

# Sacral-Alar-Iliac Fixation in Early Onset Scoliosis

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# Disclosures

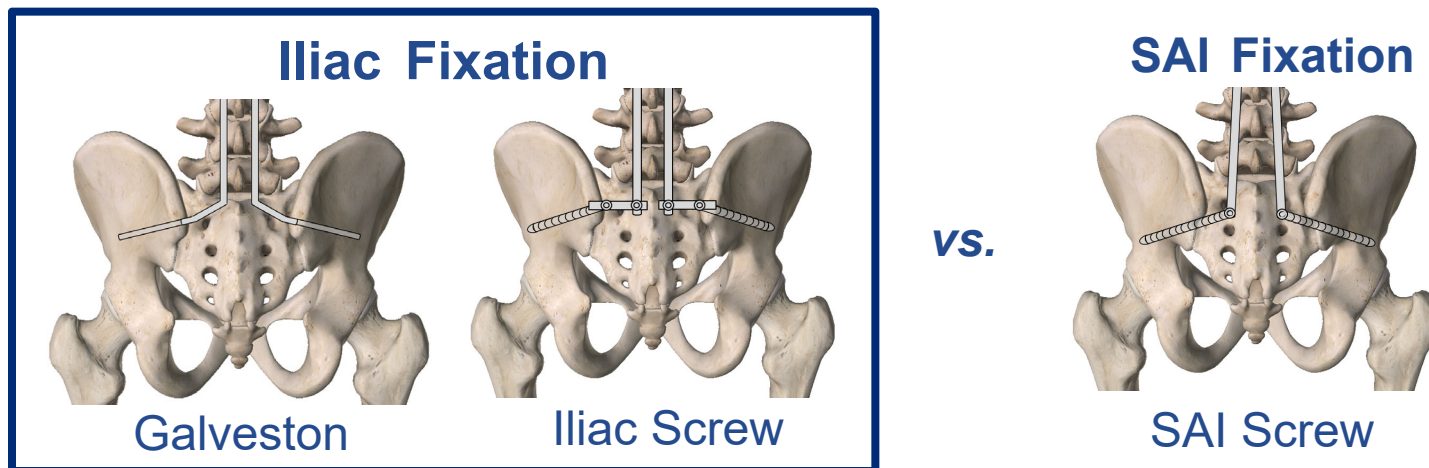
- None

# Background/Study/Impact

- Strong, reliable pelvic fixation is important in the surgical correction of scoliosis
- Different techniques exist for pelvic fixation
- No study has assessed the long-term effects of Sacral-Alar-Iliac (SAI) fixation in Early Onset Scoliosis (EOS)

# Background/**Study**/Impact

*Does SAI fixation lead to better clinical outcomes compared to iliac fixation in patients with EOS at a 2-year minimum follow-up?*



# Background/**Study**/Impact

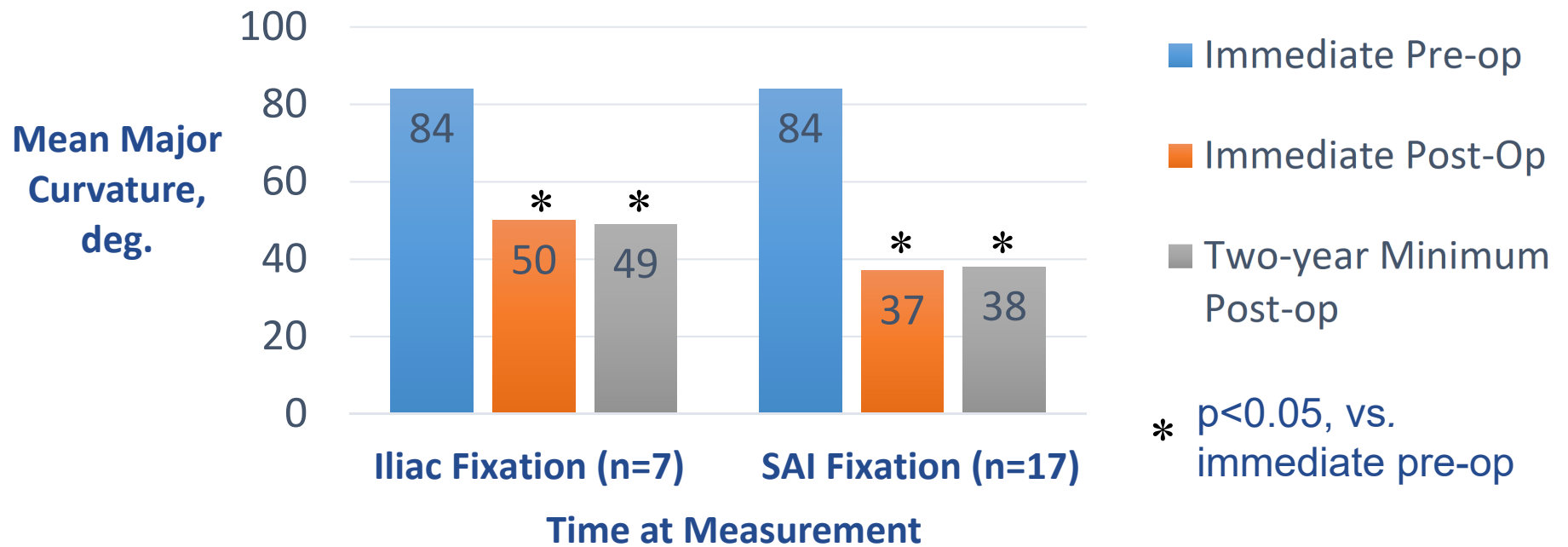
- EOS dx 2000 – 2014
- Posterior spinal instrumentation with pelvic fixation before 10 years of age at Johns Hopkins Hospital
- 2 year minimum follow-up
- Clinical outcomes:
  1. Correction of Major Curvature
  2. Correction of Pelvic Obliquity
  3. Effects of Pelvic Growth
  4. Complication Rates

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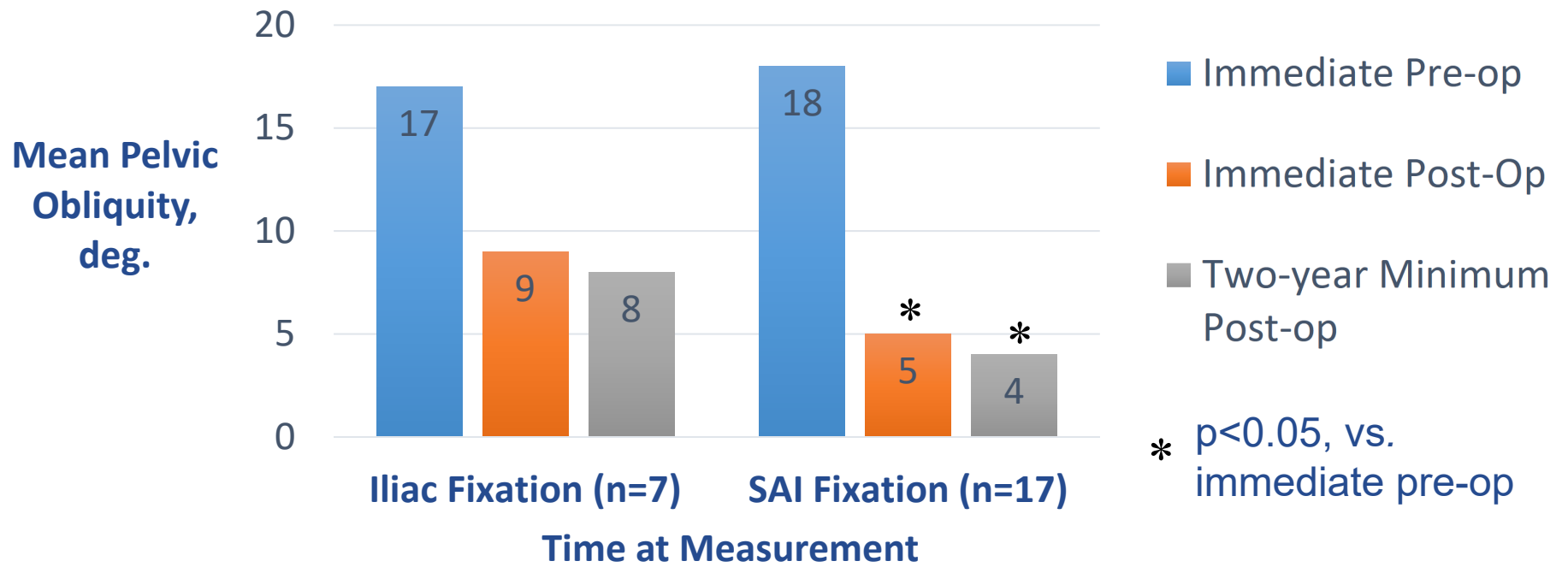
# Background/**Study**/Impact

## (1) Correction of Major Curvature



# Background/**Study**/Impact

## (2) Correction of Pelvic Obliquity

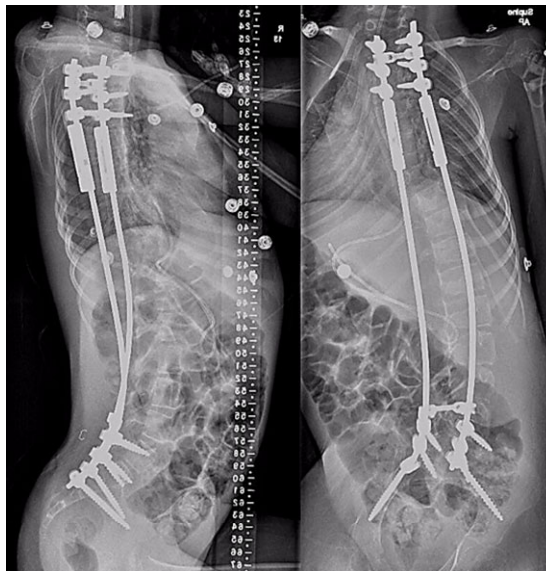




# Background/**Study**/Impact



Pre-Operative: 9.7 yo  
Major Curvature: 138°  
Pelvic Obliquity: 46°



3 Days Post-Operative  
Major Curvature: 33°  
Pelvic Obliquity: 9°



2 Year Follow-up  
Major Curvature: 18°  
Pelvic Obliquity: 5°

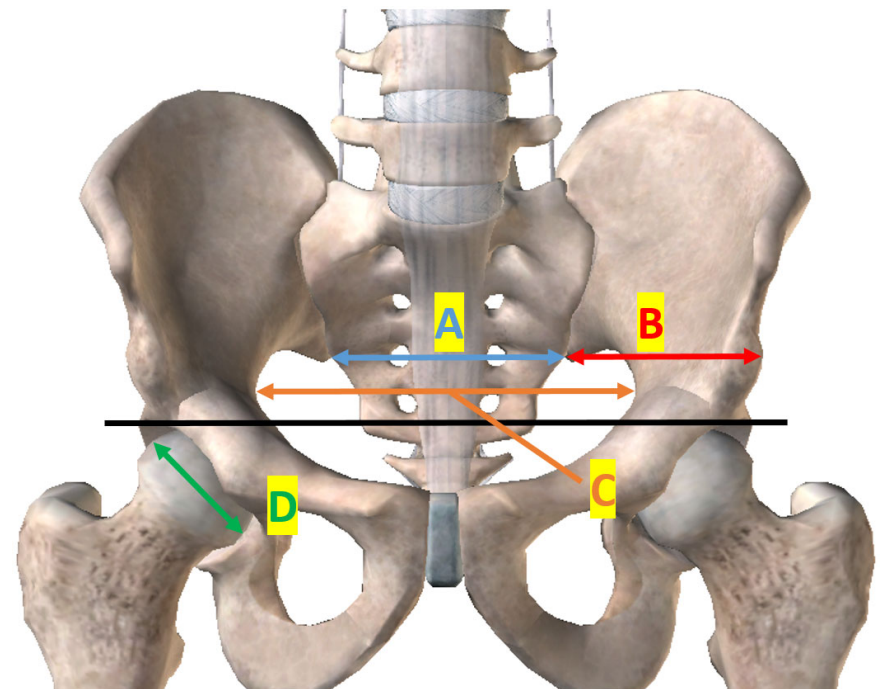
# Background/**Study**/Impact

## 3. Effects of Pelvic Growth

- Sacral width (A)
- Iliac width (B)
- Pelvic Inlet (C)

Normalized to Femoral Head Diameter (D)

$$\text{Growth Ratio} = \frac{2\text{-year min post-op}}{\text{Immediate post-op}}$$



# Background/**Study**/Impact

## 3. Effects of Pelvic Growth

Mean Growth Ratio	Iliac Fixation (n=4)	SAI Fixation (n=15)	p-value
Sacral Width	0.96 +/- 0.04	0.98 +/- 0.09	0.538
Iliac width	0.96 +/- 0.08	0.99 +/- 0.08	0.844
Pelvic inlet	0.99 +/- 0.06	0.96 +/- 0.05	0.744

# Background/**Study**/Impact

## 4. Complication Rates

Complication	Iliac Fixation (n=7)	SAI Fixation (n=17)
Rod Breakage	1	7
Screw Breakage	2	1
Screw Loosening	3	1
Superficial Infection	1	0
Deep Infection	3	2
Neurological Deficits	0	0
<b>Total</b>	<b>10</b>	<b>11</b>

# Background/Study/Impact

- Both methods effectively corrected major curvature
- Only SAI fixation was shown to correct pelvic obliquity with statistical significance
- Neither method was associated with growth disturbances at the sacrum or ilia
- SAI fixation can provide strong, reliable pelvic fixation in the surgical treatment of patients with EOS

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# Thank you



May 3, 2021