

What Is Spinal Cord Monitoring?

The spinal cord transmits nerve signals to and from the brain. During scoliosis surgery, surgeons work very close to the spinal cord. Monitoring lets the surgeon know how the spinal cord is working throughout the surgery.

Monitoring detects any small changes in the transmission of nerve signals along the spinal cord during surgery. If there are changes in how the spinal cord is transmitting signals, the technologist will alert the surgeon. This helps to reduce the risk of damage to your child's spinal cord.



How Is Spinal Cord Function Monitored?

During scoliosis surgery, spinal cord function will be monitored by:

1. Stimulating nerves at the ankle and wrist, and recording the response as it travels along its pathway to the brain. This is called “somatosensory evoked potentials” (SEPs).
2. Stimulating the brain to send a signal down the spinal cord, and recording from muscles in the arms, legs and feet. This is called “motor evoked potentials” (MEPs).

Your child will be asleep throughout both types of monitoring.

The technologist will monitor the SEP and MEP responses and tell the surgeon of any changes. (There are some times during the surgery when monitoring is not necessary or possible.)

How Is my Child Set Up for Spinal Cord Monitoring?

A technologist will come and see your child in Day Care Surgery on the morning of the surgery. He/she will measure your child's head to find the

locations for recording the SEPs and stimulating for the MEPs. He/she will apply electrodes to the head using a special glue. The technologist may also apply some sticker electrodes over the ankles, wrists, shoulders and knees. Before applying the electrodes, the spots will be cleaned with some gritty cream or paper.

On some occasions, the electrodes are applied in the operating room. If this is the case the technologist will let you know while you are in Day Care Surgery.

What Happens After the Monitoring?

All the electrodes will be removed before your child wakes up after the surgery. There may be a few crayon marks or some glue left in your child's hair. This can be cleaned off once your child is out of the Intensive Care Unit (ICU) and on the ward. Ask the nurse for some glue remover if you need it.

Is Spinal Cord Monitoring Safe for My Child?

There are some children who may not be able to have **MEP** monitoring. This includes children who have:

- a history of seizures
- significant heart disease
- a cardiac pacemaker
- a cochlear implant
- a history of significant head injury
- metal inside their head (i.e.: aneurysm clips)
- a history of stroke
- skull abnormalities

If your child has any of these conditions please tell your surgeon. He/she will discuss the risks and benefits of doing this type of monitoring. A decision will be made whether or not to do MEPs.

What Are the Risks of Spinal Cord Monitoring?

As with any type of procedure, there are some **rare risks** associated with monitoring. For MEPs these include the risk of a:

- seizure
- biting injury
- mandibular (jaw) fracture
- skin burn
- small movement during the surgery

**Contact the EEG Department:
Area 1B10
604-875-2124.**

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Spinal Cord Monitoring in the Operating Room



An agency of the Provincial
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4480 Oak Street, Vancouver BC, V6H 3V4

604-875-2345

www.bcchildrens.ca