

# Adolescent Idiopathic Scoliosis



## FAST FACTS

### >10 degrees

lateral curvature of spine indicating AIS in otherwise healthy children age 10+

### 2%

incidence in general population

### 2/3

of AIS patients have a positive family history of AIS

### 10 – 15%

of curves progress

**Adolescent Idiopathic Scoliosis (AIS)** is a lateral curvature of the spine >10 degrees as measured on standing PA X-ray. AIS is found in children > 10 years of age without underlying conditions and is more common in girls than boys. Children at risk of progression have curves >20 degrees and significant growth remaining (premenarchal girls and skeletally immature boys). Right thoracic curves are most common. Small and moderate sized curves are not associated with long-term problems. Large curves can cause significant pulmonary issues later in life.

## ASSESSMENT

Perform a standard history and physical examination with probing questions around family history of AIS, patient menstrual status, and pain. Pain is uncommon but does occur.

Examine patient from behind in a standing position and in forward bend. Signs of AIS include asymmetry of the shoulders, scapula and waist, but rotation on Adams forward bend test is the hallmark sign. Rotation >5 degrees on a scoliometer is associated with 90% chance of the presence of a curve. Examine skin for unusual markings or hairy patches. Perform quick neurologic exam to assess reflexes and Babinski sign. If you suspect a curve, obtain standing PA and lateral full-length spine film.

## HPE RED FLAGS

- **Left thoracic curve** — may be associated with intraspinal pathology (Chiari, syrinx, tethered cord)
- **Asymmetric reflexes, positive Babinski sign** — may be associated with intraspinal pathology as above
- **Sacral dimple, hairy patch on back** — may correlate with intraspinal findings
- **Severe back pain**

## MANAGEMENT/TREATMENT OF AIS

- Most curves less <20 – 25 degrees can be followed with standing PA X-rays every 6 months. End surveillance X-rays one year after menarche in girls, or Tanner 4 in boys.
- Moderate curve sizes (25 – 30 degrees) in children with significant growth remaining (girls who are premenarchal or with 1 year of menses, or boy who are skeletally immature) are good candidates for bracing.
- Curves >50 degrees are candidates for surgical treatment, particularly Posterior Spinal Instrumentation and Fusion. Vertebral Body Tethering (VBT) is a newer technique that may provide correction without spinal fusion in children with significant growth left.

## WHEN TO REFER

Refer to Cincinnati Children's Orthopedics for further evaluation and management if:

- Curve is greater than 20 degrees
- Unsure, referral is better course of action

If you have clinical questions about patients with AIS, email [orthopedics@cchmc.org](mailto:orthopedics@cchmc.org)

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

# Adolescent Idiopathic Scoliosis

## Inclusion Criteria

- Child 10+ years of age
- Asymmetry of trunk
- Rotation on forward bend

## Patient Presents

## Standard Workup

### Situational History

- Pain

### Family History

- AIS in family

### Physical Exam

- Check for asymmetry of shoulders, scapula, waist
- Check rotation on Adams forward bend test, >5 degrees on scoliometer
- Unusual markings on skin or hairy patches
- Assess reflexes and Babinski sign
- Obtain standing PA and lateral full-length spine films

## HPE RED FLAGS

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- Asymmetric reflexes, positive Babinski sign
- Sacral dimple, hairy patch on back
- Severe back pain

