

Magnetically-Controlled Growing Rods (MCGR)

What is MCGR?

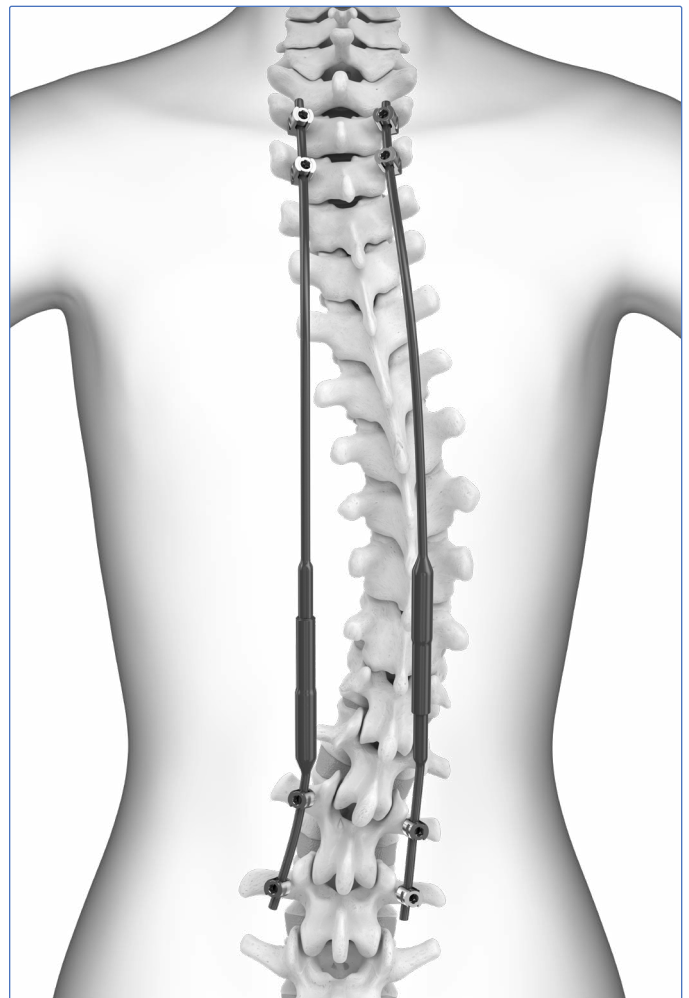
Magnetically-Controlled Growing Rods are adjustable rods placed next to the spine during surgery. The rods expand by using magnets and an external remote controller (ERC). Surgery is not necessary to lengthen the rods. Instead, the MCGR will be lengthened or shortened during a routine outpatient visit.



- Increases physical activity
- Improves mental health and social development

How is a MCGR placed?

During the surgery, the MCGR device is attached by hooks and screws in two locations of the spine, ribs, or pelvis. A small opening is made along the spine to expose the bone. The surgeon will place one or two rods next to the spine. The number of rods depends on the patient's needs.



Why is MCGR needed?

The MCGR device is used for children under the age of 10 with spinal deformities. These spinal deformities continue to get worse. The MCGR device is intended to prevent and, in some cases, correct curves in the spine. When the patient's chest and lungs have grown enough, they will have a standard spinal fusion surgery.

MCGR:

- Spreads out the ribs to help shape the chest and improves the ease of breathing
- Decreases the need for repeated surgeries for lengthening
- May reduce complications due to the need to have fewer surgeries
- May reduce discomfort and improve the child's quality of life
- Promotes normal spinal growth
- Increases the patient's life span
- Decreases use of a supplemental air supply

What happens after the MCGR is placed?

After surgery, your child will stay on a nursing unit for a few days. The nurses will monitor the wound and help manage pain.

Are there complications/side effects?

Possible complications may include infection at the surgical site, skin breakdown, bleeding, nerve and spinal cord injury, erosion of bone, rib fractures, unmanageable pain, pulmonary edema, tissue reaction to the metal, and breakage of the implant.

When can my child go home?

Your child may go home when their pain is controlled with oral pain medication and they can eat and drink well.

When at home:

- **Activities:** For the first month after MCGR surgery, the child should not lift heavy objects, bend, twist, or join in rough or contact sports because the MCGR can break or move around. After a month, there are no limits to the child's activities.
- **School:** The child can return to school about 4 weeks after surgery.
- **Showering:** The child may shower 5–7 days after surgery. Pat the incision dry. Do not rub or soak it.
- **Other water activities:** The child should avoid tub baths, whirlpools, Jacuzzis®, or swimming pools until the surgery site heals. This takes about 4 weeks.

Patients with a MCGR should tell their dentist that they have a metal implant. Often the dentist will have the child take antibiotics before getting their teeth cleaned or having any dental work done.



Call your doctor if:

- Any signs or symptoms of infection such as, a fever or redness, warmth, or swelling appear at the incision site.
- Pain is not controlled by pain meds
- Drainage appears from the surgical site
- Surgical site starts to spread apart
- Pain suddenly gets worse
- Numbness or tingling start in the legs or back
- Your child experiences trouble breathing
- Your child cannot eat normally

What about a follow-up?

Patients who receive a MCGR rod will follow-up about every two months in the outpatient orthopedic clinic. At each appointment, the rods are lengthened to match your child's normal growth. The adjustment of the rods will depend on the age of the child. The handheld non-invasive ERC is electrically powered. The device is placed over the patient's spine. The magnets in the implanted rods rotate and either lengthen or shorten the rod. These adjustments allow the child to continue to grow taller as well as further correct spine and chest wall deformities.

What if I have more questions?

Contact your orthopedic surgeon for additional information.