# PR50: Traction (Sager) Splinting

## Applicable To

- EMR and above

## Introduction

The Sager traction splint is a unipolar split that can be used to align femur fractures. Proper splinting increases arterial blood flow, decreases pain and spasm, and lowers the risk of further injury from bone fragments.

## Indications

- EMR: Open or closed mid-shaft fractures of the femur in patients who are otherwise clinically stable

## Contraindications

- Clinical instability
  - Caution: The energy required to fracture a femur is significant, and may produce other occult or distracting injuries. If there is any doubt as to the clinical stability of the patient, do not attempt to place the traction splint -- splint the injured leg against the uninjured leg and expedite conveyance to hospital.
- Hip or pelvic fracture
- Supracondylar fracture of the distal femur, or knee involvement
- Fractures of the ankle or the foot
- Partial amputation or avulsion with bone separation and only marginal distal tissue connection

## Procedure

Appropriate analgesia should be provided throughout the splinting procedure. See E08: Pain Management for additional information.

1. Manage any visible external bleeding and provide appropriate wound care where required.
2. Assess the injured leg for distal neurovascular function. If appropriate resources are available, provide manual inline traction prior to splinting.
3. Place the splint along the medial aspect of the injured leg. Adjust its length so that it extends approximately four inches (10 cm) beyond the heel.
4. Secure the top strap to the thigh.
5. Apply the ankle hitch, and attach it to the splint.
6. Apply traction by extending the splint:
   - For closed femur fractures: Adjust the splint to 10% of the patient's body weight in Imperial units, to a maximum of 15 pounds (7 kg).
   - For open femur fractures: Apply 5 pounds (2.5 kg) of traction regardless of the patient's body weight.
7. Reassess the distal neurovascular function.
8. Apply the straps to secure the leg to the splint. Reassess distal neurovascular function following the application of the straps. Ongoing reassessment during conveyance is required.
9. Secure the patient on a clamshell lifting device for transport. Be aware of the positioning of the distal portion of the splint during lifting and loading operations. Ensure the patient is positioned on the stretcher with sufficient space to allow the rear doors of the ambulance to close completely.

## Notes

There is no specific age limit on the use of the Sager splint, however the splint must be able to fit the patient safely. Use the smallest extension possible to achieve appropriate traction.

When adjusting the extension, be aware of the pinch point that exists with the locking mechanism.

## Resources

- Sager user handbook (BCEHS uses the S301 model)

## References


1. Syme K. Are you pulling my leg? Does the use of traction splints in the prehospital management of patients with femur fractures reduce the complications compared to traditional splinting? 2020. [Link]
2. Davis D et al. EMS traction splint. 2021. [Link]
3. Sunmedica, Inc. Sager user handbook. (n.d.) [Link]