Traction In EDF Casting For EOS - Curve Type Influences Results

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Introduction

- Casting for Early Onset Scoliosis (EOS) has gained popularity and acceptance.
- Little is known about the effects of curve type on the traction required or results of the cast treatment.
- Preliminary findings from a consecutive series treated by the same surgeon and anesthesiology team, are being reported.

Methods

- 24 children (10mo to 9 years)with EOS were brought to the OR for 35 EDF Cast applications under general endotracheal anesthesia using a standard protocol.
- We measured the traction used as well as the curve correction, and compared results of single curves vs. double/triple (multiple) curves of the spine treated with EDF casts

In line Scale to measure traction in pounds.

Results

- Average curves were 34 and 38 degrees respectively for the single and multiple curves in children with EOS(with the curves averaged for the multiple curves)
- Average beginning traction was 28.7 lbs
- Overall average starting curve was 36.4 degrees(34 & 37.9 degrees for single & multiple curves respectively)

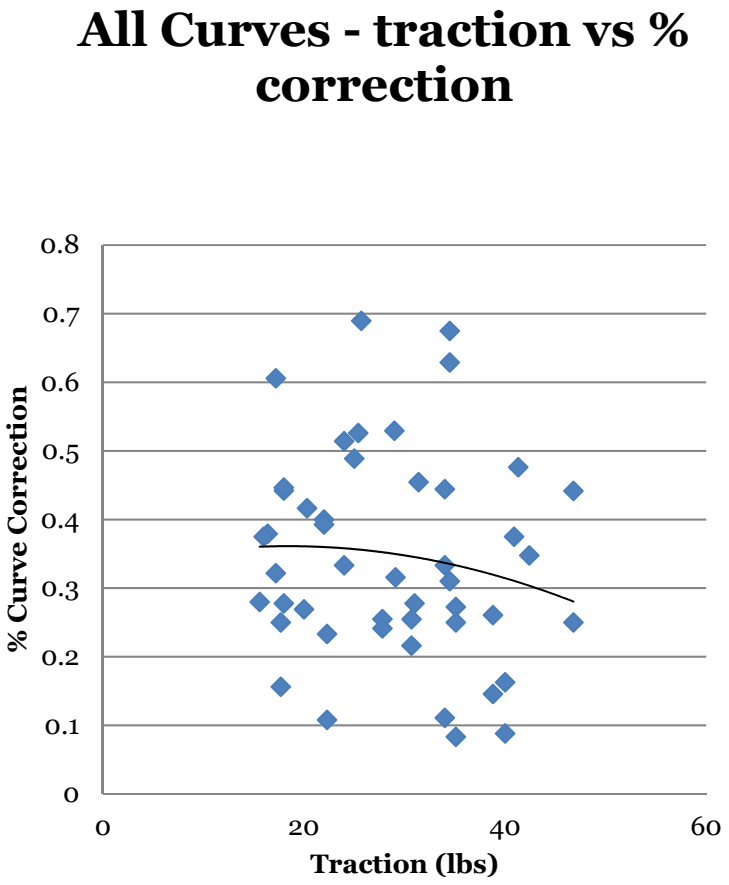
Results

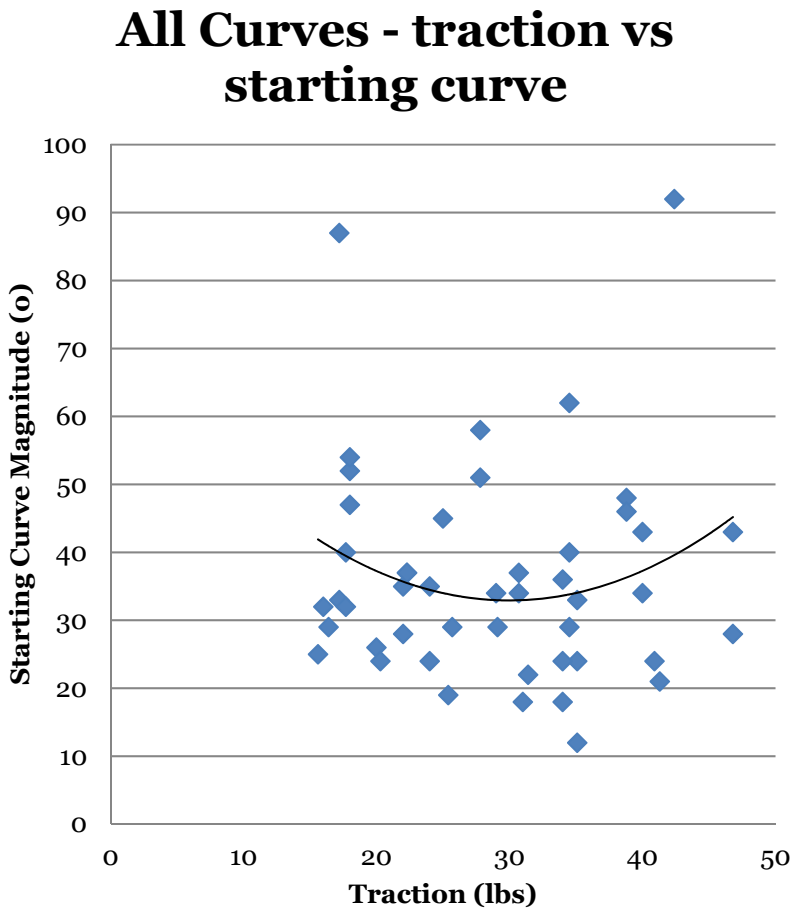
- Average starting traction was 28.7 lbs (26.1 & 30.4lbs for single and multiple curves respectively)
- Average traction/degree was 0.79lbs/degree (0.77 and 0.8lbs/degree for single and multiple curves respectively)
- Average traction per % correction was 0.84lb/% correction (0.64 and 1.03lbs/% correction for single and multiple curve respectively)

Results

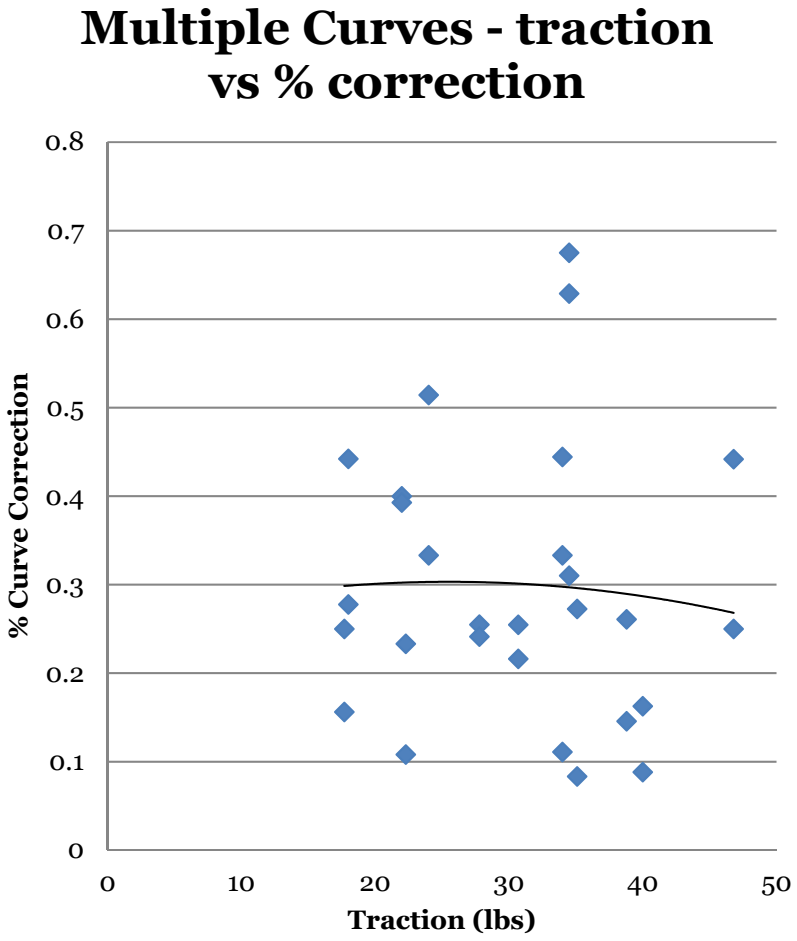
	All Curves	Single Curves	Multiple (Double & Triple) Curves
Average Traction (lbs)	28.7	26.16	30.43
Average % Correction	34.28%	41.19%	29.59%
Average Starting Curve Magnitude (°)	36.38	34.11	37.93
Traction per degree (Lb/degree of curve)	0.788894997	0.766930519	0.802267335
Traction per % correction (Lb/% correction)	0.83722287	0.635105608	1.028387969

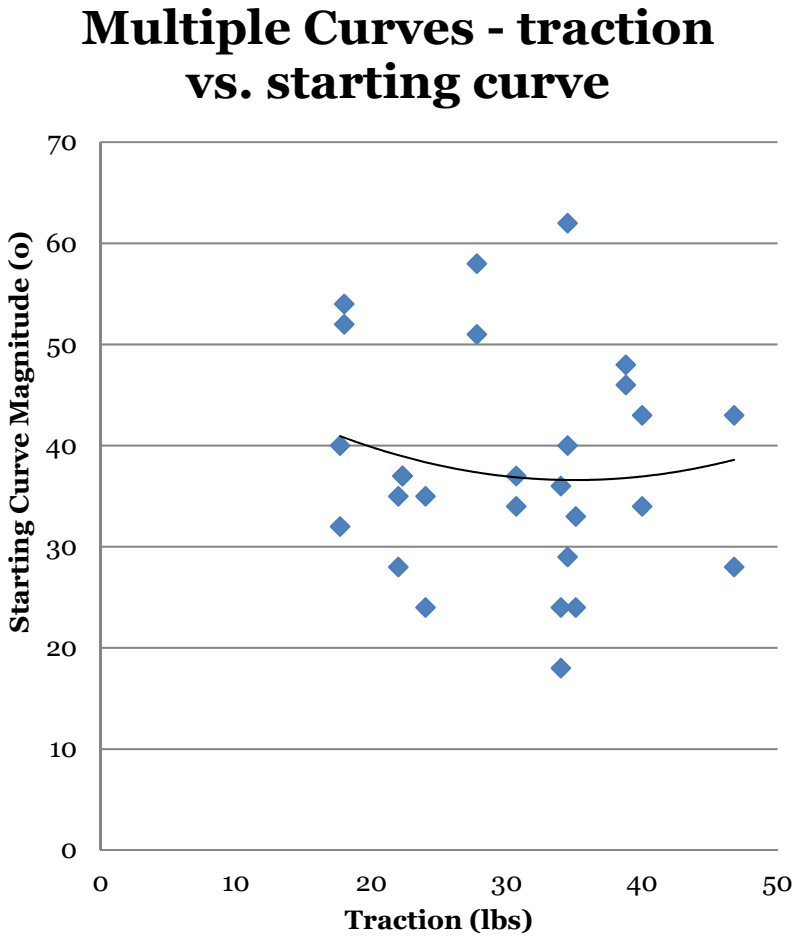
Results


All Curves - traction vs % correction
% Curve Correction
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20
40
60
Traction (lbs)

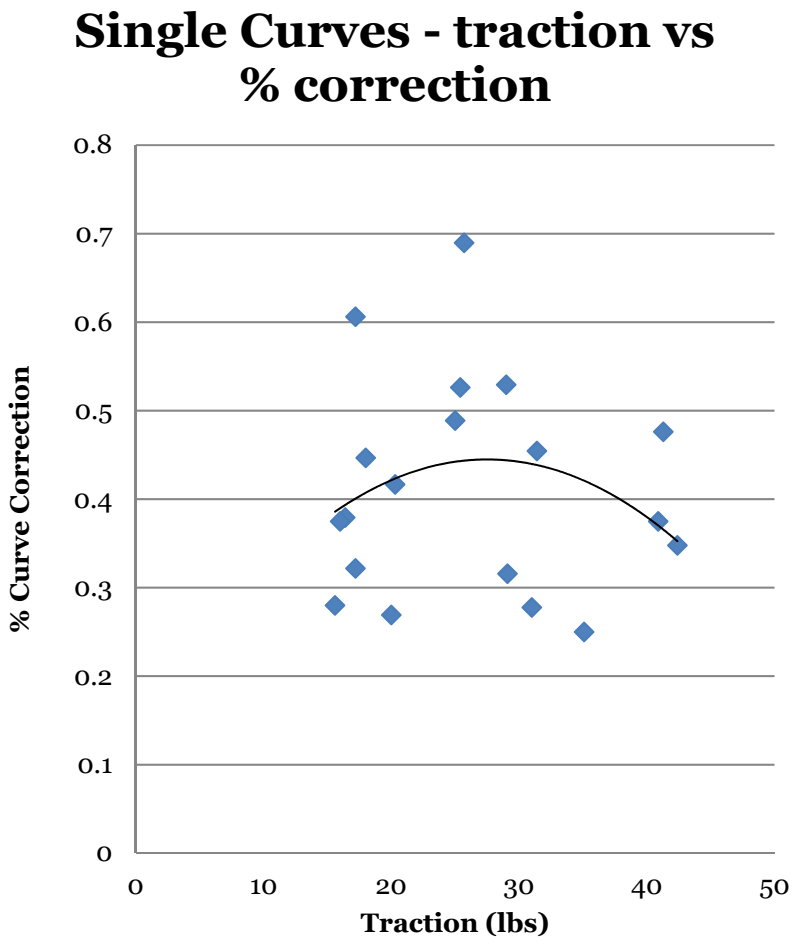

All Curves - traction vs starting curve
Starting Curve Magnitude (o)
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
Traction (lbs)

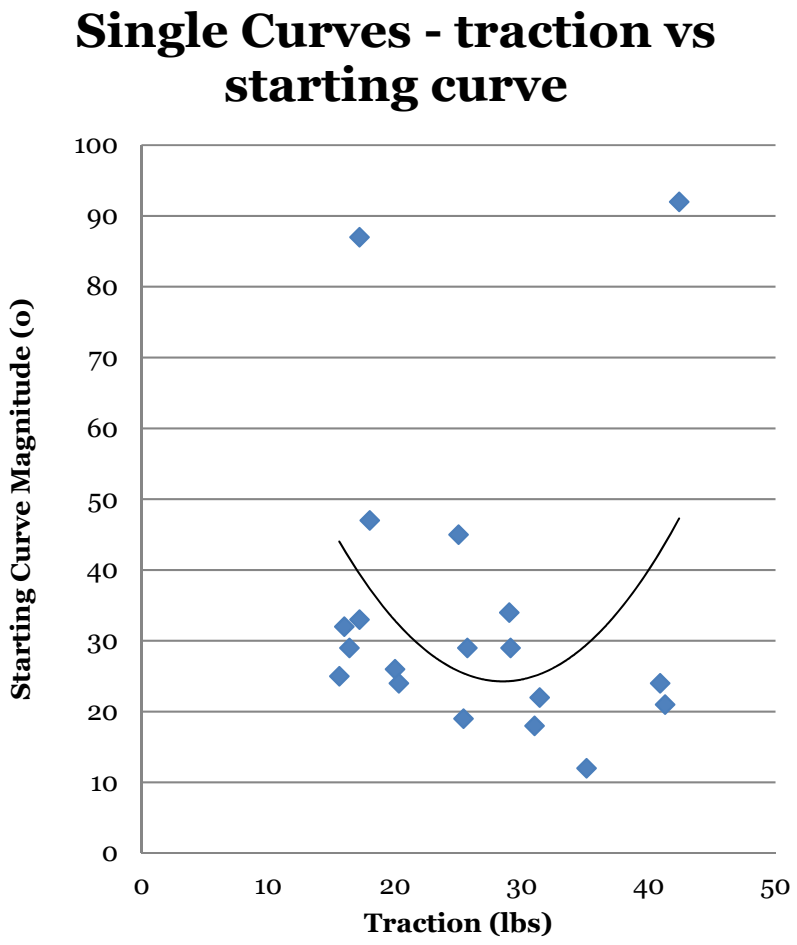
Results


Multiple Curves - traction vs % correction
% Curve Correction
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
10
20
30
40
50
Traction (lbs)


Multiple Curves - traction vs. starting curve
Starting Curve Magnitude (o)
70
60
50
40
30
20
10
0
0
10
20
30
40
50
Traction (lbs)

Results


Single Curves - traction vs % correction
% Curve Correction
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
10
20
30
40
50
Traction (lbs)


Single Curves - traction vs starting curve
Starting Curve Magnitude (o)
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
Traction (lbs)

Conclusions

- Single curves respond better to traction while treated in EDF casts compared to double or triple curves
- Less traction is required for a greater correction using the same technique for both curve types
- Double or triple curves thus may respond less favorably to EDF cast treatment than single curves

Thank you