

# "The New Paradigm is Cervical Splinting"

**-Dr. Raymond Fowler**

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"Where the future of cervical immobilization is headed"

**-Bryan Bledsoe**

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## Cervical Splinting (CS)

### A New Paradigm in Cervical Spine Management

#### Improving Patient Care - What Needs To Be Done

*The emergency medical and scientific communities have identified several problems with conventional cervical spine management protocols, devices, and methods currently used.<sup>1-4</sup> These must be addressed to ensure that the best patient outcomes are obtained.*

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## C-Spine Management

It is estimated that up to 25% of all spinal cord injuries occur after the **initial trauma**. (5-10\*)

40% of these injuries result in **neurological deficit**. (5-10\*)

Currently known problems with conventional cervical spine procedures and devices include:

**Cervical spine distraction** (11-16\*)

**Improper patient stabilization** (11, 18\*)

**Difficulty breathing** (19- 21\*)

**Skin sores and discomfort** (22, 23\*)

The practice of **Cervical Splinting** (CS) is replacing conventional cervical spine management procedures at an unprecedented rate.

Please see chart below for proper patient cervical spine assessment procedure with an example CS device.

- Cervical Splinting devices are designed to secure the patient's cervical spinal region on areas above C1 and below C7; anchoring on both two points anterior and two points posterior.
- Cervical Splinting (CS) technology enables EMS personnel to customize the splinting system to the patient, thus avoiding sizing approximation and providing the highest degree of patient stabilization and safety.
- CS methods and systems provide the ability to stabilize the patient in the "position found", which up until now was only possible using improvisation, additional manpower, time, and equipment.

## Cervical Splinting Capabilities

- Improves quality of patient care while saving both time and resources.
- Fully integrates with back boards.
- Eliminates the need for Head Blocks, towels, and tape, etc.
- Customizable on adult and pediatric patients of almost every possible size (from approx 25 lbs. to over 360 lbs.).

"Truly a milestone in the evolution of cervical spine care"

**-Mike Smith,  
BS, MICP  
EMS Magazine**

## What We Can Do - Being Prepared For CS In Your Area

We highly encourage emergency providers and hospitals to investigate this topic further both for an educational purpose and to better the quality of patient care. Together, we can make a difference in how cervical spine procedures are performed in our areas; to positively affect the standard of patient care, as well as elevate the morale of EMS providers performing these procedures.

**Please visit [www.training.xcollar.com](http://www.training.xcollar.com) for training and educational videos**

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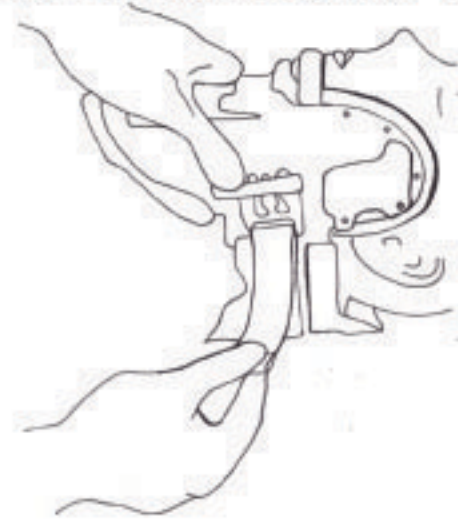
## Assessing C-Spine with the "XCollar" in Place

**Stabilize the front of the XCollar during the following steps:**

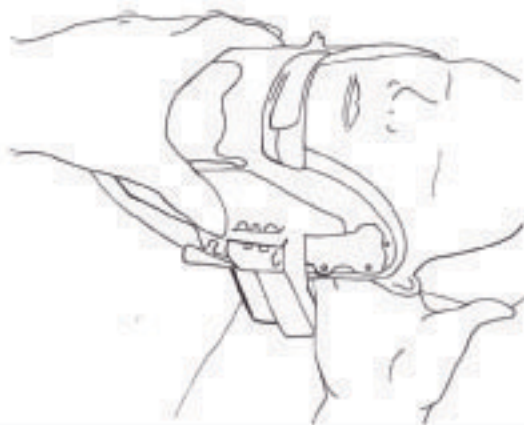
**① Detach Blue & Yellow XStraps**



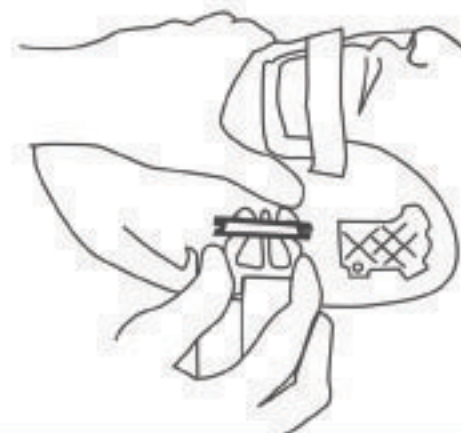
**② Loosen the Buckle Side Strap**



**③ Slide hand between C-Spine area & XCollar as needed to assess patient**



**④ Removal: apply even pressure on both sides of the buckle to release**



**To Re-Apply: use "Opposing Forces" to tighten side strap and secure XStraps**

The XCollar is MRI, X-Ray, and CAT scan compatible.

For research, publications, articles, and videos please visit [www.training.xcollar.com](http://www.training.xcollar.com) or contact us at phone: (805) 684-6568



## Cervical Splinting Fact Sheet References - 2012

1. Bohlman HH: Acute fractures and dislocations of the cervical spine: an analysis of three hundred hospitalized patients and review of the literature. **J Bone Joint Surg AM** 61A:1119-1142, 1979.
2. Jeanneret B Magerl F, Ward JC: Over distraction: A hazard of skull traction in the management of acute injuries of the cervical spine. **Arch Orthop Trauma Surg** 110:242-245, 1991.
3. Prasad VS, Schwartz A, Bhutani R, Sharkey PW, Schwartz ML: Characteristics of injuries to the cervical spine and spinal cord in polytrauma patient population: Experience from a regional trauma unit. **Spinal Cord** 37:560-568, 1999
4. Totten VY, Sugarman DB: Respiratory effects of spinal immobilization. **Pre-Hospital Emerg Care** 3:347-352, 1999
5. Brunette DD, Rockswold GL: Neurologic recovery following rapid spinal realignment for complete cervical spinal cord injury. **J- Trauma** 27: 445-447, 1987
6. Burney RE, Waggoner R, Maynard FM: Stabilization of spinal injury for early transport. **J Trauma** 29:1497-1499, 1989.
7. Geisler WO, Wynne-Jones M, Jousse AT: Early management of the patient with trauma to the spinal cord. **Med Serv J Can** 22:512-523, 1966
8. Hachen HJ: Emergency transportation in the event of acute spinal cord lesion. **Paraplegia** 12:33-37, 1974.
9. Prasad VS, Schwartz A, Bhutani R, Sharkey PW, Schwartz ML: Characteristics of injuries to the cervical spine and spinal cord in polytrauma patient population: Experience from a regional trauma unit. **Spinal Cord** 37:560-568, 1999
10. Totten VY, Sugarman DB: Respiratory effects of spinal immobilization. **Pre-Hospital Emerg Care** 3:347-352, 1999
11. **Neurosurgery**, Vol. 50, No. 3, March 2002 Cervical Spine Immobilization Before Admission to the Hospital
12. Markenson D, Foltin G, Tunik M, Copper A, Giordana L, Fitton A, Lanotte T: The Kendrick extrication device used for pediatric spinal immobilization. **Pre-Hospital Emerg Care** 3:66-69, 1999
13. Ben-Galim P, Dreiangel N, Mattox KL, Reitman CA, Kalantar SB, Hipp JA.: Extrinsic collars can result in abnormal separation between vertebrae in the presence of a dissociative injury. **Journal of Trauma** 2010 Aug; 69(2):447-50.
14. Navarro, K. Prove it: Extrinsic collars create internal decapitation. June, 2010
15. Kwan J, Bunn F, Roberts J. Spinal immobilization for trauma patients. *Cochrane Database Syst Rev*. 2001;(2):CD002803.
16. Lador, Ran MD; Ben-Galim, Peleg MD; Hipp, JA.: Motion Within the Unstable Cervical Spine During Patient Maneuvering: The Neck Pivot-Shift. **Journal of Trauma-Injury Infection & Critical Care**: January 2011 - Volume 70 - Issue 1 - pp 247-251.
17. **Neurosurgery**, Vol. 50, No. 3, March 2002 Cervical Spine Immobilization Before Admission to the Hospital
18. McSwain NE Jr: Spine management skills, in **Pre-Hospital Trauma Life Support**. Akron, Educational Direction, 1990, ed 2 pp 225-256.
19. Totten VY, Sugarman DB: Respiratory effects of spinal immobilization. **Pre-Hospital Emerg Care** 3:347-352, 1999
20. David Hostler, PhD, Deanna Colburn, MPT, S. Robert Seit, Med, A comparison of Three Cervical Immobilization Devices.
21. Trauma CO. Advanced Trauma Life Support. Advanced Trauma Life Support. Chicago, IL, ACS: 214-218, 1993.
22. Linares HA, Mawson AR, et al: Association between pressure sores and immobilization in the immediate post-injury period. **Orthopedics** 10:571-573,1987.
23. Blaylock B: Solving the problem of pressure ulcers resulting from cervical collars. **Ostomy Wound Management** 42:26-33,1996.