Return to Sport for Anterior Tethering versus Posterior Spinal Fusion

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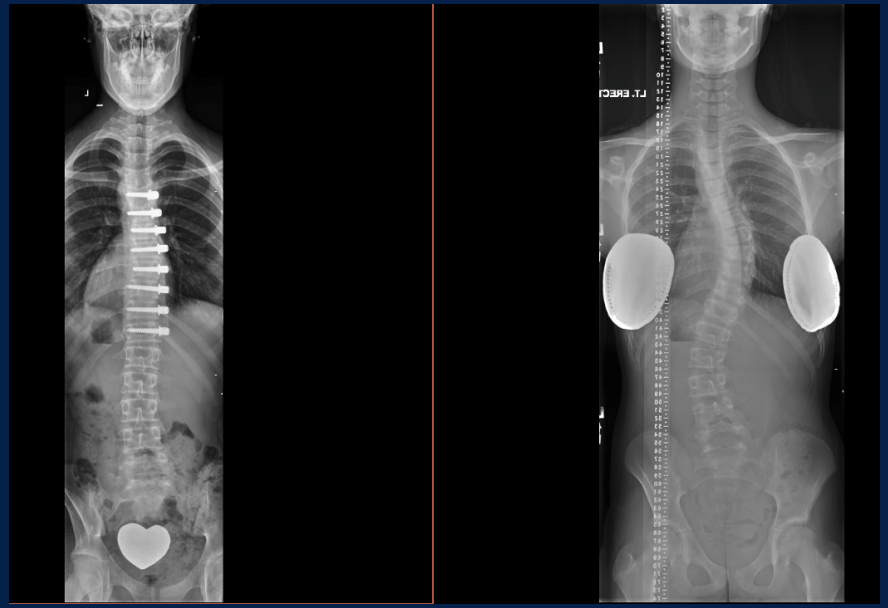
Disclosures

- None

Introduction

- Fusionless anterior vertebral body tethering (AT) is an alternative for select skeletally immature patients with idiopathic scoliosis
- Little is known about postoperative activity compared to posterior spinal fusion (PSF), in particular return to sport



Methods

- Retrospective cohort study, single surgeon
- Treated surgically with AT vs PSF
- Inclusion criteria
  - Skeletally immature
  - Idiopathic scoliosis
  - >40 degree curves
  - 2-year minimum follow-up

Perioperative Outcomes

- **Primary Outcome**
  - Return to sport
- **Secondary Outcomes**
  - Ability to bend
  - Satisfaction with sport performance
  - Weeks until return to sport
  - Return to school
  - Return to physical education classes
  - Return to running

Results

- 54 total patients from 2012-2019
  - 19 AVBT, 35 PSF
- AT vs PSF
  - Younger
  - More Skeletally immature
  - Lower BMI
  - Less instrumented levels

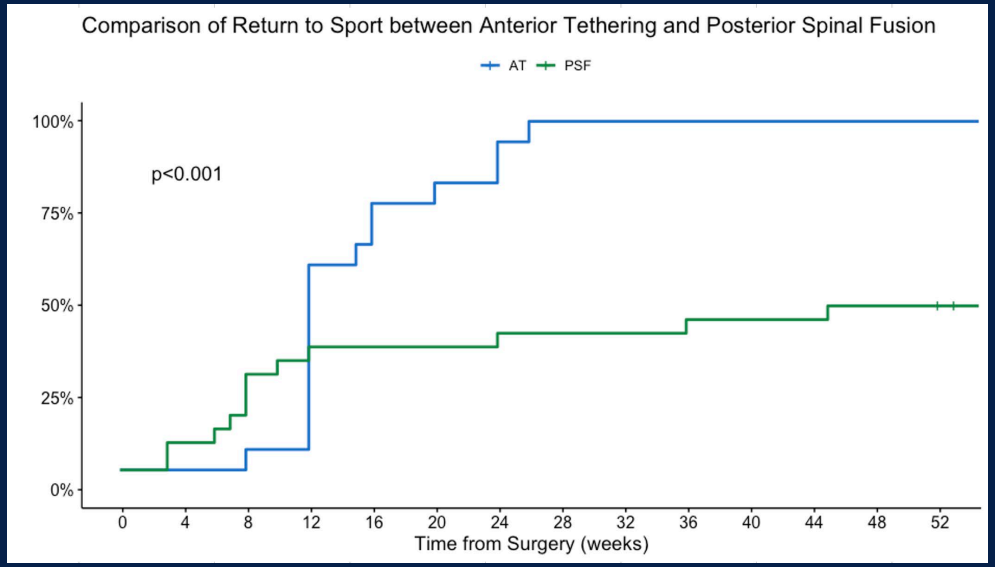
	AT (19)	PSF (36)	P-value
Age [years(SD)]	12.5 ± 2.5	14.6 ± 1.9	**0.001**
Female [n(%)]	15 (79%)	35 (97%)	**0.02**
Open triradiate [n(%)]	12 (63%)	4 (11%)	**<0.001**
Risser 0 [n(%)]	12 (63%)	6 (17%)	**0.02**
Risser 1 [n(%)]	0 (0%)	6 (17%)	**0.02**
BMI (SD)	18.0 ± 4.3	20.8 ± 4.8	**0.04**
Levels instrumented	8.2 ± 1.8	12.5 ± 1.4	**<0.001**

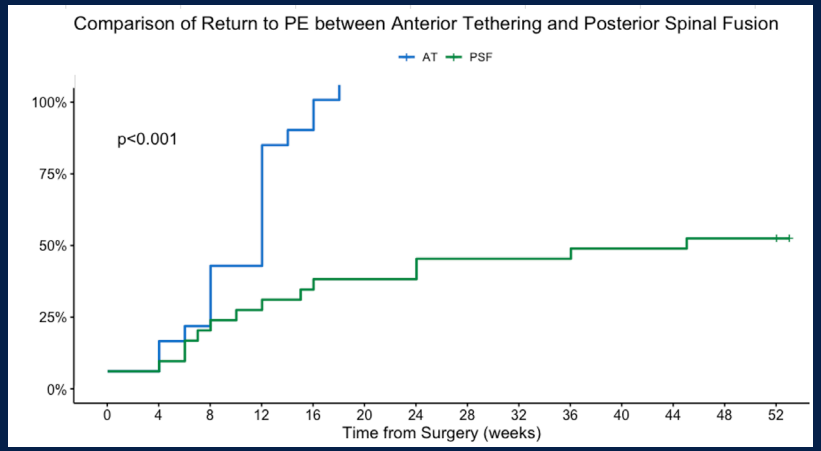
Results

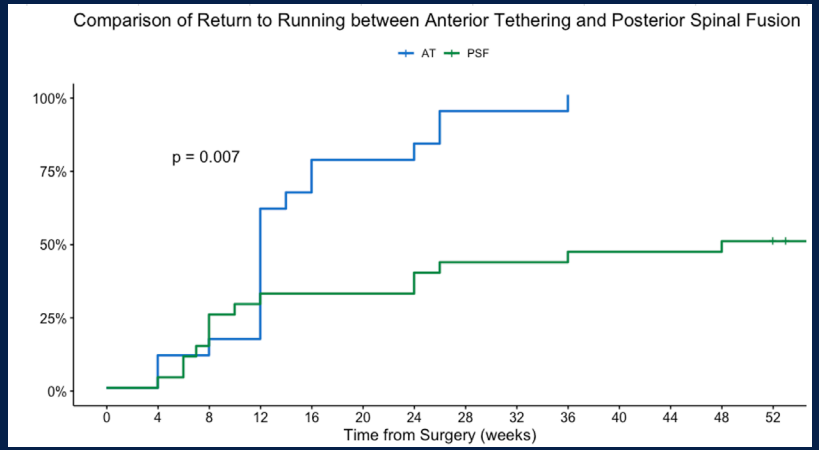
- AT patients significantly higher rate and faster of return to sport
  - Improved bending
  - Faster return to school

	AT (19)	PSF (35)	P-value
Return to sport, %	18 (95%)	23 (72%)	**0.05**
Return to sport, wks	17.6 ± 11.7	35.7 ± 21.6	**<0.001**
Return to school, wks	5.3 ± 3.1	10.9 ± 13.0	**0.02**
Return to PE, wks	10.8 ± 3.9	35.6 ± 20.0	**<0.001**
Return to running, wks	13.9 ± 7.9	41.0 ± 46.6	**0.004**
Ability to bend (No or Minimal Δ)	19 (100%)	23 (64%)	**<0.001**
Satisfaction with sport performance (Very satisfied)	10 (53%)	15 (42%)	**0.04**

Results


Comparison of Return to Sport between Anterior Tethering and Posterior Spinal Fusion
AT
PSF
p<0.001
100%
75%
50%
25%
0%
0
4
8
12
16
20
24
28
32
36
40
44
48
52
Time from Surgery (weeks)


Comparison of Return to PE between Anterior Tethering and Posterior Spinal Fusion
AT
PSF
p<0.001
100%
75%
50%
25%
0%
0
4
8
12
16
20
24
28
32
36
40
44
48
52
Time from Surgery (weeks)


Comparison of Return to Running between Anterior Tethering and Posterior Spinal Fusion
AT
PSF
p = 0.007
100%
75%
50%
25%
0%
0
4
8
12
16
20
24
28
32
36
40
44
48
52
Time from Surgery (weeks)

Conclusions

- AVBT compared to PSF
  - Higher rate of return to sport
  - Faster return to sport, school, PE, and running
- AVBT patients also had improved ability to bend and more patients were very satisfied with their sport performance

Questions?

- Thank you!