

## Basic Skills Qualification Splinting and Casting

### Evaluation Process

Prior to seeking BSQ certification, a resident should be confident in their skills. The “Basic Skills Qualification” is printed and given to the supervising physician, where after, the resident performs the procedure under direct observation of the supervising physician. The competency assessment is completed by the supervising physician with their signature and given back to the resident. The resident then returns the competency assessment to the Academic Coordinator.



**Resident:** \_\_\_\_\_

	Competent	Needs Work
Correctly describes fracture or injury type		
Identifies correct splint or cast to place		
Identifies correct duration of immobilization		
Informed Consent obtained		
Places splint or cast correctly		
Verifies correct positioning of injured joint and intact distal neurovascular function		
Reviews cast care, pain control, s/sx of compartment syndrome and follow-up plan		

**Faculty:** \_\_\_\_\_

**Date:** \_\_\_\_\_

### Casting vs. Splinting

Benefits of splinting: Always splint acute fractures initially because of anticipated further swelling. Stabilize soft tissue injuries, pain relief, easily removable for icing and monitoring, provides temporary support prior to surgery.

Benefits of casting: Provides marked stability, significant pain relief.

### Indications:

- Immobilization of stable, non-displaced, closed fractures
- Reduced dislocations
- Injuries to muscle, tendons, and ligaments including grade three ligament sprains
- Treatment of congenital and acquired deformities like congenital clubfoot

**Contraindications:**

- Early/Premature casting: casting before maximal swelling has occurred can cause necrosis and compartment syndrome
- Open Wound: Can cause infection, can use cast window to monitor
- Unstable fractures that require surgical fixation. Splint only until definitive treatment can be provided

**Complications:**

- Nerve entrapment: Compression of the peroneal nerve at the fibular head can lead to foot drop
- Compartment syndrome: Casting before swelling has reached its maximum. (Look for pain with resisted plantar flexion of the great toe)
- Cast loosening: Inadequate stability and immobilization
- Skin necrosis: Pressure over bony prominences
- Joint stiffness

**Basic Principles of Splinting and Casting**

1. Decide whether injury or fracture appropriate for splinting or casting and if so what type: Short arm, ulnar gutter splint, sugar-tong splint, long arm, thumb spica, short leg, long leg, etc.
2. Decide estimated duration of immobilization.
3. Obtained informed consent.
4. Measure stockinette to allow extra to fold over ends and remove all transverse wrinkles.
5. Place joint in neutral position (90 degree of ankle flexion, wrist slightly extended and in position of function, etc.
6. Apply cast padding over stockinette, overlapping 50% with each consecutive wrap, and providing two complete layers. Provide extra padding over bony prominences like the heel, malleoli, metatarsal heads, proximal fibula, anterior tibia, flexion creases and fulcrum points.
7. Apply plaster or fiberglass rolls after removing excess water same way as cast padding. First turn with 100% overlap and second turn with 50%. Fold ends of stockinette onto initial layers before placing final cast layers. Apply 4-6 layers of cast evenly with extra reinforcement in areas of increased stress.
8. Smooth the cast using both hands to make sure it conforms to the contours of local anatomy.
9. Recheck positioning of the injured joint: ankle at 90 degrees and wrist slightly extended and relaxed. Verify distal perfusion with color, temp, sensation and cap refill.
10. Post Procedure Education: Keep extremity elevated for 48 hours and use ice over splint or cast. Keep cast dry. Do not insert anything between cast and skin. Call provider if increased pain, tightness or irritation, numbness, discolored or cool toes.

**Reference**

Pfenninger, JL and Fowler GC, Procedures for Primary Care. Mosby 2003. (Marolf, G, Kovan, J and Russell White, Eathorne, S, and Shepherd, Todd, p 1391-1418.