

# Magnetically controlled growing rods

**Early onset scoliosis** (EOS) presents in patients younger than 10 years. Magnetically controlled growing rods (MCGR) were developed as an **outpatient distraction system** for EOS, allowing to avoid multiple surgeries.

A systematic review was conducted according to the **PRISMA** guidelines. **PubMed**, **Google Scholar**, **Embase** and **Scopus** were accessed in May 2022. All the **clinical trials** which investigate the role of MCGR for early-onset scoliosis were accessed. Only studies reporting data in patients younger than 10 years with a preoperative **Cobb Angle** greater than 40° were eligible. The following data were extracted at baseline and at last follow-up: mean kyphosis angle, overall mean Cobb angle, and mean T1-S1 length. Data from complications were also collected.

Data from 23 clinical studies (504 patients) were included in the present study. 56% (282 of 504) were females. The average length of the follow-up was  $28.9 \pm 16.0$  months. The mean age of the patients was  $8.7 \pm 1.9$  years old. The mean BMI was  $17.7 \pm 7.6$  kg/m<sup>2</sup>. The mean kyphosis angle had reduced by the last follow-up ( $P = 0.04$ ), as did the overall mean Cobb angle ( $P < 0.0001$ ), while the overall T1-S1 length increased ( $P = 0.0002$ ). Implant-associated complications, followed by spinal alignment failure, wound healing ailments, pulmonary complications, progressive trunk stiffness, persistent back pain, and fracture.

The management of EOS remains challenging. The current evidence indicates that MCGR may be effective to distract the spine and modeling the curve in EOS <sup>1)</sup>.

<sup>1)</sup>

Migliorini F, Chiu WO, Scrofani R, Chiu WK, Baroncini A, Iaconetta G, Maffulli N. Magnetically controlled growing rods in the management of early onset scoliosis: a systematic review. J Orthop Surg Res. 2022 Jun 11;17(1):309. doi: 10.1186/s13018-022-03200-7. PMID: 35690867.

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