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[Eur Spine J.](#) 2021 Jun 6. doi: 10.1007/s00586-021-06889-y. Online ahead of print.

Efficacy of bracing in early infantile scoliosis: a 5-year prospective cohort shows that idiopathic respond better than secondary-2021 SOSORT award winner

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PMID: 34091763 DOI: [10.1007/s00586-021-06889-y](https://doi.org/10.1007/s00586-021-06889-y)

Abstract

Purpose: In conservative early onset scoliosis treatment, interest in bracing is growing because repeated general anaesthesia (required by casting) has been questioned for possible brain damages. We aimed to check the results in the medium term of bracing, comparing idiopathic (IIS) to secondary (SIS) infantile scoliosis.

Methods: We performed a retrospective study in a consecutive prospective cohort. Inclusion criteria were: discovery of scoliosis and bracing below age 3; exclusion criteria: previous spine surgery, less than three consultations. We considered the following results: full (< 20° Cobb) and partial (< 30° success; hold-up (progression < 5° but curve > 29°); partial (progression > 5°) and full (fusion) failure;

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statistics: ANOVA for repeated measures; linear mixed effect model with Cobb angle (dependent), time and diagnosis (independent) variables.

Results: We included 34 infants (16 IIS and 18 SIS) of age 1.10 ± 0.10 (years·months), $44 \pm 17^\circ$ curves, $27 \pm 10^\circ$ rib vertebral angle difference, average observation 5.05 ± 3.03 years. We found progressive improvement of IIS and stability of SIS patients. Six IIS (37.5%) and one SIS (6%) reached brace weaning before puberty with $13 \pm 5^\circ$ (improvement $61 \pm 15\%$, $p < 0.001$), after 4.11 ± 3.07 years of treatment. Three patients were fused, one IIS (6%) and two SIS (11%). Two IIS patients also reached end-of-growth with 18° (start 40° at 1.03 years) and 20° (start 32° at 2.12 years), respectively.

Conclusion: Bracing shows promising results in the medium term for high-degree IIS, with very few hold-ups (19%) and failures (12%). Conversely, failures prevail for SIS (full 11%), even if the partial failure (39%) is still a time-buying strategy.

Keywords: Brace; Idiopathic infantile scoliosis; Mehta casting; Secondary infantile scoliosis.

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