



Queensland  
Trauma Education

**EXTREMITY TRAUMA**

# Femoral traction splint

## Case discussion

Facilitator resource kit

**CSDS**



Clinical Skills Development Service



## Queensland Trauma Education

The resources developed for Queensland Trauma Education are designed for use in any Queensland Health facility that cares for patients who have been injured as a result of trauma. Each resource can be modified by the facilitator and scaled to the learners needs as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.

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### Queensland Trauma Education

#### Extremity trauma – Femoral traction splint: Case discussion – Facilitator resource kit Version 2.0

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## About this training resource kit

This resource kit provides clinicians with the knowledge for use including indications and contraindications for traction splint application in femoral fractures following injury.

### National Safety and Quality Health Service (NSQHS) Standards



### Target audience

Emergency department medical and nursing clinicians.

### Duration

30 minutes.

### Group size

Suited to small group participation.

### Learning objectives

By the end of this session the participant will be able to:

- Describe the indications for femoral traction splint application
- Recognise the complications associated with the use of femoral traction splints
- Understand the process for application of a femoral traction splint

### Facilitation guide

1. Facilitator to use supporting documents to promote discussion regarding the use of femoral traction splints
2. Supporting video resources may be used to demonstrate splint application (will require a digital device to play resources)
3. Supplementary procedural skill to support learning

### Supporting document (in Printable resources)

1. Left femur Xray

## Case discussion

### Case study

A 31yo male is transported to ED following a motor bike crash. In ED, an Xray demonstrates that he has sustained an oblique left mid shaft femoral fracture with shortening.

The orthopaedic team request a traction splint be applied prior to operative management.

## Supporting resources

### CT6 application video

Source	Queensland Ambulance Service (QAS)
Link	<a href="https://youtu.be/L1-hWv6yYpY">https://youtu.be/L1-hWv6yYpY</a>

### STS Slishman application video

Source	SP Services
Link	<a href="https://youtu.be/hbIU6IYQI4">https://youtu.be/hbIU6IYQI4</a>

### Donway femur splint video

Source	John Mackenzie
Link	<a href="https://vimeo.com/115932565">https://vimeo.com/115932565</a>

### Sager splint application video

Source	Orthocycle Foundation
Link	<a href="https://www.youtube.com/watch?v=uaWUbYer0io">https://www.youtube.com/watch?v=uaWUbYer0io</a>

## Question and answer guide

### 1. What is the role of femoral traction splint application?

- Improve patient pain
- Immobilises the limb preventing further damage to surrounding tissues/structures
- Improve fracture alignment to reduce risk of – haemorrhage, fat embolism, infection, longer term complications including malalignment, shortening and DVT.

### 2. In which fracture pattern is traction splinting most useful?

- An isolated fracture of the midshaft femur is most suitable for traction splinting.
- Additional fractures in the leg may be less effective, upper 2/3rd tibial fractures better than lower 1/3rd

### 3. What fractures are contraindicated in the use of traction splint?

- Fractures of ankle/feet- as unable to apply support straps to create traction
- Partial amputation or avulsion with only marginal tissue connecting the distal limb

### 4. Can traction splints be used for open or closed fractures?

A traction splint can be used with either open or closed femoral fractures.

### 5. What are potential complications of femoral fractures?

- Haemorrhage
- Fat embolism
- Infection
- Malalignment/shortening/pain
- Deep venous thromboembolism

### 6. What traction splints are available? Use videos or equipment to demonstrate

- Donway traction splint
- Thomas splint
- Sager splint
- CT6 splint
- Kendrick splint
- Slishman splint

**7. Describe clinical assessment of the limb prior to application of traction splint.**

- Localisation of fracture site – pain, swelling, tenderness, deformity/shortening
- Associated pelvic, knee, ankle/foot injury
- Peripheral perfusion
- Neurological status- motor and sensory assessment of sural, saphenous, peroneal and tibial nerves.

**8. What assessment occurs post application?**

- Pain level
- Position of fracture – clinical and with repeat Xray
- Neurovascular exam distal limb
- Pressure area risk assessment

**9. What complications may occur from a femoral traction splint device?**

- Pain at fracture site and application points
- Incomplete reduction of femoral fracture
- Damage to other structures from under-recognition of associated injury (pelvic, knee, ankle fractures)
- Skin damage
- Neurovascular compromise from ankle strap or inappropriate traction

## References

1. Davis, D.D., Gingles, J.G., Kwon, YH., et al. EMS Traction Splint. (2021). *StatPearls*. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK507842/>
2. Lee, C., & Porter, K. M. (2005). Prehospital management of lower limb fractures. *Emergency medicine journal : EMJ*, 22(9), 660–663. <https://doi.org/10.1136/emj.2005.024489>

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