

**SECTION:** Adult Trauma Patient Care

**PROTOCOL TITLE:** Injury – Spinal Motion Restriction

**REVISED:** 08/2019

**OVERVIEW:**

Mechanism of injury alone has not been shown to be a predictor for spinal injury. An appropriate patient assessment can be used to determine need for spinal motion restriction. The below is cervical spinal motion restriction selection guidelines taken from National Model Guidelines V2 and NEXUS (National Emergency X-Radiography Utilization Study).

There is limited data studying spinal motion in patients with applied cervical collars. Patient exiting out of car under their own power, with cervical collar in place, may result in the least amount of motion of the cervical spine.<sup>1</sup> Cervical spinal motion restriction devices include, but are not limited to soft and hard collars.

Long back boards have not been shown to reduce spinal injury complications. Long backboards are associated with increased pain, decubitus development, and possibly decreased functional residual capacity of the lungs. Long backboards and scoop stretchers may be used for the safe movement/transfer of patients. However, if used in this way, patients should be removed from the device as soon as possible.

HPI	Signs and Symptoms	Considerations
<ul style="list-style-type: none"> <li>• Time of injury</li> <li>• Mechanism of injury (blunt vs. penetrating)</li> <li>• Restraints/protective devices</li> <li>• Prior cervical spine surgery</li> <li>• Known vertebral disease</li> <li>• Medical history</li> <li>• Medications</li> <li>• Evidence of multi-system trauma</li> </ul>	<ul style="list-style-type: none"> <li>• Spine pain</li> <li>• Limited neck mobility</li> <li>• Neurological deficit</li> <li>• Unstable/abnormal vital signs</li> </ul>	<ul style="list-style-type: none"> <li>• Spinal cord injury</li> <li>• Fracture of vertebrae</li> <li>• Head injury</li> <li>• Neurogenic shock</li> <li>• Distracting injury (long bone injury, deformity, non life threatening bleeding)</li> </ul>

	EMR	EMT	A	I	P
1. Maintain scene and provider safety.	•	•	•	•	•
2. Perform general patient management.	•	•	•	•	•
3. Support life-threatening problems.	•	•	•	•	•
4. Spinal motion restriction is not recommended in patients with penetrating trauma.		•	•	•	•

## SPINAL MOTION RESTRICTION

<p>5. Cervical spinal motion restriction should be used in patients meeting the below criteria.</p> <p>a. Patients between 15 and 65 years of age with a traumatic mechanism and any one (1) of the following:</p> <ul style="list-style-type: none"> <li>- Midline cervical tenderness</li> <li>- Neuro deficits</li> <li>- Altered mental status</li> <li>- Intoxication</li> <li>- Distracting injury</li> </ul> <p>b. Patients 65 years of age and older with traumatic mechanism and suspected spinal injury should have cervical spinal motion restriction.</p> <p>c. Any patient where provider judgement indicates use of SMR (i.e. seatbelted in cot, backboard, reeves).</p>		•	•	•	•
<p>6. Backboards may be used for movement or extrication of the patient. Patients should be removed from the backboard as soon as possible.</p>		•	•	•	•
<p>7. Transport to an appropriate facility as indicated by the Regional Field Triage Scheme if applicable, and perform ongoing assessment as indicated.</p>		•	•	•	•

**PEARLS:**

- EMS Providers are expected to use good judgment and may elect to apply cervical spinal motion restriction device to any patient.
- Mechanism of injury alone has not been shown to be a predictor for spinal injury. All patients with a dangerous mechanism of injury, AMS, spine tenderness, distracting injuries, or an unreliable physical exam should be treated in such a manner as to limit spinal motion.

References

---

<sup>1</sup> West J Emerg Med. 2009 May; 10(2): 74–78. **Cervical Spine Motion During Extrication: A Pilot Study**  
Jeffery S. Shafer, MD, EMTP and Rosanne S. Naunheim, MD

Protocol

4-13

Continued

**SPINAL MOTION RESTRICTION**

This Page Left Intentionally Blank