



Application of Pelvic Binders in Trauma

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Why do we teach?

SITUATION: Incorrect pelvic binder placement

BACKGROUND: Low incidence, high mortality

ASSESSMENT: Infrequent education and practice

RECOMMENDATION: Regular hands-on training

What do we teach?

- Incidence of pelvic fracture
- Complications and mortality
- Common mechanisms
- Assessment findings
- Purpose of binding
- Landmarking and application

What percent of admitted trauma patients have pelvic fractures?

- 3%
- 10%
- 30%
- 50%

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Incidence and Mortality

- Roughly 10 % of admitted trauma patients^{1,5}
- 7.7 % of trauma patients at UofU¹²
- Mortality :
 - 5-16% overall⁵
 - 30% if hemodynamically unstable⁴
 - Up to 50% in open pelvic fracture^{6,14}

List a top mechanism for pelvic fracture

- Open discussion

Top Mechanisms

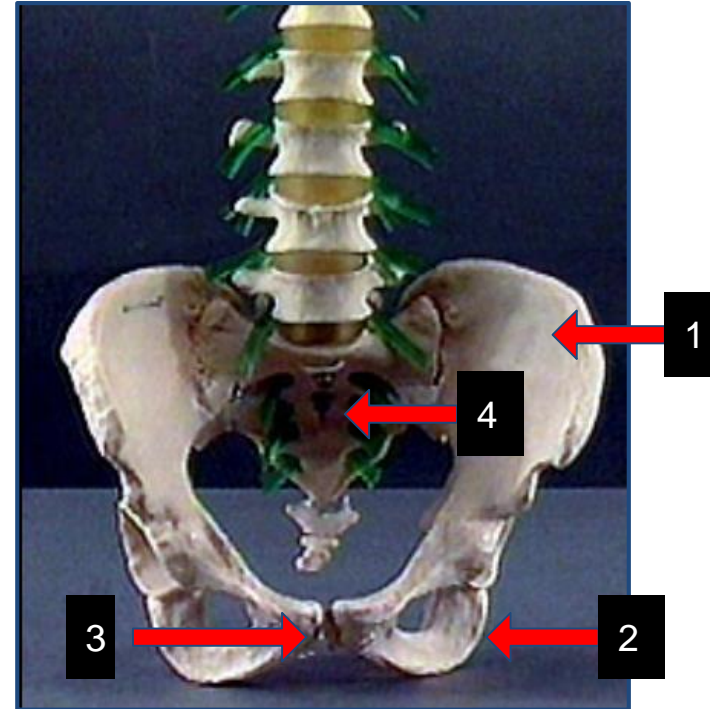
- Falls > 15 ft
- Motor Vehicle Crash with lateral impact
- Motorcycle accidents
- Auto-pedestrian

(Tomberg & Heare, 2021)

Review of Anatomy

1. Ilium
2. Ischium
3. Pubic Symphysis
4. Sacrum & Coccyx

Part of the spine!



Normal X-ray of the Pelvis (Male)

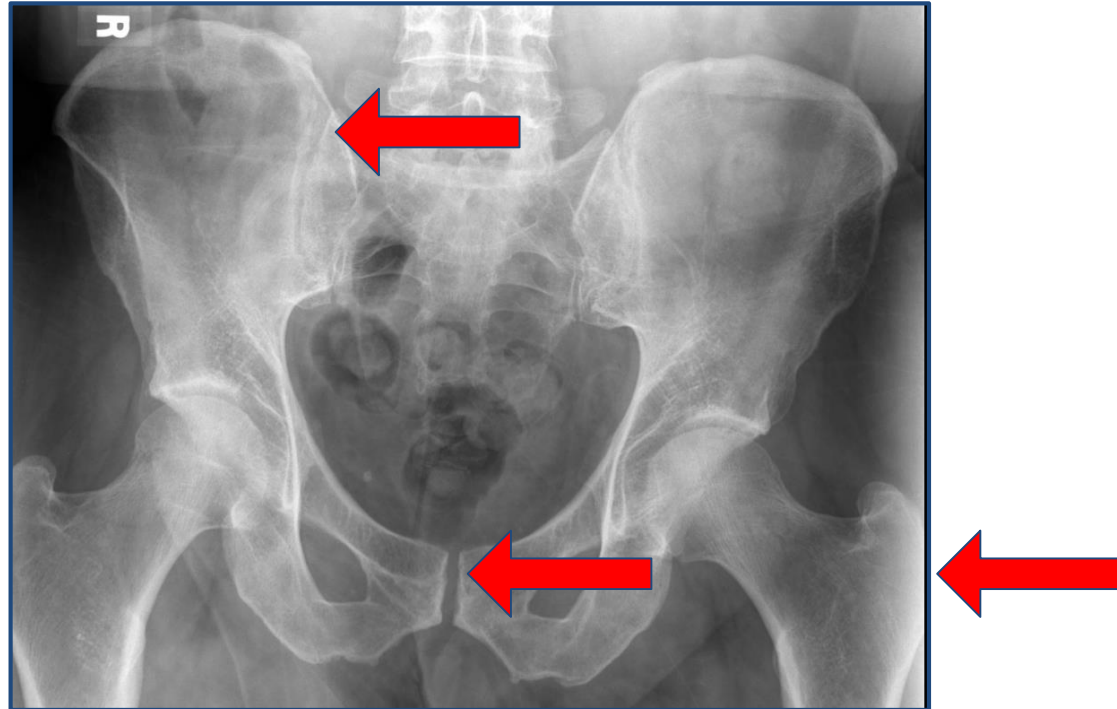
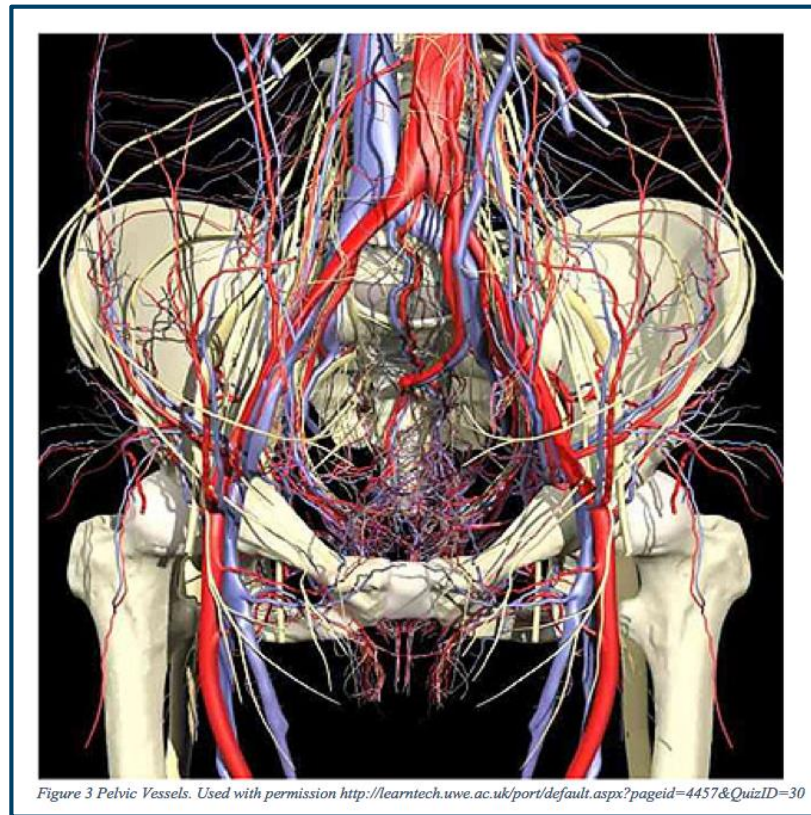


Image from HEAL: https://collections.lib.utah.edu/search?q=pelvis&fd=title_t%2Cdescription_t%2Csubject_t%2Ccollection_t&facet_setname_s=ehs_l_heal

Vascular structure

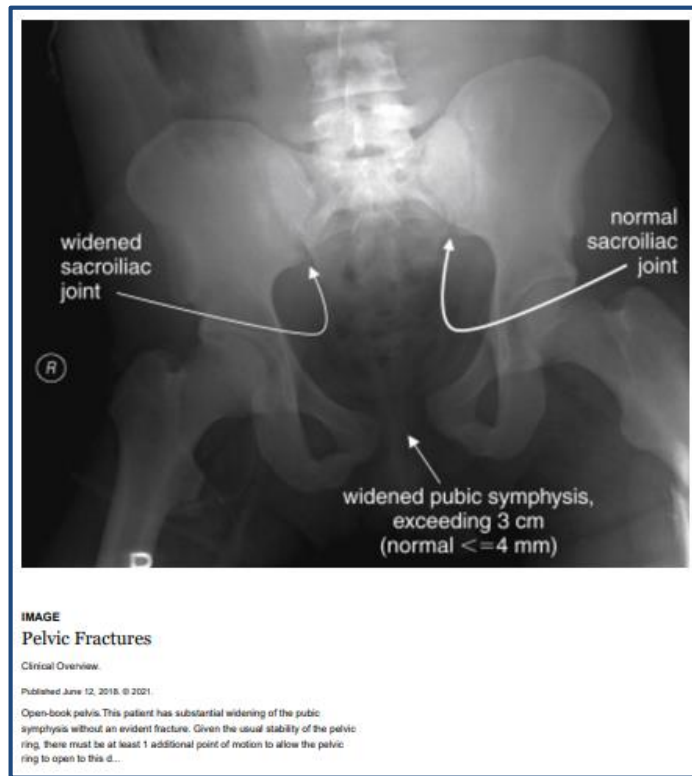
- Iliac Arteries
- Iliac Veins
- Venous Plexus
 - Thin-walled vessels, highly susceptible to damage with damage to sacrum



Pelvic Fracture Classifications

- Young-Burgess classification:
 - Lateral compression
 - Anteroposterior compression (APC)
 - Vertical Shear
- Combined
- Open-Book

- Disruption of the ring



slido



How sensitive is the pelvic instability exam for detecting pelvic fracture when your patient has a GCS <13?

ⓘ Start presenting to display the poll results on this slide.

How sensitive is the pelvic instability exam for detecting pelvic fracture when your patient has a GCS <13?

- <20%
- Around 50%
- >70%

How sensitive is the pelvic instability exam for detecting pelvic fracture when your patient has a GCS <13?

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Assessment

Pelvic instability

- Low sensitivity (8% for GCS < 13)
- Pain is a better indicator⁹

Hypotension + Mechanism = CT⁹

Associated Findings

- Ecchymosis
 - Grey-Turner sign
- Urethral Damage
- Lower Extremities
- Spinal assessment:
 - Loss of dorsiflexion
 - Rectal tone
 - Sensation

How much blood can you lose into your pelvis from a pelvic bleed?

- 1L
- 3L
- 4-6L

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- 3L
- **4-6L**

80% of pelvic bleeding is:

- Arterial
- Venous

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- Arterial
- **Venous**

Complications

- Blood loss
 - 4-6 L
- Source of bleeding
 - 80-90% VENOUS
- Other significant complications

What can we do?

- Tape knees and ankles
- Apply Pelvic Binder
 - Reduces pelvic volume
 - Tamponade bleeding
 - Stabilize structures to not disrupt clot
- Limit Movement
 - Limit log roll / TNCC recommends 6+ man lift
 - Limit pelvic instability exam

Which type of pelvic binder is better to use?

- Prefabricated binder
- SAM Sling
- Sheet
- They're all the same

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- Prefabricated binder
- SAM Sling
- Sheet
- **They're all the same**

Sheet vs Prefabricated Pelvic Binder

- No evidence to support either one.
- Correct application is all that matters!



When applied correctly, a pelvic binder should look more like:

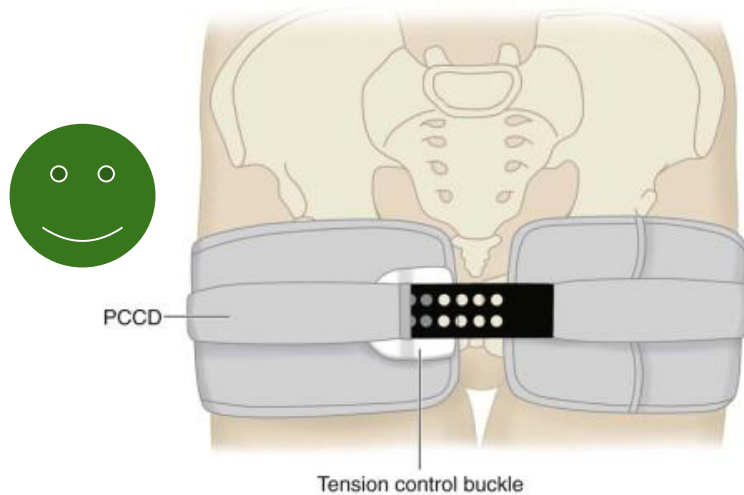
- Miniskirt
- Cummerbund

When applied correctly, a pelvic binder should look more like:

- **Miniskirt**
- Cummerbund

Landmarking and Application video

Think miniskirt, not cummerbund!



Video

THANK YOU!

- **Derek Larsen** - Sr. Multimedia Developer
- **Kylee Kendall**, RN
- **Brody Swertfeger**, Paramedic
- **Gabe Reilly**, EMT
- **Nathan Roll**, NRP
- **Utah Trauma Database**

Questions?

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