

Screening for adolescent idiopathic scoliosis



Children'sSM
Healthcare of Atlanta
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Effective screening provides early intervention for an overlooked condition

The benefits provided by effective clinical scoliosis screening programs are significant, including “the potential prevention of deformity progression by brace treatment and the earlier recognition of severe deformities requiring operative correction.”*

Who is affected?

Scoliosis is a lateral deviation from the vertical line (sagittal plane) measured as greater than 10 degrees by X-ray. Vertebral rotation is an additional component.

Evidence supports scoliosis as being hereditary, and current studies indicate that more than one gene is responsible for scoliosis. Researchers have developed a diagnostic test using gene profiles to help predict curve severity. The pathogenesis of scoliosis is not fully understood.

Scoliosis affects males and females equally. Females, however, are five times more likely to have a progressive scoliotic curve requiring treatment.

Because scoliosis has few physical symptoms, a patient complaining of back pain may be symptomatic of another condition.

What are the risks?

The risk of further progression is low for curves measuring less than 30 degrees at the time the patient reaches skeletal maturity. Curves of greater magnitude have a higher risk of progression after maturity, requiring continued observation through the adult years. Some studies report an average of 1 degree of curve progression a year.

When should a child be screened?

Routine screening for scoliosis is important because it decreases the relative risk of curve progression into a surgical range by a factor of 8. The most specific test for scoliosis is the Adams forward bend test.

The at-risk population is between the ages of 10 and 15. At minimum, females should be screened twice, at ages 10 and 12, and males should be screened once, at age 13 or 14.*

Legal rules promulgated from the Georgia Code require screening “annually for a minimum of two grades occupied by the at-risk population.”**

What are the treatments?

Observation

Minor curves less than 15 degrees with minimal or moderate risk for progressive deformity need to be observed with periodic clinical physical examination. Observation continues until the risk for progression decreases—usually when the patient reaches skeletal maturity.

Orthotic intervention

Curves between 25 to 45 degrees with moderate or high risk for progression may be managed with a scoliosis brace to limit the risk of further progression until the patient reaches skeletal maturity.

Surgery

Major curves greater than 45 degrees, or moderate curves with high risk for progression, may require a surgical intervention known as a spinal fusion.

What are the consequences of untreated progressive scoliosis?

- Significant deformity at the spine, which may lead to perceived disability as an adult
- Development of osteoarthritis of the spine
- Development of chronic back pain
- Risk during adulthood of an additional progression for major curves
- Potential for decreased vital lung capacity and pulmonary function due to restricted chest diameter in thoracic curves of more than 50 degrees
- Shortness of breath and decreased pulmonary function in thoracic curves exceeding 80 degrees
- Increased risk of death from pulmonary and cardiac failure in thoracic curves greater than 100 degrees
- Potential for significant psychological burden from deformity due to societal emphasis on appearance and health

The Children's difference

Our Scoliosis Screening Program partners with physicians, county health departments and school nurses to detect early signs of scoliosis in the at-risk population.

Tertiary clinics

- We offer registered nurse-facilitated scoliosis tertiary clinics at several metro Atlanta locations with X-ray evaluation for children referred from both physicians and school screenings.
- X-ray results are sent to the families and their primary care physicians along with a treatment recommendation.

Referral process

To refer a patient to the tertiary clinic, have parents call **404-785-7553**.

Additional services and resources

Services

We facilitate access to area pediatric orthopaedic surgeons and additional orthopaedic resources.

Educational opportunities

Our program's registered nurse coordinator provides in-service presentations at physicians' offices in metro Atlanta. Visit **choa.org/forms** to schedule.

*American Academy of Orthopaedic Surgeons (AAOS), Scoliosis Research Society (SRS), Pediatric Orthopaedic Society of North America (POSNA) and the American Academy of Pediatrics (AAP)

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Annual scoliosis screening conference

- Speakers include pediatric orthopaedic surgeons, the program's registered nurse and board-certified orthotists.
- We offer training to county health department personnel, school nurses, volunteers, physical education teachers and school health workers about screening for scoliosis.

Resources

- Physician quick reference guide:
Five Steps of Scoliosis Screening
- Educational materials for patients and families in both English and Spanish
- Direct line to the Scoliosis Screening Program's registered nurse at **404-785-6753** to answer questions about scoliosis

Websites

- Scoliosis Research Society: srs.org
- National Scoliosis Foundation: scoliosis.org
- AAOS, SRS, POSNA, AAP (Screening for Idiopathic Scoliosis in Adolescents): srs.org/patients/adolescent/idiopathic



Visit **choa.org/scoliosis** for more information about our Scoliosis Screening Program.