Effects of bracing in adolescents with idiopathic scoliosis.

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Abstract
BACKGROUND:
The role of bracing in patients with adolescent idiopathic scoliosis who are at risk for curve progression and eventual surgery is controversial.

METHODS:
We conducted a multicenter study that included patients with typical indications for bracing due to their age, skeletal immaturity, and degree of scoliosis. Both a randomized cohort and a preference cohort were enrolled. Of 242 patients included in the analysis, 116 were randomly assigned to bracing or observation, and 126 chose between bracing and observation. Patients in the bracing group were instructed to wear the brace at least 18 hours per day. The primary outcomes were curve progression to 50 degrees or more (treatment failure) and skeletal maturity without this degree of curve progression (treatment success).

RESULTS:
The trial was stopped early owing to the efficacy of bracing. In an analysis that included both the randomized and preference cohorts, the rate of treatment success was 72% after bracing, as compared with 48% after observation (propensity-score-adjusted odds ratio for treatment success, 1.93; 95% confidence interval [CI], 1.08 to 3.46). In the intention-to-treat analysis, the rate of treatment success was 75% among patients randomly assigned to bracing, as compared with 42% among those randomly assigned to observation (odds ratio, 4.11; 95% CI, 1.85 to 9.16). There was a significant positive association between hours of brace wear and rate of treatment success (P<0.001).

CONCLUSIONS:
Bracing significantly decreased the progression of high-risk curves to the threshold for surgery in patients with adolescent idiopathic scoliosis. The benefit increased with longer hours of brace wear. (Funded by the National Institute of Arthritis and Musculoskeletal and Skin Diseases and others; BRAIST ClinicalTrials.gov number, NCT00448448.).