

133. Surgery Outcomes of Adolescent Idiopathic Scoliosis Surgery
Related to Age and Length of Follow-Up
Glenn R. Buttermann, MD, Sarah A. Mueller, CST, BA; Midwest Spine and
Brain Institute, Stillwater, MN, US

BACKGROUND CONTEXT: The natural history of adolescent idiopathic scoliosis, AIS, from asymptomatic to painful scoliosis is not entirely understood. The long-term outcomes of surgical treatment in these pediatric and adult groups have not been fully reported. This study compared the 10-year surgical outcomes of both adolescent and adult with adolescent onset types, relative to normal controls, as well as multilevel lumbar degenerative disc disease, DDD, fusion patients.

PURPOSE: Comparative assessment of long-term surgical outcomes of idiopathic scoliosis patients, for both adolescent and adult with adolescent onset types.

STUDY DESIGN/SETTING: Prospective cohorts compared by outcomes assessed over a 10-year follow-up period.

PATIENT SAMPLE: AIS patients, mean 51° curve, n=30. Adults with AIS, mean 54° curve, n=30. Normal pediatric controls, n=30. Normal adult controls, n=30. Adult DDD fusion controls, n=50.

OUTCOME MEASURES: Visual Analog Back and Leg Pain Scale (VAS), pain drawing, Oswestry Disability Index (ODI). Pain med use.

METHODS: All groups were prospectively enrolled and assessed with outcomes questionnaires every 1-2 years over 10 years.

RESULTS: Postoperative pain outcomes improved for all surgical groups for the first 5 years postoperatively; AIS pain was significantly improved up to 2-3 years, while adult AIS and DDD patients were significantly improved for all follow-up periods. Adult AIS and DDD had significantly improved ODI through 4-6 years. During the subsequent 5 years, results slightly deteriorated; relative to their initial postop outcomes AIS back pain and ODI worsened, as did control groups at the 8-10 yr follow-up ($p < 0.03$). Adult AIS pain worsened during the 6-8 and 8-10 year follow-up ($p = 0.02$). Adult controls trended toward worsening scores. Between groups, AIS had worse preoperative scores relative to controls, but postoperatively, there was no difference. Adult AIS relative to controls had worse scores across all time periods. DDD patients had similar scores to the adult AIS. Deformity scores improved significantly for scoliosis groups and remained improved for >10 years.

CONCLUSIONS: AIS patients had slightly greater pain compared to age and gender match controls. After surgery, scores were similar and remain improved for the first 5 postoperative years, after which there was a slow decline in both groups. Idiopathic scoliosis patients treated surgically as adults had outcomes which were similar to patients who had multilevel surgery for lumbar DDD with marked improvement after surgery which remained stable over the first 5 postoperative years but then declined. The slow decline 5 or more years after surgery may be related to adjacent segment conditions but also may be part of normal aging, as the controls groups exhibited a slow parallel decline in scores.

FDA DEVICE/DRUG STATUS: This abstract does not discuss or include any applicable devices or drugs.