Scoliosis or Kyphosis Surgery

Your child's orthopaedic doctor has recommended spine fusion surgery to prevent the child’s scoliosis or kyphosis (curvature of the spine) from getting worse. The surgery will help prevent complications to the heart and lungs that would occur if the curve continued to increase. This surgery involves bone segments (vertebrae) of the upper back (thoracic) and/or lumber back (lumbar).

**What is a posterior spine fusion?**

Using an x-ray, your child's orthopaedic doctor will show you the vertebrae involved in the curve on your child’s spine. The involved vertebrae will be fused by pieces of bone taken from your child’s pelvic bone (where your back pocket is). Also, donated bone from a bone bank may be used. This freeze-dried bone, prepared by the bone bank, is safe for your child. It will take about 9 to 12 months for the fusion to heal as one solid bone. Rods, hooks, wires, and/or screws are placed to stabilize the correction (straightening) and stabilize the bone fusion while it heals. The incision will be along your child’s backbone. A similar slanted incision may be over your child’s pelvic bone. Your child will be hospitalized for about a week.

**What is an anterior spine fusion?**

If your child’s curve is “stiff” or if the posterior spine fusion is not sufficient to control progression of the curve, your child's orthopaedic doctor may recommend an anterior spine fusion before your child’s posterior spine fusion. It is recommended in young growing children and for scoliosis in the lumber spine. An anterior spine fusion releases bone segments in the front portion of the spine to improve straightening during the posterior spine fusion. This includes removing discs (cushions) between the involved vertebrae in the front of the spine. Your child may require a thorocotomy (going thorough the chest) to approach the upper spine in the front. An incision will be made along your child’s rib cage. A piece of rib bone will be used to fuse the bone segments in the front. If your child’s curve is in the lower back, an incision will be made in the stomach area. Your child will be hospitalized for about two weeks if both anterior and posterior are done.

**What tests need to be done before surgery?**

**Pulmonary function test:**

This will test how much air your child can breathe in and out, and how far his lungs can expand. Your child will be asked to breathe through his mouth into a breathing machine.

**Electrocardiogram (EKG):**

This test shows how the heart works (the heart conduction system). Electrodes will be placed on your child’s chest, shoulder and legs. The electrodes are connected to a machine which traces your child’s heart conduction.

**Physical therapy:**

You will meet a therapist who will test your child’s arms and legs for movement and strength. Your child’s posture and gait (how he walks) will also be checked.
**Spinal cord monitoring:**

This test measures signals from nerves of the spinal cord. Monitoring of the spinal nerves will also be done during your child’s surgery. Electrodes with wires will put on your child’s wrist, knees and ankles. The wires are attached to a box, which sends stimulations to your child. It does not hurt, but may feel funny. Another set of electrodes and wires will be put on your child’s scalp. These electrodes will be connected to a computer, which reads the signals from the spinal nerves.

**Blood donation:**

Your child’s orthopaedic doctor will recommend how many units are needed to prepare for your child’s surgery. Usually it is 2-4 units of blood. This blood may be donated from the community or directed donation (family or friend donation). If your child weighs at least 60 lbs., he may be eligible for autologous donation (donating his own blood). Special donations such as directed or autologous donation can be done at special donation centers. The Orthopaedic Clinic staff will assist you to arrange special donations. Your child may be eligible for Procrit® injections to stimulate blood cell production. This may decrease the number of blood transfusions given during and after surgery. Your child’s orthopaedic doctor will discuss this with you.

**What can be expected during the hospital stay?**

**Before surgery:**

Your child will be admitted to the hospital (Same Day Surgery Department) on the day of surgery.

**After surgery:**

After the operation, your child will be observed overnight in the Pediatric Intensive Care Unit (PICU). He will be transferred to a hospital room the day after surgery. If your child still needs close observation he may stay another night in the PICU.

**Nutrition:**

Your child’s digestion will be slow for the first two to three days following surgery. He will have several I.V. (intravenous) lines to provide water and nourishment. A tube (nasogastric tube) will be placed during surgery through your child’s nose down to his stomach. It will drain into a bottle until his stomach is growling and gurgling. By the third day, your child will begin to eat his regular diet. If your child has special nutritional needs, Total Parenteral Nutrition (TPN) may be given through an IV. Your child’s health care provider will determine this.

**Fluid Balance:**

Your child may look puffy around the face, arms and hands. This is water retention and can be expected during the first one to two days after a posterior spine fusion. A urine catheter and bag will be placed during surgery. This will help your child pass water (urine). It will be removed within three days.

**Tubes:**

If your child has an anterior spine fusion, he may have a chest tube. This tube will remove air and blood from the chest to keep the lungs from collapsing. It will be removed in three days. Your child may have one or two tubes (drains) coming from his back incision. The tubes are connected to a container that collects drainage. They will be removed by the second or third day following surgery.
Exercises:

Your child will be asked to do exercises to prevent lung and/or circulation complications. A respiratory therapist will show him how to do breathing exercises using an incentive spirometer. These breathing exercises will be done at least once every hour while he’s awake. Your child’s nurse will encourage coughing and deep breathing exercises every four hours. Every two hours your child will be turned to a new position on his side or back.

Pain:

Your child will have pain following surgery. The orthopaedic doctor will tell you how your child’s pain will be managed. Pain medication will be given through your child’s I.V. until the medication can be taken by mouth. The pain will become less as your child recovers and activity progresses.

Some children may have Patient Controlled Analgesia (PCA). A pump gives IV pain medication with a button provided for your child to push when more medication is needed. It is programmed so your child will not receive too much medication.

Activity:

The first day after surgery your child may be able to dangle at the side of the bed. Activity may be advanced on the second day to standing, sitting in a chair and walking to the bathroom. By the third day, your child may be walking in the halls with help of the physical therapist. Your child’s activity will progress with assistance based on his individual needs. Your child’s nurse and physical therapist will show you and your child the proper way to get out of bed.

For children/adolescents that do not walk due to a neuromuscular condition, a physical therapist will assist you with transferring your child from bed to reclining wheelchair. The Orthopaedic Advanced Practice Nurse will arrange for special equipment as needed.

If you have questions about your child’s surgery or pre-surgery tests, contact the Orthopaedic Advanced Practice Nurse at (816) 234-3693.