



The Debates



Offset MCGR Orientation

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Disclosures

- Honorarium/consulting funds directed to research from K2M, Orthopediatrics.
- Research funding from SRS, POSNA, OREF, NIH.

Standard



Offset



If you can have more control, why don't you take it?

- MCGR
 - Guide growth
 - Correct deformity
 - Avoid complications

Would you like more options, more control, or less?

Standard Rods



Offset Rods



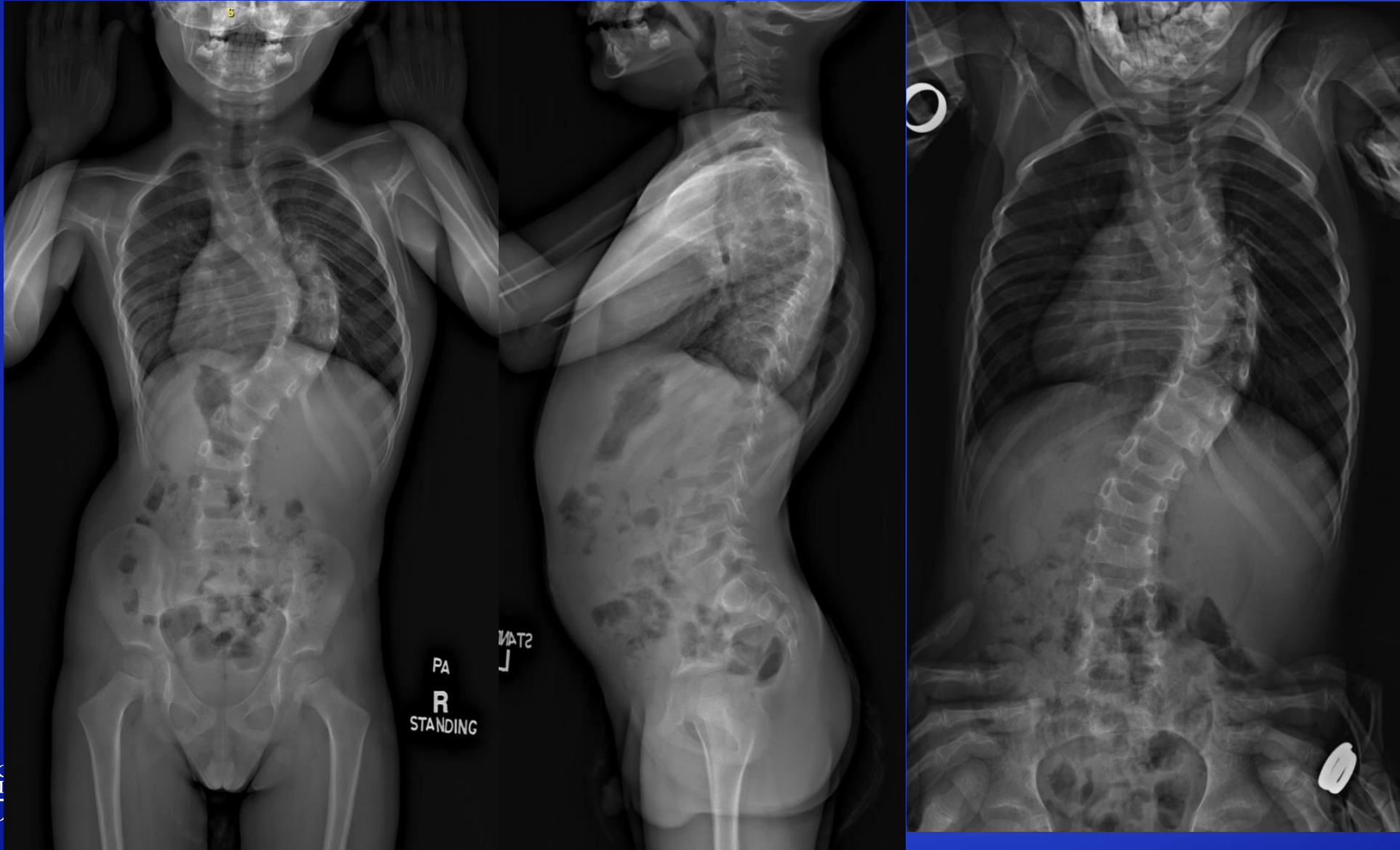
What kind of car does Burt Drive?



Maybe he shouldn't be driving at all



Case:
4+4 yo M, IIS, 80 degree curve (58 txn), failed casting

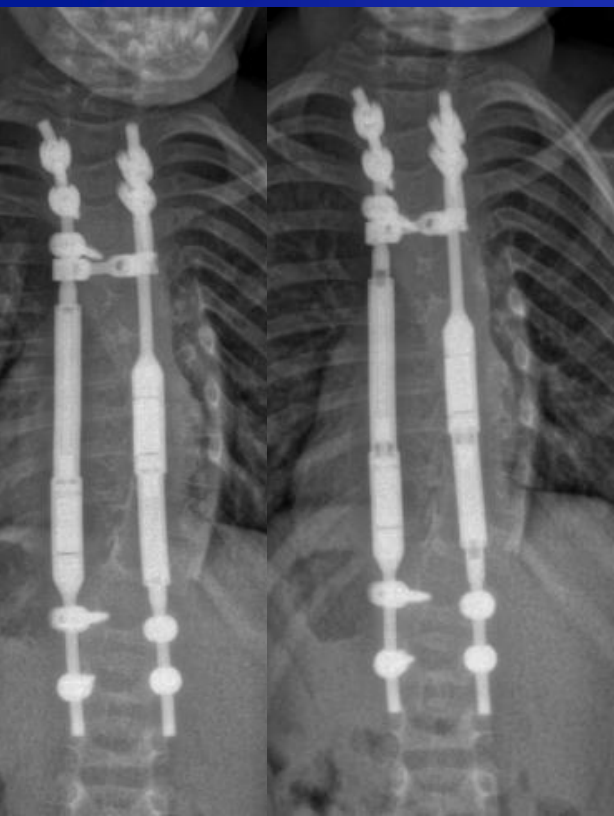


Casting, bracing at age 4





Correction to 38°



6 mo postop, 1st lengthening

- 3 mm deployed to each rod
- Actually lengthening 4.5 mm each rod!!!
- Cross talk, even with offset alignment . . .
- How much worse crosstalk with **standard position**?

Control – Offset Rods

Can lengthen
concavity >> convexity

Left	Right
1 mm	1mm
1mm	1mm
1mm	STOP!

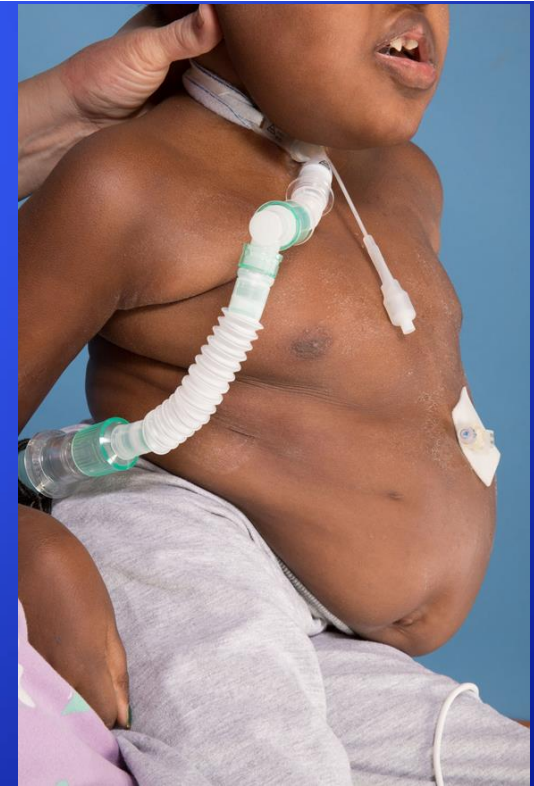
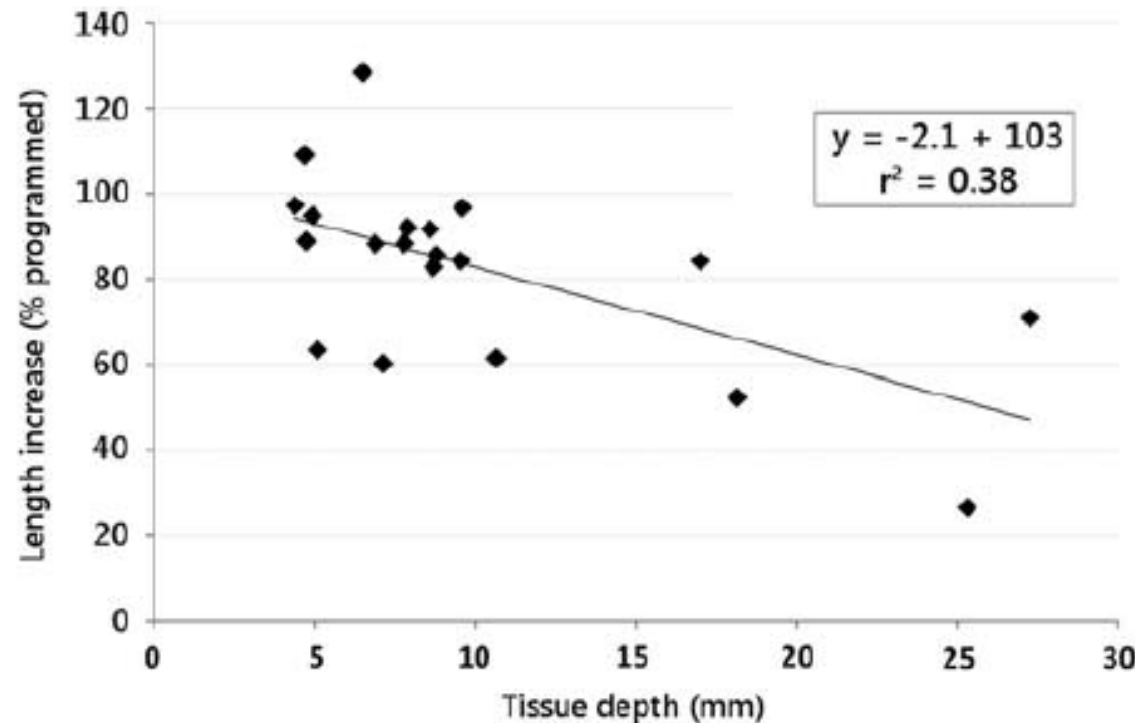


Soft Tissue Envelops Affects Delivered Force

Observed Length Increases of Magnetically Controlled Growing Rods are Lower Than Programmed

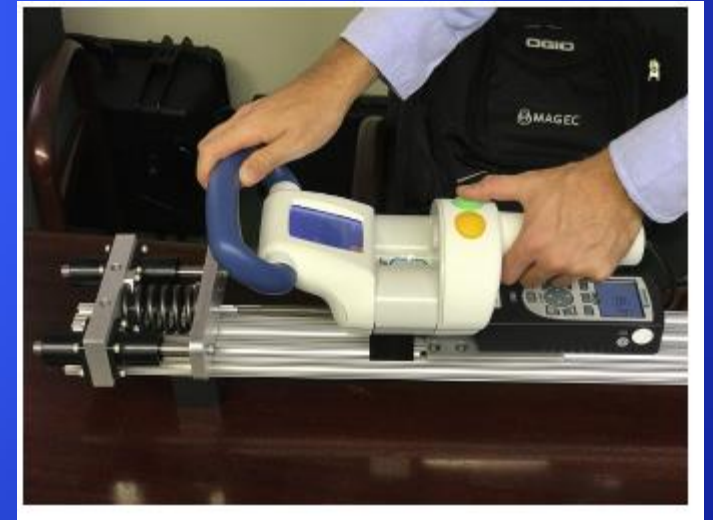
Sarah E. Gilday, MS, PA-C, Mark S. Schwartz, DO,† Donita I. Bylski-Austrow, PhD,*
David L. Glos, BSE,* Lindsay Schultz, BS, CCRP,* Sara O'Hara, MD,*
Viral V. Jain, MD,* and Peter F. Sturm, MD, MBA**

(J Pediatr Orthop 2018;38:e133–e137)



More force???

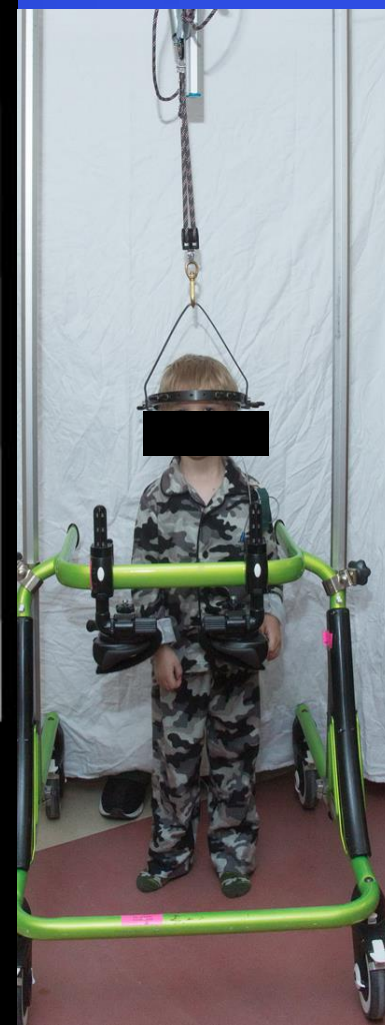
- Pushing two rods at once with standard device?
- Alternating rod lengthening, 1 mm, 1 mm, 1 mm should provide same ultimate result.



S. Poon et al. / Spine Deformity 6 (2018) 787–790

Lower Rates of PJK?





Index

1 Year

2 Years after implant



Standard



Offset



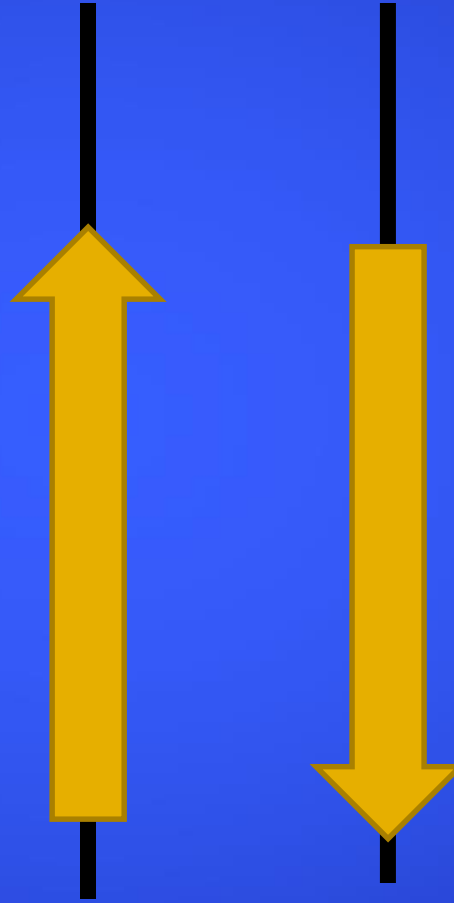
- 'Theory'

- Can put straight section at thoracolumbar junction and reproduce thoracic kyphosis

Standard



Offset



- 'Theory'

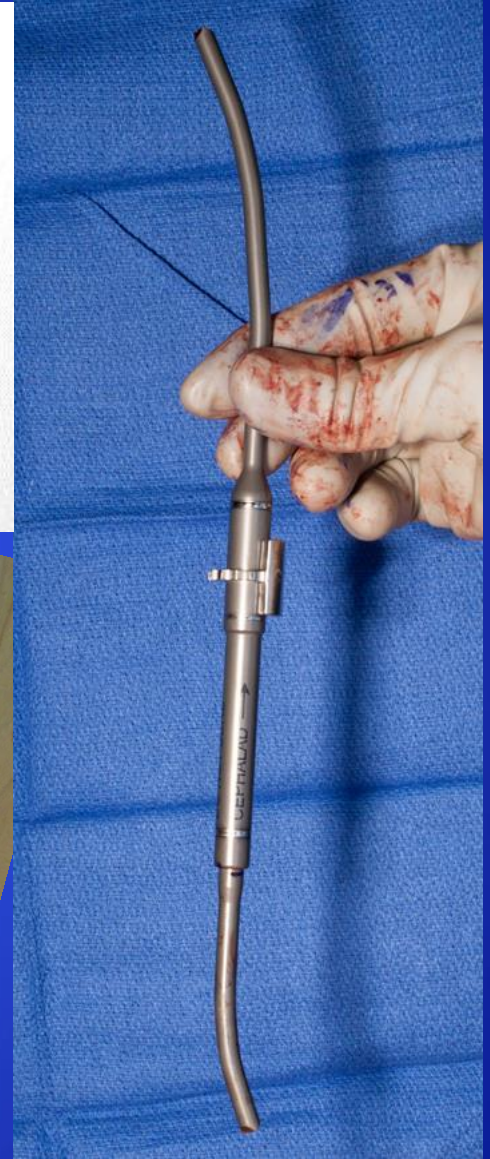
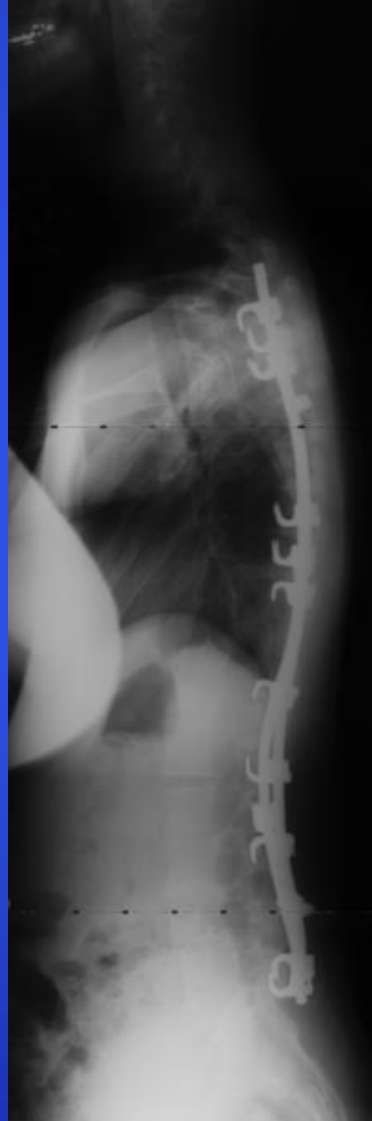
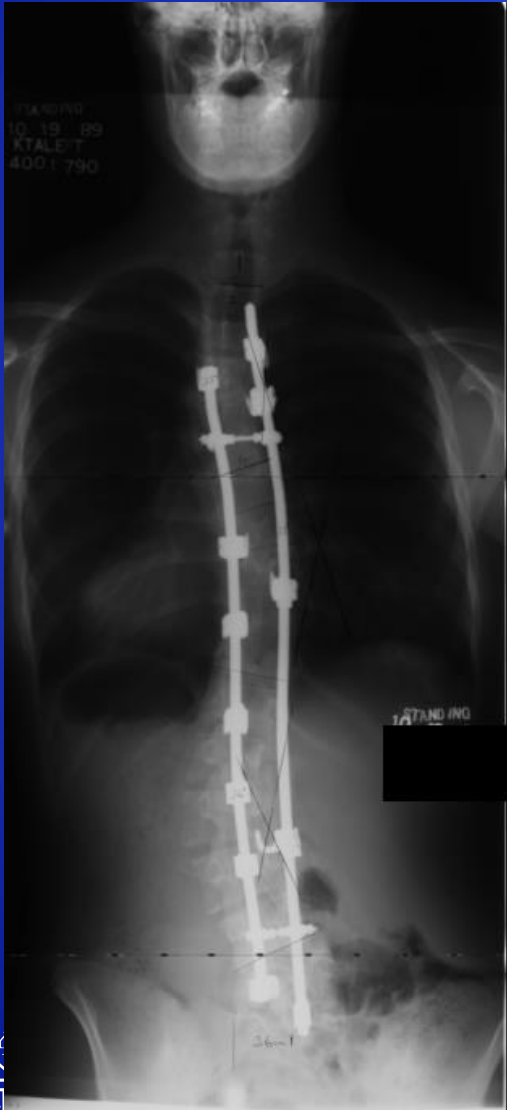
- Can put straight section at thoracolumbar junction and reproduce thoracic kyphosis

Does it Affect PJK?

- Offset vs. standard doesn't really help
- When in doubt, use **shorter actuator** and more **kyphotic rod**
- Treat kyphosis before implant
- In a small child, they are all long . . .



Newest Version of Harrington Rod??



What are our colleagues doing?

Mean 6-Year Follow-up of Magnetically Controlled Growing Rod Patients With Early Onset Scoliosis: A Glimpse of What Happens to Graduates

**Jason Pui Yin Cheung, MBBS,
MMedSc, MS, FHKCOS,
FHKAM(Orth), FRCS(EdIn)**

Karen Yiu, MSc

**Kenny Kwan, FHKCOS,
FHKAM, FRCSEd**

**Kenneth MC Cheung, MBBS,
MD, FRCS, FHKCOS, FHKAM**

Department of Orthopaedics and Traumatology, The University of Hong Kong, Pokfulam, Hong Kong, SAR, China

- All patients had 5.5 mm MCGRs inserted subfascially, in a standard and offset rod configuration.

Use of a distraction-to-stall lengthening procedure in magnetically controlled growing rods: A single-center cohort study

Benny Dahl¹, Casper Dragsted², Søren Ohrt-Nissen²,
Thomas Andersen² and Martin Gehrchen²

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DOI: 10.1177/2309499018779833
journals.sagepub.com/home/osj


Initially, the patients received **two standard rods**.
... we used **one standard rod** on the concave side of the major curve and **one offset rod** on the convex side.

Magnetically Controlled Growing Rods for the Management of Early-onset Scoliosis: A Preliminary Report

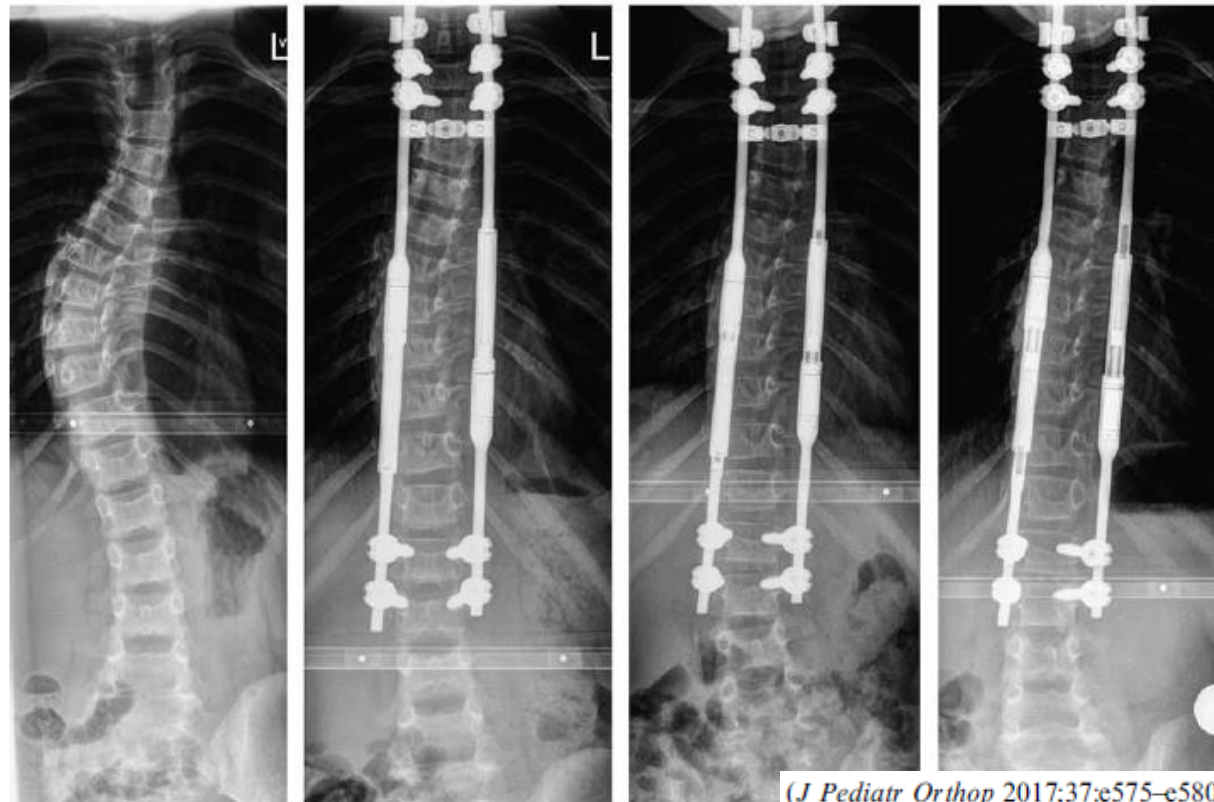
Guido La Rosa, MD, Leonardo Oggiano, MD, and Laura Ruzzini, MD, PhD

(J Pediatr Orthop 2017;37:79–85)

Offset

Preliminary Results of Magnetically Controlled Growing Rods for Early Onset Scoliosis

Karsten Ridderbusch, MD,† Martin Rupprecht, MD,*† Philip Kunkel, MD,‡
Christian Hagemann, MD,‡ and Ralf Stücker, MD*†*



(J Pediatr Orthop 2017;37:e575–e580)

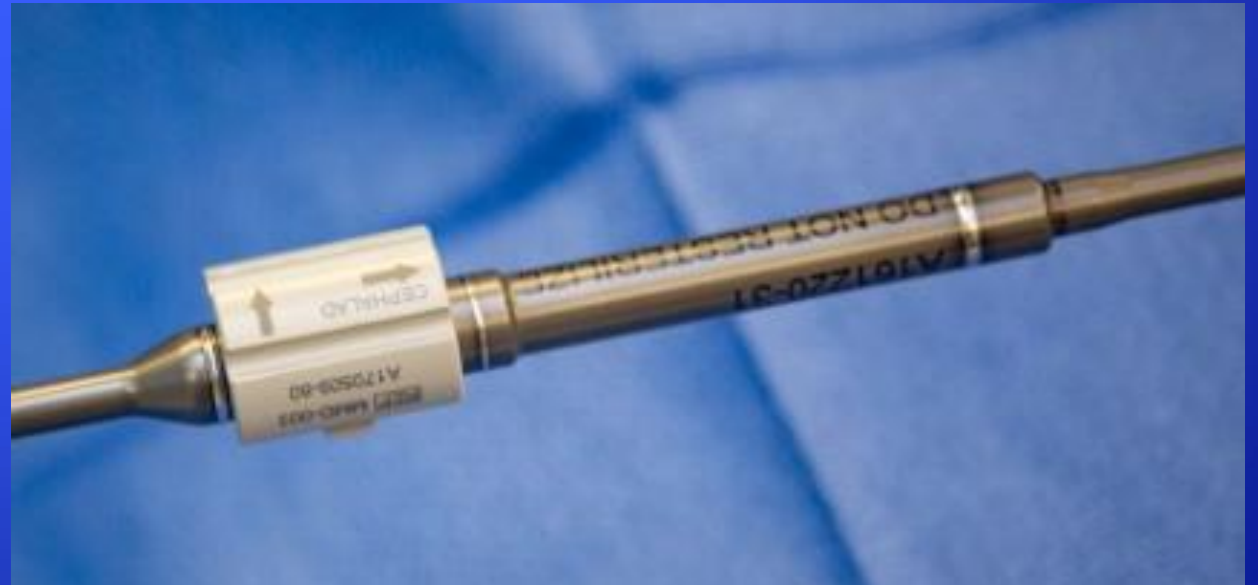


Offset Construct

Independent rod control (may be helpful to adjust coronal balance)

Incremental lengthening (control)

Minimizing cross-talk (control)



Offset Construct	Standard Construct
Independent rod control (may be helpful to adjust coronal balance)	Lengthen rods simultaneously, and may improve distraction forces (Needs verification)
Incremental lengthening (control)	Keeps magnets and artifact confined in one area, lower spine, on MRI imaging
Minimizing cross-talk (control)	Minimizes error of putting in a rod upside

Plus, everyone is doing it!



Thank you!

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