## Differential Diagnosis of the Spine

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mechanisms</th>
<th>Common Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spondylolysis</td>
<td>+ Gravity-assisted hyperlordosis + Forceful hyperlordosis + Chronic stress</td>
<td>+ Segmental lordosis with palpable bony prominence + Pain increases with activity + Constant pain WB and NWB + Positive One-Leg Standing Test Confirmation: AP/Lat/Oblique X-Ray, Bone Scan</td>
</tr>
<tr>
<td>Spondylolisthesis</td>
<td>Same as Spondylolysis</td>
<td>+ S/S same as spondylolysis + Confirmation with X-Ray</td>
</tr>
<tr>
<td>Facet Joint Injury</td>
<td>+ Forced rotation, side-bending and/or flexion + Altered biomechanics; decreased disc space</td>
<td>+ Pain with trunk extension; relief with trunk flexion + Back pain &gt; Leg Pain + Pain rolling over in bed (extension/rotation) + Point tender over facet joint + Positive SLR &gt; 70 degrees</td>
</tr>
<tr>
<td>Vertebral Disc Injury</td>
<td>+ Repeated trauma or motion + Excessive weight bearing</td>
<td>+ Pain with trunk flexion; relief with trunk extension + Localized pain over spine + Neuropathy + Generally seen in middle age</td>
</tr>
<tr>
<td>Erector Spinae Strain</td>
<td>+ Forced flexion or lateral bending/flexion + Overuse in hyperextension + Eccentric loads to spine</td>
<td>+ Acute onset + Pain lateral to spine + Pain increases with passive flexion + Weakness/pain with trunk extension</td>
</tr>
<tr>
<td>Spinal Stenosis</td>
<td>+ Arthritic changes/spurring vertebral bodies + Pseudoclaudication</td>
<td>+ Generally seen in older patients/former athletes + Pain after long periods of walking or prolonged standing + Pain stops when activity stops + Pain alleviated when patient sits or assumed flexed posture to decrease lordosis + Pain increases with trunk extension + Milgrim’s Test, SLR &gt; 70 degrees + Neuropathy</td>
</tr>
</tbody>
</table>
| **Piriformis Syndrome** | + (Trauma) Lifting heavy objects  
+ (Indirect) Tight hip external rotators apply pressure to sciatic nerve | + Non-specific sciatic pain  
+ Pain increases with prolonged sitting, getting up from sitting, or at night  
+ Tight and/or painful hip internal rotation  
+ FABER test, SLR Test  
+ Pain with resistive hip abduction |
|-------------------------|-------------------------------------------------|-------------------------------------------------|
| **Sacroiliac Dysfunction** | + Hurdling or punting  
+ Change of terrain  
+ Running/walking on crowned road or track (same direction)  
+ Stepping off curb or in hole  
+ Abnormal heel strike/poor running mechanics  
+ Abnormal lifting position - lax joint | + Pain increases with sitting and walking down stairs  
+ Pain/limited ROM with same side bending  
+ Neuropathy  
+ Special Tests: SI Compression/Distraction (Spring)/Rock Tests, FABER Test, Prone Knee Flexion Test, Long Sitting Test, SI Fixation Test, Standing Flexion Test, Sphinx Test |

**Paula Sammarone Turocy, EdD, ATC**  
**Duquesne University**  
**John G. Rangos, Sr. School of Health Sciences**  
**Department of Athletic Training**  
**122 Health Sciences Building**  
**Pittsburgh, PA 15282**  
**turocyp@duq.edu**  
**(412)396-5695**