AO Spine Sacral Classification System

Type A
Lower Sacrococcygeal Injuries
No impact on posterior pelvic or spino-pelvic instability

A1 Coccygeal or compression vs ligamentous avulsion fractures

A2 Non-displaced transverse fractures below the S-I joint
- No implications on stability
- Low likelihood of cauda equina injury

A3 Displaced transverse fractures below the S-I joint
- Higher likelihood of neuro injury than A1 or A2 (displacement)
- May possibly benefit from reduction and stabilization

Type B
Posterior Pelvic Injuries
Primary impact is on posterior pelvic stability

B1 Central Fracture—involves spinal canal
- Longitudinal injuries only—rare type of Denis Zone III injuries
- Low likelihood of neurological injury

B2 Transalar Fracture—does not involve foramina or spinal canal
- Unilateral Denis Zone I injury

B3 Transforaminal Fracture—involves foramina but not spinal canal
- Denis Zone II injury

Type C
Spino-Pelvic Injuries
Spino-pelvic instability

C0 Nondisplaced sacral U-type variant
- Commonly seen low-energy insufficiency fracture

C1 Sacral U-type variant without posterior pelvic instability
- Any unilateral B-subtype where ipsilateral superior S1 facet is discontinuous with medial part of sacrum
- May impact spino-pelvic stability (loss)

C2 Bilateral complete Type B injuries without transverse fracture
- More unstable and higher likelihood of neuro injury than C1

C3 Displaced U-type sacral fracture
- Worst combination of instability and likelihood of neuro injury
- Displaced transverse sacral fracture = canal compromise

Sacral Fractures—Overview
Hierarchical system progressing from least to most unstable

- Type A Lower Sacrococcygeal Injuries
  No impact on posterior pelvic or spino-pelvic stability
- Type B Posterior Pelvic Injuries
  Primary impact is on posterior pelvic stability
- Type C Spino-Pelvic Injuries
  Spino-pelvic instability

Neurology

<table>
<thead>
<tr>
<th>Type</th>
<th>Neurological</th>
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<tbody>
<tr>
<td>N0</td>
<td>Neurologic intact</td>
</tr>
<tr>
<td>N1</td>
<td>Transient neurologic deficit</td>
</tr>
<tr>
<td>N2</td>
<td>Radicular symptoms</td>
</tr>
<tr>
<td>N3</td>
<td>Incomplete spinal cord injury or any degree of radicular injury</td>
</tr>
<tr>
<td>N4</td>
<td>Complete spinal cord injury</td>
</tr>
<tr>
<td>Nx</td>
<td>Cannot be assessed</td>
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<tr>
<td>a</td>
<td>Continued spinal cord compression</td>
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</tbody>
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Modifiers

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>M1</td>
<td>Soft tissue injury</td>
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<tr>
<td>M2</td>
<td>Metabolic bone disease</td>
</tr>
<tr>
<td>M3</td>
<td>Anterior pelvic ring injury</td>
</tr>
<tr>
<td>M4</td>
<td>Sacroiliac joint injury</td>
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</tbody>
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Classification Nomenclature

Transforaminal fracture (B3) high energy injury associated with soft tissue injury (M1) and anterior pelvic ring (M3)

Further information: www.aospine.org/classification