CD HORIZON® LEGACY™ Spinal System
Advanced Deformity Correction
Advantages of Deformity Correction with Segmental Thoracic Pedicle Screwing

**Larger Correction Force**
- Correction of Rotational Deformity around the Apex
- No Need for 2-Stage Surgery (Anterior Release or Rib Resection)

**No Intrusions into the Spinal Canal**
- Compared to Hook or Sublaminar Wiring

Cobb angle 100 degrees
- × Anterior Release
- × Rib-resection, Thoracoplasty
- ○ Vertebral Column Resection (VCR)
Thoracic Pedicle Screwing

1. Superior Facet Rule
2. Thoracic Pedicle (TP) Screw Starting Points
3. Ventral Laminar Concept
4. Four types of Pedicle
Pedicle Screw Starting Points For The Straight-Forward Trajectory

- Superior Facet Rule

**Color Reference Chart**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsafe</td>
<td></td>
</tr>
<tr>
<td>Safe</td>
<td></td>
</tr>
</tbody>
</table>

Note: Do not start medial to the midpoint of the superior facet.
Pedicle Screw Starting Points For The Straight-Forward Trajectory

- Cephalo-Caudal Starting Points

<table>
<thead>
<tr>
<th>Color Reference Chart</th>
<th>T9, T8, T7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T10, T6</td>
</tr>
<tr>
<td></td>
<td>T11, T5, T4</td>
</tr>
<tr>
<td></td>
<td>T12, T3, T2, T1</td>
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</tbody>
</table>

CD HORIZON® LEGACY™ Spinal System
Advanced Deformity Correction

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Thoracic Pedicle (TP) Screw Starting Points

- Use Fixed Angle or Multi Axial Screws for the straightforward approach (Blue Pins)
- Use Multi Axial Screws for the anatomic approach (Green Pins)
Ventral Lamina Concept

Ventral lamina
### 4 Types of Pedicle

<table>
<thead>
<tr>
<th>Type</th>
<th>Cancellous</th>
<th>Cortical</th>
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</thead>
<tbody>
<tr>
<td>A type</td>
<td>65%</td>
<td></td>
</tr>
<tr>
<td>B type</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>C type</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>D type</td>
<td>3%</td>
<td></td>
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</table>

[Diagram showing the 4 types of pedicle with corresponding percentages.]
C type

Try intra-osseous insertion

Choose a tap one size smaller than a screw

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D type

Try extra-pedicular insertion

Choose a tap one size smaller than a screw
Thoracic Bilateral Apical Vertebral Derotation (BAVD)
Surgical Technique

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Advanced Deformity Correction
Thoracic Bilateral Apical Vertebral Derotation (BAVD) Surgical Technique (continued)

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Thoracic Bilateral Apical Vertebral Derotation (BAVD)
Surgical Technique (continued)
Thoracic Bilateral Apical Vertebral Derotation (BAVD)
Surgical Technique (continued)
Thoracic Bilateral Apical Vertebral Derotation (BAVD)
Surgical Technique (continued)
Case Presentation
Options

Spinal Cord
Apex
concave
convex
Spinal Cord

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Options

Translation (Sublaminar Wiring)
Thoracic Adolescent Idiopathic Scoliosis Curves 70-100
PSF; Hook vs. Hybrid vs. Pedicle Screw Only

PSF Subanalysis

Coronal Cobb correction of main thoracic curve

<table>
<thead>
<tr>
<th></th>
<th>Preop</th>
<th>Immediate Postop</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hooks</td>
<td>76.9</td>
<td>39.2</td>
<td>43.8</td>
</tr>
<tr>
<td>Hybrid</td>
<td>77.3</td>
<td>42.9</td>
<td>47.5</td>
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<tr>
<td>TPS</td>
<td>78.3</td>
<td>30.8</td>
<td>32.4</td>
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Spine 2005; 30: 2061-2067
### Thoracic Adolescent Idiopathic Scoliosis Curves 70-100
**APSF vs. PSF with Pedicle Screw Only**

<table>
<thead>
<tr>
<th></th>
<th>APSF</th>
<th>PSF Pedicle Screw Only</th>
<th>NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main thoracic curve overall change (preop. to last follow-up)</td>
<td>47.2 (58.5%)</td>
<td>45.9 (58.3%)</td>
<td></td>
</tr>
<tr>
<td>Sagittal T5-T12 surgical change (preop. to last follow-up)</td>
<td>-2.2</td>
<td>-16.5</td>
<td></td>
</tr>
<tr>
<td>SRS pain (postop.)</td>
<td>21.4</td>
<td>21.8</td>
<td>NS</td>
</tr>
<tr>
<td>SRS self-image (postop.)</td>
<td>22.4</td>
<td>24.8</td>
<td>NS</td>
</tr>
<tr>
<td>SRS function (postop.)</td>
<td>21.1</td>
<td>21.8</td>
<td>NS</td>
</tr>
<tr>
<td>SRS satisfaction (postop.)</td>
<td>8.4</td>
<td>8.6</td>
<td>NS</td>
</tr>
</tbody>
</table>

Spine 2005; 30: 2061-2067
# Lenke Type I Adolescent Idiopathic Scoliosis Curves

## ASF vs. PSF / TPS

<table>
<thead>
<tr>
<th></th>
<th>ASF</th>
<th>PSF / TPS</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Correction of Rib Hump (preop. to last follow-up)</td>
<td>26%</td>
<td>51%</td>
<td>0.005</td>
</tr>
<tr>
<td>% Correction of Apical Vertebral Body-Rib (AVB-R) Ratio (preop. to last follow-up)</td>
<td>32%</td>
<td>73%</td>
<td>&lt;0.0001</td>
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</tbody>
</table>

*Spine 2005; 30: 1859-1866*

Rib hump deformity accessed with RH (linear distance between left and right ribs at apex)

Thoracic torsion and rotation accessed with AVB-R Ratio
Lenke Type I Adolescent Idiopathic Scoliosis Curves
ASF vs. PSF / TPS