The Original Bending Brace

Non-Surgical, Nighttime, Scoliosis Management
Bending Brace: GROWTH MODULATION
Gravity vs. Growth

- **IF** scoliosis is a disorder of **GRAVITY** then **daytime** support is necessary.

- **IF** scoliosis is a disorder of **GROWTH** then **nighttime** bracing may be all that’s required.
Melatonin

- Levels are high at **night** - minimal levels during the day
- Levels are low in patients with progressive AIS
Growth Hormone is only present and active at night.

Tibial growth in lambs

“...at least 90% of bone elongation occurs during recumbency and almost no growth occurs during standing or locomotion. The authors hypothesize that growth may also occur in children during rest or sleep.”

EVIDENCE-Spinal growth modulation by compression


2. Newton PO, et.al. Spine. 30:2608, 2005

In Brace Correction Correlates to biomechanical effectiveness of brace treatment in AIS

“In the framework of the Hueter-Volkmann principle…in brace correction predicts long-term outcome of the treatment and provides insights in the understanding of brace biomechanics.”

The Charleston Bending Brace
Biomechanical Study

- This study quantified the Charleston Bending Brace's biomechanical effect, which consists in inverting the asymmetrical compressive loading in the major scoliotic curve.
- The reduction of the major scoliotic curve varied between 58% and 97% and was in the range of published clinical data.
- Internal compressive stresses up to 1 MPa were generated on the convex side of the major scoliotic curve and tensile stresses up to 1 MPa on its concavity.

The Charleston Bending Brace

Early Intervention Study

- Early intervention treatment with the CBB may reduce progression to full-time bracing threshold.

- This study focused specifically on curve magnitudes between 15-25 degrees in skeletally immature, pre-menarchal females.

- 100% of patients in the control group (observation) resulted in curves progressing to standard criteria for full-time bracing.

- 29% of patients randomized to night time wear were maintained without curve progression. (Statistically significant)

* Nighttime Bracing Versus Observation for Early Adolescent Idiopathic Scoliosis; Wiemann, Shah, MD, Price; Pediatr Orthop Volume 34, Number 6, September 2014
Bending Brace: Growth Modulation

- Bending increases pressure on convex vertebral growth centers to reduce growth

- Can be used for high thoracic curves

- Double curves are difficult to brace but can be treated by bending brace
New Evidence. New Solutions.

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Non-Surgical, Nighttime, Scoliosis Management

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