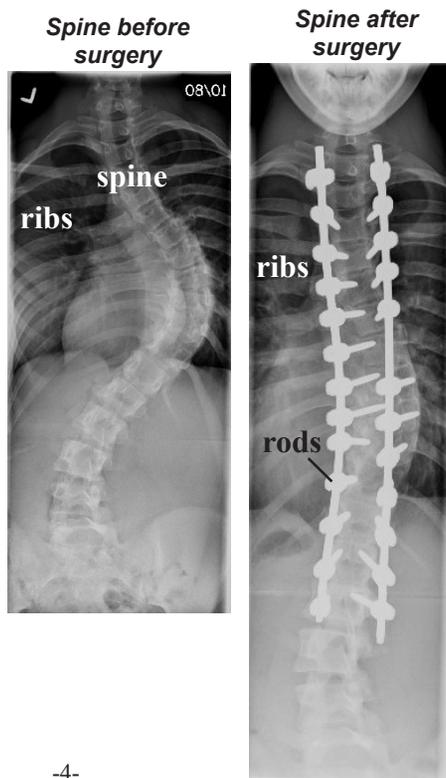
The type of surgery you are having is called **segmental spinal instrumentation**. Two rods are attached to your spine during the surgery. Most surgeries of this kind take about 5 hours, but some can take up to 10 hours. Your surgeon can tell you how long your surgery is expected to take. There are several steps that make up this type of surgery.

Step One: Making the cut

The surgeon makes a cut about 30.5 centimeters or 12 inches long. This cut is called an **incision**. It is made in your back in the section of the main curve. This type of incision is also called the **posterior approach**. For some types of curves, the surgeon may make a curved incision under the arm. This is called the **anterior approach**. Sometimes the surgeon needs to make both types of incisions. Your surgeon will tell you where the incisions need to be made.

Step Two: Attaching the rods

Rods are shaped to hold the spine in a correct position while it heals. The rods are attached to the spine. This can be done in several different ways. Most commonly, bone screws are used. Hooks and wire can also be used to attach the vertebra to the rods. Usually, two rods are placed and attached to the vertebra, one on each side of the spine.



Step Three: Spinal fusion

The surgeon takes small chips of bone and packs these around the rods. If there aren't enough chips from your bones then some will be taken from a bone bank. In time, these chips will grow together to make a solid, stable bone support to prevent a curve from forming again. This is called a spinal **fusion**. The fused section cannot bend and will not grow. How much you notice the fusion will depend on how much of your spine needs to be included. Talk about this with your surgeon.

How do I get ready for the surgery?

My surgery date is: _____

Before your surgery, the Spine Program secretary will phone you or your parents to book an appointment for a day of tests and preparations. These tests will take about 4 to 5 hours, so it is best not to make other plans for that day.

Orthopaedic Clinic Date: _____

Time: _____

During this day of tests and preparations you will:

- Spend time with a nurse. She or he will talk to you about what to expect. This is a good time to get all your questions answered. If there are things that are worrying you, talk to the nurse about them. She or he has helped many people through this and can tell you a lot about it. Make notes of what you want to talk about so you won't forget anything. You may want to bring this booklet and pen so that you can write things down.
- Talk with a doctor who is specially trained to keep you asleep during the surgery, give you pain relief and make sure all is well with your heart and lungs during your surgery. This doctor is called an **anesthetist**. Being asleep during surgery is called being anesthetized. The anesthetist will explain how you will be anesthetized and what to expect when you wake up. You can also talk to the anesthetist about pain and how to manage it. Be sure to ask your questions and talk about your concerns.

- Talk with the person who will help you regain your strength and motion after your surgery. This person is called a **physiotherapist**. He or she will teach you some leg and foot exercises to do in bed after the surgery as well as some ways to breathe deeply so your lungs will work well after the surgery. Another important thing you will learn is how to move in and out of bed after surgery. These exercises will help you get better quickly.

What tests do I need to have done?

There are several tests that are done to check on your general health before you go into surgery. Other tests give the surgeon important information about you before your surgery. Here is a list of tests that may be done:

1. **Lung Function Test:** For this test you blow as hard as you can into a plastic tube. The test measures how much air is going in and out of your lungs and with what force you can pull the air in and push it out. It is important to know how much the curve in your spine is interfering with the flow of air through your lungs.
2. **Spinal X-Rays.** You will have some X-rays taken of your back to give the surgeon information about your spinal curve.
3. **Blood Tests:** Blood will be taken from a vein in your arm with a needle. Your blood is checked to make sure you are in good health for the surgery. The sample of your blood is matched to a supply of blood that can be used during the surgery if needed.
4. **Urine Test:** You will be asked to pee into a cup. This is called a urine sample. It is another check on your body chemistry and general health.

You may not need to come again until the day of the surgery so be sure to talk to the nurse about:

- What you can and cannot eat or drink for the night before your surgery. These are called fasting instructions.
- How to clean your back.

What happens the day of my surgery?

Leave yourself enough time so you aren't rushing to get here. Go right to the surgical daycare unit by going into the main entrance of BC Children's Hospital. It is beside the gift shop on the main floor. In the daycare unit the nurses will give you a hospital gown to change into. You will have a short visit from your anesthetist, your surgeon and a spinal cord monitoring technologist. The spinal cord monitoring technologist will apply color marking onto your scalp and your wrists. In the operating room, and when you are asleep, very tiny needles will be attached to a machine that records signals (nerve impulses) in your brain. These wires connect you to a machine that records signals or nerve impulses in your brain. This machine is called an **electroencephalogram** or **EEG**. The spinal cord, which connects all the nerves to your brain, runs through the centre of the spinal column. It is important for the surgeon to know right away if anything unusual happens in this important "cable link-up" between body and brain.

When the time comes, you will be wheeled to the operating room on a stretcher bed

In the operating room

In the operating room, while you are still awake you will notice these things happening to you:

- A thin tube will be placed into a vein in your hand. This is called an **intravenous** or **IV** for short. This does not hurt except for the little needle prick as it goes in. The anesthetic drug and other medicines are given through this tubing. This tubing stays in for a few days after the surgery. You will also get fluid and nourishment through this tube until you feel like eating and drinking.
- Someone will stick small discs to your chest. These connect you to a machine that records your heartbeats. This is called an **electrocardiogram** or **EKG**. The anesthetist keeps watch on this to make sure all is well. The EKG might be attached in the daycare surgery area before you go into the operating room.

Where do I go after surgery

You will either go to the intensive care unit, this unit is called the ICU or you will go to the High Dependency Unit, this unit is called the HDU and is on the ward.

Depending on the size of your curve and your physical condition you may wake up after your surgery in the ICU or HDU. A nurse will help you wake-up by asking you to say your name. For the next 12 to 24 hours a nurse will be with you all the time. She or he is your special nurse responsible for making sure that your body gets over the surgery as quickly as possible. Every hour the nurse will take your pulse and blood pressure and ask you to do different movements such as wiggle your toes, or squeeze a hand. You will feel quite groggy. It will take time for you to focus and be alert to the sights and sounds around you.

A physiotherapist will come to get you started on your breathing and leg exercises.

How long will I be in the hospital?

You may have a short stay of one to two nights in the ICU before going to a hospital room.

Eating:

For the first day you won't be given any food or drink. You probably won't feel like drinking or eating anyway. All you need to keep your body nourished will be dripping through the IV. The next day you can sip clear fluids. Clear fluids are drinks you can see through like apple juice, water, and tea. Milk and pulpy juices are not clear. As soon as you can drink enough, the nurse will cap your IV. Most people can drink enough on their own by the 3rd or 4th day. Little by little you will add things like soup, pudding, and yogurt until you are eating normal food again.

Going to the washroom:

Most people find it hard to pee for the first few days after the surgery. The operating room nurse put a thin plastic drain tube through the opening leading to your bladder. This is called a catheter. She did this while you were asleep in the operating room. This drains pee into a collection bag. On the 3rd or 4th day a nurse will remove the catheter. This does not hurt.

Caring for the Wound:

You will have a large bandage or dressing covering the wound on your back. This will be changed as needed. You may also have small drainage tubes that will be taken out after 2 to 3 days. Your doctor and nurse will tell you how to take care of your dressing and incision when you go home. The scar left from the surgery is very thin. It will fade to almost nothing in about one year. Put sunscreen on the scar for the first year after surgery.

Getting Up and Active:

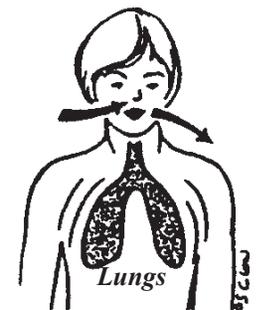
You will mostly lie in bed for 1 to 2 days. While you lie in bed, do the exercises shown below to speed your recovery. On the 3rd day, the nurse or physiotherapist will help you sit up and then begin to move around.

1. **Log rolling improves your breathing and prevents sores.** When you lie in one position for a long time, your breathing and your skin can be affected. A physiotherapist or nurse will show you how to roll in bed every 2 to 4 hours without hurting your back. To log roll you bend one knee and roll onto your side moving your shoulders and hips together as if you were a log.



Log rolling

2. **Deep breathing keeps your lungs fit.** The physiotherapist will visit 1 to 2 times a day to encourage you to deep breathe to expand your lungs.



3. Coughing and huffing to get the mucus out of your lungs and airways.

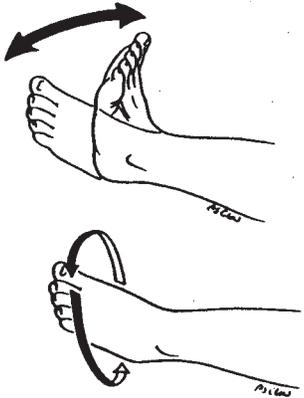
Do this at least once an hour until you are up.



Take 5 deep breaths then cough and huff.

4. Foot and leg exercises keep the blood moving.

Point your toes toward your head then toward the foot of the bed. Now trace circles with your feet. Repeat 10 times. Tighten your knees then relax. Tighten your bum then relax. Repeat 10 times. Do these exercises at least 3 times a day until you are up.



- ✓ Log roll every 2-4 hours
- ✓ Cough at least once an hour
- ✓ Deep breaths 5 times an hour
- ✓ Foot exercises 3 times a day
- ✓ Do not raise your leg without bending it first

On the 2nd or 3rd day you will slowly begin to move more.

The first step will be to have the head of your bed up so that you are half sitting. Then you will sit up all the way. A physiotherapist will show you how to do this correctly. The next step is to stand and then walk. The physiotherapist will be your coach as you practice. Once you know how to move in the right way you can do more of it with a nurse or family member beside you. Don't do it on your own for the first few times because you may get dizzy. Start by sitting up for short periods. Slowly do more and more while you are sitting. Take it easy! Don't push when you feel tired. It does not matter if it takes an extra day or two to get to the stage where you walk alone. Listen to your body. Go at its pace. Before you go home, it is a good idea to practice going up and down a flight of stairs.

Will I be in a lot of pain?

"How much pain will I have?" is a question on everyone's mind. This is hard to answer because the experience of pain is not the same for everyone. One thing is sure – you will not be left in pain. For the first few days your pain is controlled with pain medicine dripping through the IV. Pain medicine is called an **analgesic**. After your IV is capped, you will be started on pills or liquid pain medicine you swallow.

It is always easier to control pain before it gets bad. Don't play the hero. If you feel pain "rising" – tell the nurse right away. It takes about 30 minutes for pain pills to work.

Other ways to manage pain:

Here are some different things that you can do to manage pain. You may find that one or more of these methods work to help you control your pain.

- **Relaxation:** Think about each part of your body in turn. Tighten the muscles in one part and then relax them further and further. Move on to the next. Start with your head. Clench your jaw and then slowly relax all the muscles until your face feels velvety and your head is heavy and floppy. Now move to your neck. Stretch your neck from side to side and then relax. Next tighten your shoulders and so on until you get all the way to your toes.
- **Slow, deep breathing:** Breathe IN through your nose slowly --- now breathe OUT saying "heee" (quietly). Breathe IN slowly, now breathe OUT say "whooo" (quietly). Repeat: IN-OUT "heee", IN-OUT "whooo", IN-OUT "heee". The Family Resource Library on the third floor of the Ambulatory Clinic building has some relaxation videotapes and audiotapes with headphones. Ask someone to check some out for you.

- **Visualization:** This is like day dreaming about a place you love to be in. It means taking your mind off the discomfort (which is here) and going someplace more comfortable. You use your mind to take you on a journey to the most comfortable place you can think of. For example you could imagine an air mattress bobbing on a blue sea. When you have the actual feeling of floating and you see the blue sea add more details such as a seagull flies over you, a breeze lifts your hair and the warm water laps on your feet. It takes practice to go on a mind trip of this kind. We suggest you practice a mind trip at home enough times that you can easily get into it. You can use this in any stressful time not only in the hospital but in your life.

Am I ready to go home yet?

It will take 5 to 10 days before you are ready to walk out of the hospital and go home. Before you leave make sure you have the pamphlet called “Caring for Yourself After Scoliosis Surgery”. The clinic nurse or nurses on the unit will review this with you. Once you are home, if you have any questions, be sure to call the orthopedic clinic nurse or your surgeon. Follow-up appointments are usually 6 to 8 weeks after your surgery.

Date of follow-up appointment: _____

We wish you all the best.



Important Telephone Numbers:

Program Secretary for your Orthopedic Surgeon:

Dr. C . Reilly: 604-875-3711

Dr. F. Miyanji: 604-875-2651

Spine Program Nurse Clinician: 604-875-2609

My Notes

Use this space to make any notes or write down any more questions that you have and bring it to your appointment.