

# Novel Technique for Elongation, Derotation, Flexion Casting Using a Jackson Table

Blake K. Montgomery, MD, Kali Tileston, MD, Japsimran Kaur, BS, Meghan Imrie, MD, James Policy, MD, Lawrence Rinsky, MD, John Vorhies, MD



**Stanford**  
**Children's Health**

Children's Orthopedic and  
Sports Medicine Center



**Stanford** | MEDICINE

# CASTING FOR EARLY ONSET SCOLIOSIS

- Casting is an effective treatment for early onset scoliosis

## Types of Casting

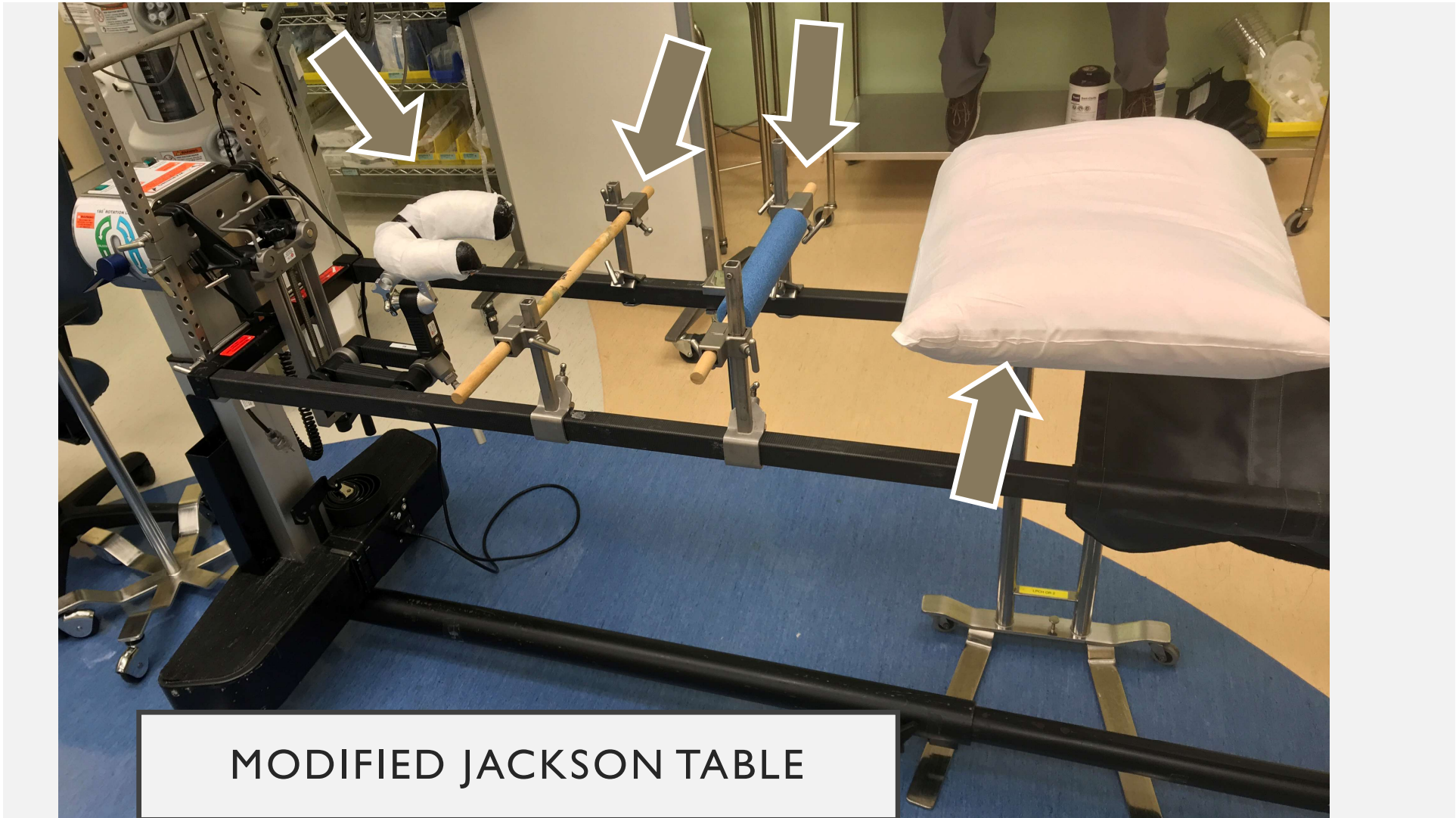
- Risser/bending/hanging
  - 3 point lateral mold
- Elongation, Derotation, Flexion (EDF)
  - Traction and derotation
  - Can avoid or delay surgery

## TABLES FOR EDF CASTING

- EDF casting is traditionally performed on dedicated traction frame
  - Utility limited to locations with dedicated traction frame
- Jackson tables are common
  - Modifications easy to learn

### This study aims to:

describe a novel technique for EDF casting using the modified Jackson table. We compare results of casting using the modified Jackson table to a traditional Risser Frame.



MODIFIED JACKSON TABLE

## TECHNIQUE

- Standard Orthopedic Systems Inc (OSI) Jackson table system
- Head supported with padded horseshoe mounted on cervical management system
- Two sets of inverted arm board brackets with  $\frac{3}{4}$  inch wooden dowels covered with foam



## TECHNIQUE (CONTINUED)

- Mayo stand or third dowel to support the legs
- Ears are padded
- Traction applied through halter strap under chin and tubular stockinette wrapped around iliac crest (typically 10-20 pounds on each side)
- Body cast applied
- Windowing after transferred onto gurney



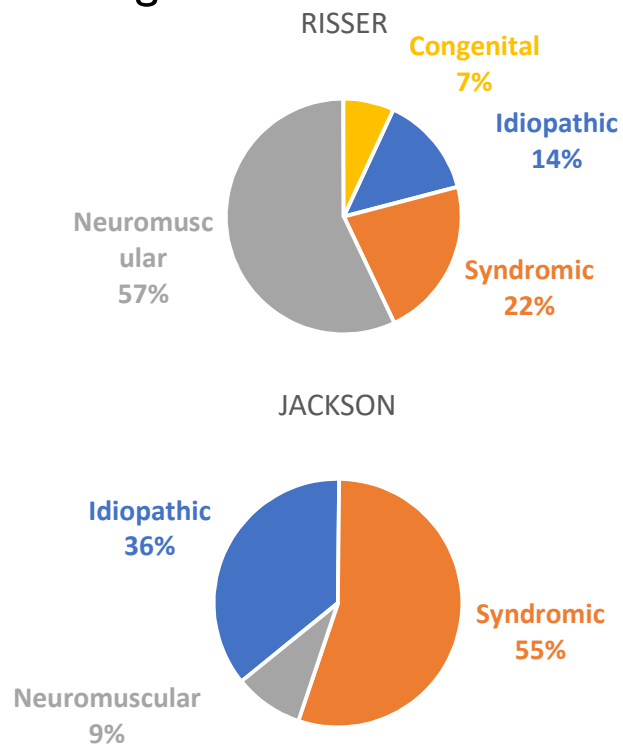
## METHODS

- Patients enrolled from January, 2015 to January, 2019
- Review of all EDF casts in a 2 hospital system, 4 surgeons
- 25 patients
  - 14 casted on Risser Frame
  - 11 casted on Modified Jackson

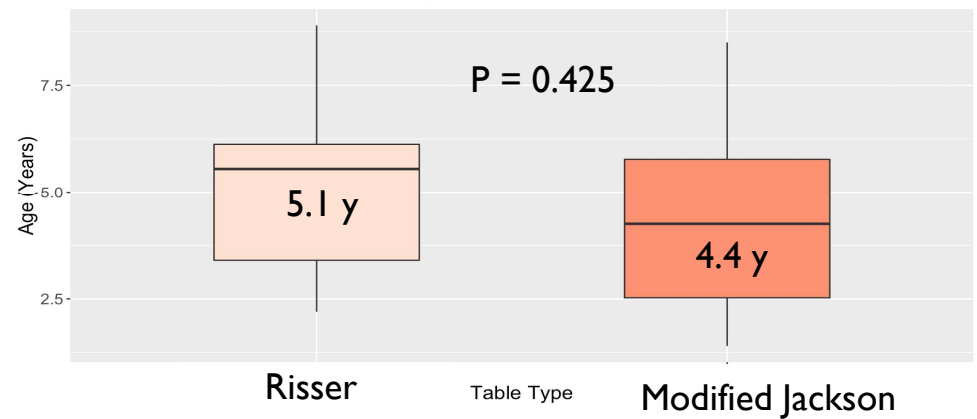


# RESULTS

- Diagnosis



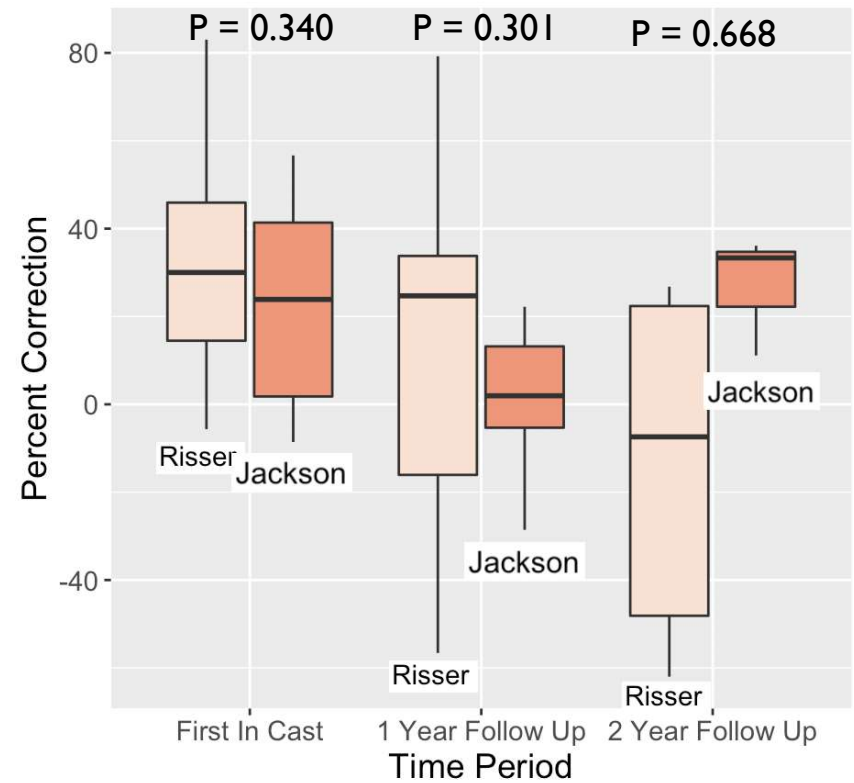
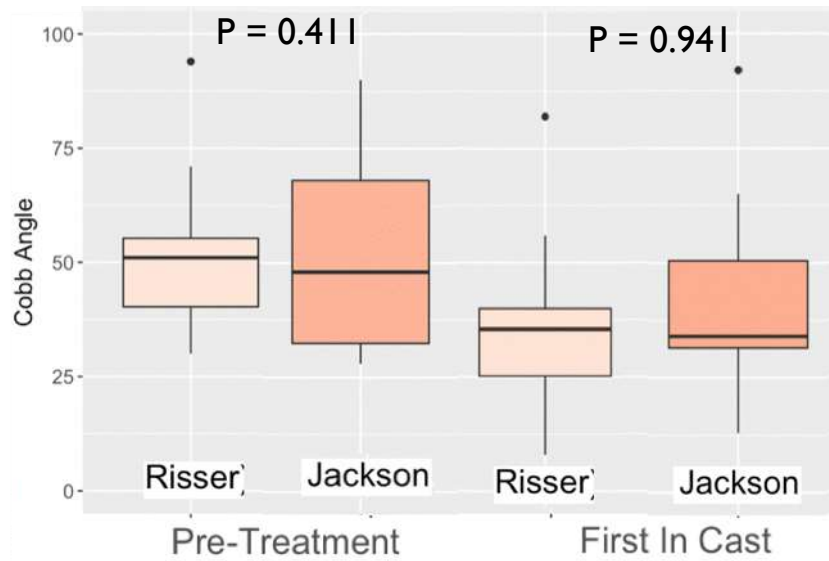
- Age at Cast Initiation





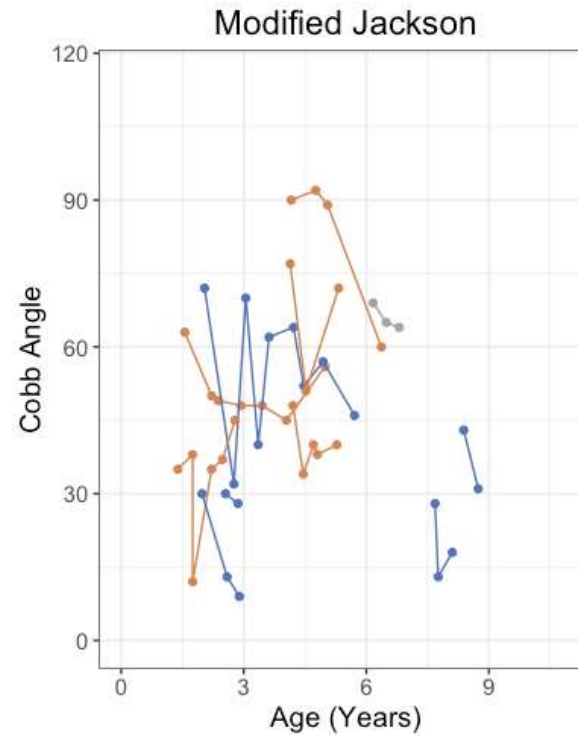
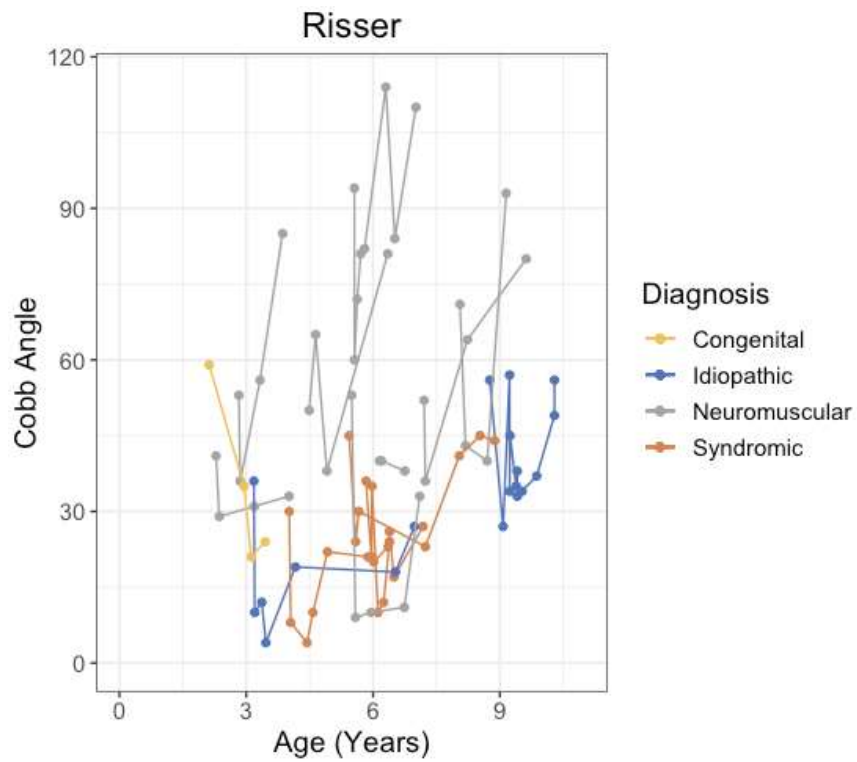
# RESULTS (CONTINUED)

- In Cast Correction



## RESULTS (CONTINUED)

- Cobb Angles Over Time



## CONCLUSION

- Jackson table is a viable option for EDF casting. Cobb angle correction and complication rates are similar to specialized EDF casting frames.
- EDF Casting on a Jackson table can be performed at many hospitals.



## REFERENCES

1. Grzywna, A., McClung, A., Sanders, J., Sturm, P., Karlin, L., Glotzbecker, M., ... Growing Spine Study Group. (2018). Survey to describe variability in early onset scoliosis cast practices. *Journal of Children's Orthopaedics*, 12(4), 406–412. <https://doi.org/10.1302/1863-2548.12.170207>
2. Dede, O: A brief history and review of modern casting techniques in early onset scoliosis. *J Child Orthop* 2016;10:405–411.
3. Cunin, V: Early-onset scoliosis – Current treatment. *Orthop Traumatol Surg Res* 2015;101:S109–S118.
4. Canavese, F, Dimeglio, A: Normal and abnormal spine and thoracic cage development. *World J Orthop* 2013;4:167–74.
5. Udupa, JK, Tong, Y, Capraro, A, McDonough, JM, Mayer, OH, Ho, S, Wileyto, P, Torigian, DA, Campbell, RM: Understanding Respiratory Restrictions as a Function of the Scoliotic Spinal Curve in Thoracic Insufficiency Syndrome: A 4D Dynamic MR Imaging Study. *J Pediatr Orthop* 2018;00:1–7.
6. Mehta, MH: Growth as a corrective force in the early treatment of progressive infantile scoliosis. *J Bone Joint Surg Br* 2005;87:1237–47.
7. Risser, JC: Scoliosis treated by cast correction and spine fusion. *Clin Orthop Relat Res* 1976;86–94. at <<http://www.ncbi.nlm.nih.gov/pubmed/1277657>>.
8. D'Astous, JL, Sanders, JO: Casting and traction treatment methods for scoliosis. *Orthop Clin North Am* 2007;38:477–84.