EMS Subspecialty Certification Review Course

1.2.1.5 Spinal Motion Restriction

2025

American College of Emergency Physicians
ADVANCING EMERGENCY CARE

1

Learning Objectives

Upon the completion of this program participants will be able to:

- Discuss the history of spinal immobilization as practiced in EMS
- Discuss the controversies related to the lack of empirical research supporting current prehospital spinal immobilization practices
- List current and evolving strategies to limit unnecessary spinal immobilization

American College of Emergency Physicians
ADVANCING EMERGENCY CARE

2

Spinal Immobilization

- "Traditional" benefits of backboards:
  - Immobilizes all spinal segments from the joint above the potential injury to the joint below
  - Immobilizes all spinal joints from the bone above the potential injury to the bone below
- Does ease movement of the non-ambulatory patient

American College of Emergency Physicians
ADVANCING EMERGENCY CARE

3

Spinal Immobilization

- **Documented issues with backboards and spinal immobilization:**
  - No evidence that they significantly limit spinal movement
  - Cause pain and discomfort
  - Limits airway management:
    - Mouth opening
    - Restricts tidal volume
  - Increases intracranial pressure
  - Aspiration risk
  - Increases imaging and admissions
  - **Increases risk of death from penetrating trauma**

American College of Emergency Physicians
ADVANCING EMERGENCY CARE

4

Spinal Immobilization

- Spinal injuries relatively uncommon:
  - Many are stable
- No evidence of benefit for penetrating trauma
- NEXUS and Canadian C-Spine criteria well-validated allowing safe and effective prehospital spinal clearance

American College of Emergency Physicians
ADVANCING EMERGENCY CARE

5

Spinal Injury Controversies

- Helmet Removal
- Steroid Usage in Spinal Shock/Cord Injury
- Pain Management in Spinal Injuries

American College of Emergency Physicians
ADVANCING EMERGENCY CARE

6

Take-Home Points

- Current practice of spinal immobilization varies significantly
- Efficacy of spinal immobilization, particularly backboards, is questionable
- Spinal clearance criteria are validated but not uniformly applied
- Spinal injuries are uncommon
- Backboards may be headed for extinction

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

7