SPINAL IMMOBILIZATION

1. INTRODUCTION: Spine Injury Criteria based on "Spine Injury - Clinical Criteria for Assessment and Management" by Peter Goth, MD

   1.1 If there is any reasonable possibility that a patient may have suffered spinal injury, the spine must be promptly immobilized. Consider immobilization in a patient who sustains trauma that has any possibility of injury to the spine.

   1.2 Field personnel should follow the recommended immobilization procedure for spinal immobilization contained in the Basic Trauma Life Support (BTLS), Prehospital Trauma Life Support (PHTLS), or Pediatric Education for Prehospital Personnel (PEPP).

   1.3 Patients who do not meet all negative spine injury criteria or if doubt exists must be immobilized.

   1.4 Patients who meet criteria but later develop any symptoms require immediate complete immobilization.

2. Pediatric Patients and Car Seats:

   2.1 Infants restrained in a rear-facing car seat may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows (no signs of respiratory distress or shock).

   2.2 Children restrained in a car seat (with a high back) may be immobilized and extricated in the car seat; however, once removed from the vehicle, the child should be placed on a backboard and immobilized.

   2.3 Children restrained in a booster seat (without a back) need to be extricated and immobilized following standard spinal immobilization procedures.

3. Motorcycle helmet removal: Safe and proper removal of the helmet can only be done by two people following these steps Manual C-Spine immobilization MUST be maintained throughout removal of the helmet.

   3.1 Open the face shield, if there is one, and assess the patient’s airway and breathing. Remove eyeglasses/sunglasses, if applicable.

   3.2 Rescuer #1: place hands on either side of the helmet with fingers on the lower jaw to prevent head movement.

   3.3 Rescuer #2 - loosen the strap and place one hand at the angle of the lower jaw and the other at the occiput.

   3.4 Rescuer #1 - gently slip the helmet about halfway off, and then stop.

   3.5 Rescuer #2 - slide hands from the occiput to the back of the head to prevent it from snapping back. Continue removing the helmet and immobilize as usual.


   4.1 In general, do not remove the shoulder pads or helmet of a football player.

   4.2 Only the facemask should be removed (a specialized tool is required for this procedure).

   4.3 To place a backboard under the patient:

   ▶ If supine - lift straight up – do not log-roll

   ▶ If prone - log-roll directly onto the board.

   4.4 Attempt to place a cervical collar, realizing that it may be impossible. (Note: if the pads fit closely to the helmet they will minimize motion of the head)

   4.5 Use towel rolls or foam head blocks and tape to immobilize the head.

5. Removal of spinal immobilization: Paramedics shall not remove spinal immobilization placed by another paramedic unless the immobilization compromises the patient’s life or limb.
SPINAL IMMOBILIZATION

**Mechanism** (**see note**)

- **NEGATIVE**
- **POSITIVE**
- **UNCERTAIN**

**Spine Pain/ Tenderness**
- Palpate every single spinous process

**Motor/ Sensory Exam**
- Finger adduction / abduction (both hands)
- Hand extension (both hands)
- Plantar flexion (both feet)
- Dorsiflexion (both feet)
- Sharp / dull sensation both upper and lower extremities
- Check for abnormal sensations to extremities (e.g. – paresthesias)

**Reliable Patient?**
- Yes
  - Calm
  - Cooperative
  - Sober
  - Alert
- No
  - Acute Stress Reaction
  - Brain Injury - Intoxication
  - Abnormal Mental Status
  - Distracting Injuries
  - Communications

**Negative Spine Injury**
- Omit spinal immobilization

**Positive Spine Injury**
- Apply spinal immobilization

**Note:** A positive mechanism refers to violent forces that are clearly capable of damaging the bony spinal column

**Examples:**
- High velocity vehicle crash
- Falls > 15 feet
- High velocity gunshot wound near the spine

**Source:** Spine Injury: Clinical Criteria for Assessment and Management; Peter Goth, MD