# Characteristics of Obstructive Lung Disease in Children with Early Onset Scoliosis

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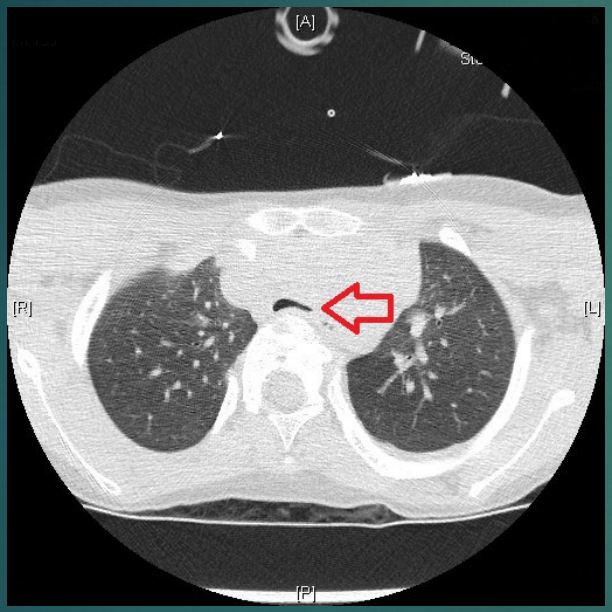
# Disclosures

None of the authors have conflicts of interest to disclose.


# Background




- Obstructive lung disease has been reported to occur in up to 30% of children with early onset scoliosis[1]
- There is no published data about persistence and progression of airway obstruction over time in children with EOS

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# Methods & Definitions

- Retrospective review of pulmonary function databases of children with EOS at two spine centers
- Children with ≥ 3 spirometric assessments over ≥ 3 years were analyzed
- Obstructive lung disease was defined by the ratio of Forced Expiratory Flow at 1 second (FEV1)/Forced Vital Capacity (FVC) <85%
- Persistent airway obstruction was defined as ≥ 2 spirometric results, including the final value, with FEV1/FVC <85%

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# Data Analysis

- Compared patients with persistent versus non persistent obstruction over an average of 6 years
- Compared FVC (restriction) to FEV1/FVC (obstruction) at each time point and also compared changes in FVC to changes in FEV1/FVC over time

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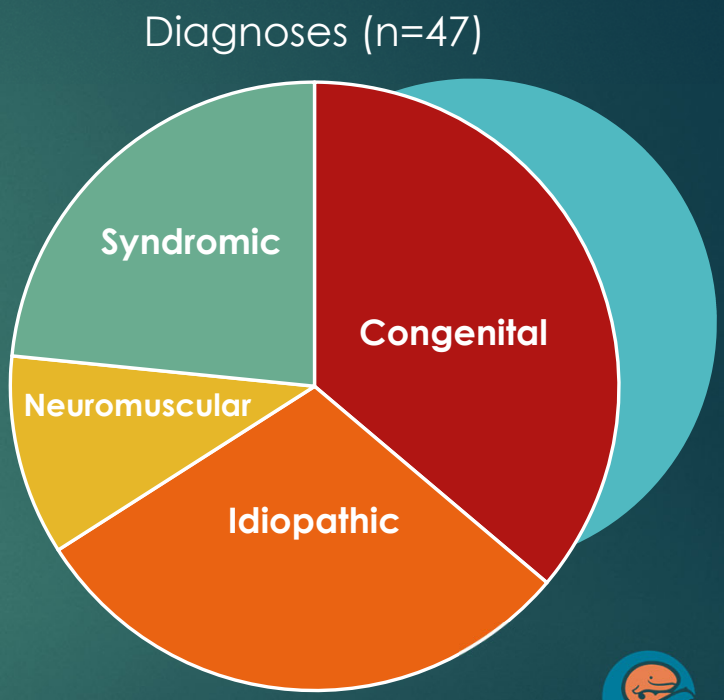
# Patient Population
## (Seattle and San Antonio Centers)

- Age at first PFT: 8 +/- 3 years
- Duration of assessment: 6 +/- 2 years
- Number of PFT measures: 7 +/- 4
- Children with a diagnosis of asthma or taking asthma medications were excluded

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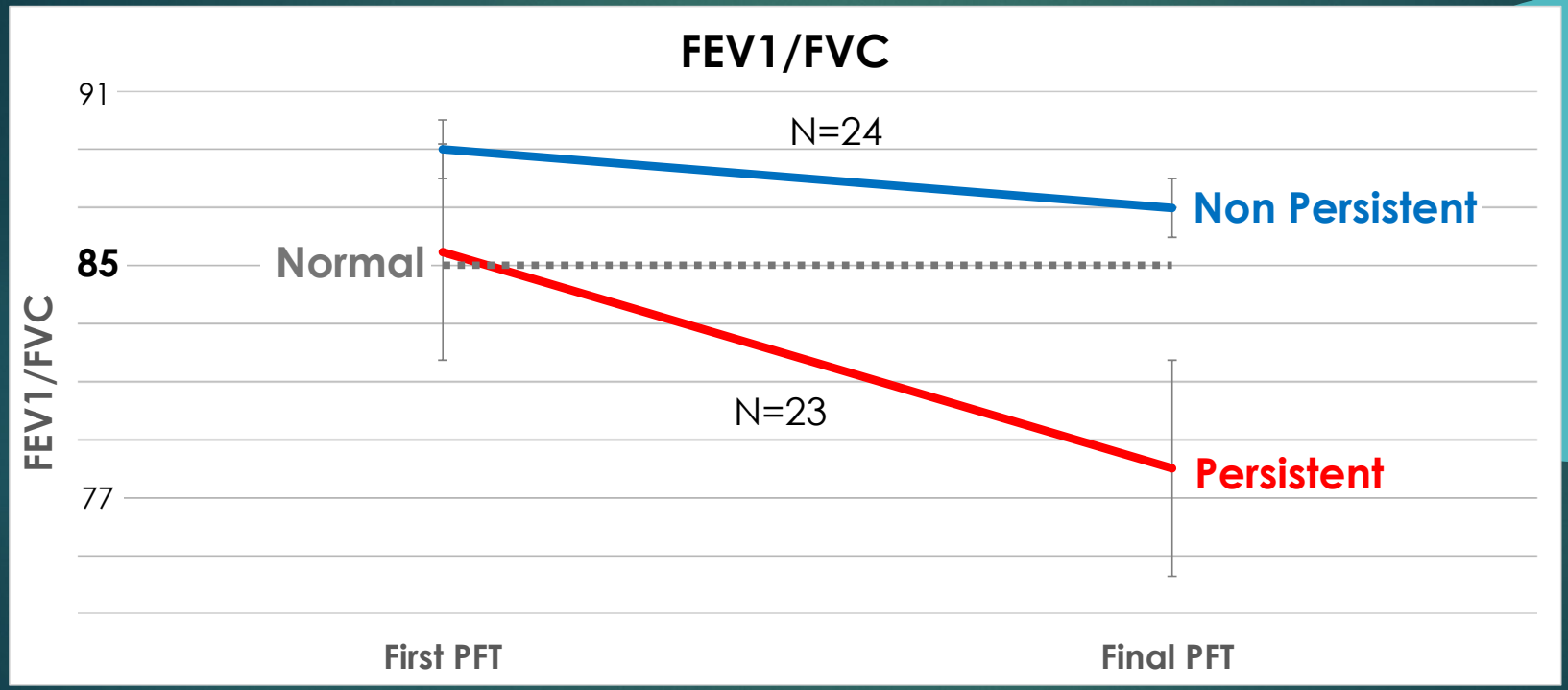
# Patients with persistent airway obstruction worsened over time

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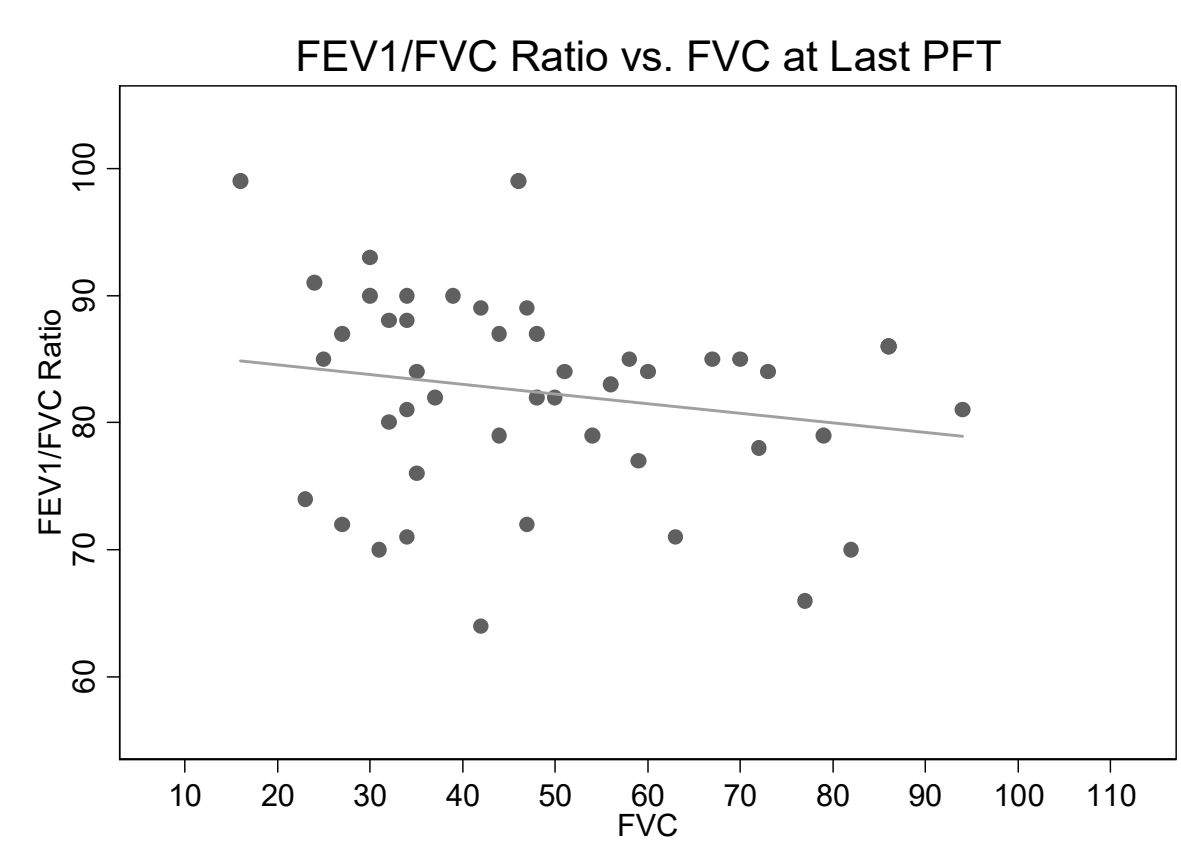
# FVC does not correlate with FEV1/FVC at any time point in children with EOS




Slope: -0.076 (95% CI -0.190, 0.038), p=0.187

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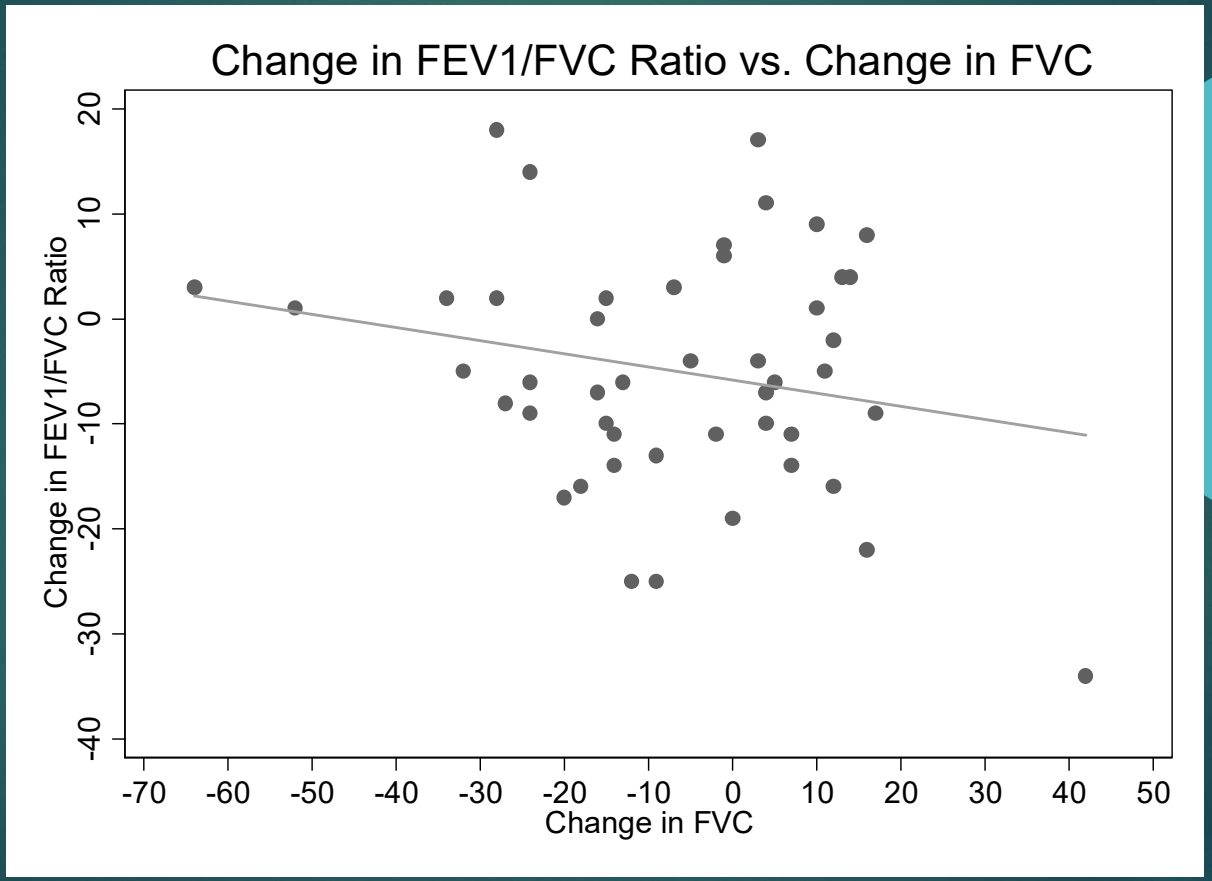
# The change in FVC does not correlate with the change in FEV1/FVC over time in children with EOS




Slope: -0.125 (95% CI -0.294, 0.044), p=0.144

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# Summary

- Children with EOS who have obstructive airway disease on spirometry on more than one occasion should be monitored for progression of disease over time
- Airway obstruction appears to occur independent of chest wall restriction in children with EOS

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# References

(1) McPhail, GL, Ehsan Z, Howells SA, Boesch RP, Renchel MC, Szczesniak R, Jain V, Agabegi S, Sturm P, Redding G, J Pediatri 2015, 166(4):1018-1021

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