# **Pelvic Stability**

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### Disclosures

• None

## Outline

- What is stability?
- Predictors of stability
- Classifications





## Stability

• Definition: The ability of the pelvic ring to remain nondeformed during physiologic loads while awaiting bony union.

## Stability

 Clinical relevance: Determines who might benefit from operative reduction and internal fixation



• There is NOT a single method for determining stability and the need for surgery

- Methods:
  - History
  - Physical Exam
  - Static Imaging
  - Dynamic Imaging

• HPI:

- High energy vs Low Energy
- Young vs Old

• HPI:



• HPI:



- Social History:
  - What are chances you're going to follow up?

Follow-up rates



- PE:
  - Palpable motion/pain



- Imaging:
  - Static
    - XR
    - CT
  - Dynamic
    - EUA (exam under anesthesia)

- Static Imaging:
  - Initial displacement
  - Completeness of bony injury
  - Number of rami fractures



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- Dynamic Imaging:
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- Dynamic Imaging:
  - Exam under anesthesia

#### Classification



#### Tile Classification of Pelvic Fractures





A2 Stable, minimally displaced fractures of the ring







Open book (bilateral)





Lateral compression (contralateral) 'Bucket-handle'



# Tile

Type A: Pelvic ring stable

- A1: fractures not involving the ring (i.e. avulsions, iliac wing or crest fractures)
- A2: stable minimally displaced fractures of the pelvic ring
- Type B: Pelvic ring rotationally unstable, vertically stable
  - B1: open book
  - B2: lateral compression, ipsilateral

B3: lateral compression, contralateral or bucket handle-type injury Type C: Pelvic ring rotationally and vertically unstable

- C1: unilateral
- C2: bilateral
- C3: associated with acetabular fracture

#### Tile Classification of Pelvic Fractures Tile A STABL A2 Stable, minimally displaced fractures A1 Fractures of the pelvis not involving the ring Tile B E B **B1** Open book (unilateral) Rotationally B2 **B3** Lateral compression (ipsilateral) Lateral compression (contralateral) 'Bucket-handle' Tile C Д К

Bilateral

C1

Rotationally and vertically unstable

Tile

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C3: associated with acetabular fracture

#### Anterior Posterior Compression (APC)





Type I







Young & Burgess





Anterior Posterior Compression (APC)



## LC

#### NOT progression of injury severity... rather, location of injury

#### Sacrum SI joint/Ilium Contralateral ER





#### Multiple subcategories of injury within each variant



#### LC 1 - incomplete



Lateral Compression (LC)



#### LC 1 – complete but non-displaced



Lateral Compression (LC)



### LC 1 – complete & displaced



Lateral Compression (LC)



#### LC 2 – classic crescent





### LC 2 – Crescent extending into SI joint



## LC 3





## VS



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