

# **UNIVERSITY OF MARYLAND SPORTS MEDICINE**

## **On The Field Assessment & Transportation of the Cervical Spine Injured Athlete**

### **General Guidelines-**

- The University of Maryland Sports Medicine's emergency plan should be initiated and followed at all times.
- Cervical spine in-line stabilization should be maintained at all times.
- The rescuer controlling cervical spine immobilization will be in command at all times.

### **Non-Football / Lacrosse Cervical Spine Injuries-**

In cases where a student-athlete is suspected of having a cervical spine injury, University of Maryland Sports Medicine personnel should:

- a) Activate the University of Maryland Sports Medicine emergency plan-
  - Call EMS
  - Call the University of Maryland Team Physician(s)
  - Call the appropriate University of Maryland athletic training facility and the Assistant Athletic Director- Sports Medicine
  - Call the University of Maryland Police- **(301) 405-3333**
- b) The athlete should not be moved until immobilized unless absolutely essential to maintain airway, breathing, & circulation (ABCs). If the athlete must be moved, he/she should be placed in a supine position (emergency roll) while maintaining spinal immobilization as best possible.
- c) Assess the following-
  - Posture, positioning, movement of the patient
  - Level of consciousness
  - Airway, Breathing, & Circulation
  - Neurological status
  - Vital signs (pulse, respirations, skin temperature, papillary reflexes, capillary refill, blood pressure)
  - Maintain cervical spine in-line stabilization
- d) Perform basic life support while maintaining cervical spine in-line stabilization
  - Modified jaw thrust maneuver
  - Assist ventilations with a CPR mask / bag-valve-mask and supplemental oxygen (if available)
  - Set up and operate AED unit (if necessary)
- e) Perform a complete evaluation (history, palpation, neurological, cranial nerves, etc.)
- f) If possible, place a correctly sized rigid cervical collar on the athlete
- g) Place the athlete onto a long spine board using the "Lift & Slide" Technique and/or the "Log-Roll" Technique
- h) Secure the athlete onto the long spine board-
  - Secure the athlete's feet and torso first
  - Leave the athlete's arms free from the spine board straps to facilitate vital sign monitoring and IV access. Athlete's wrists may be secured together in front of the body.
  - Secure the athlete's head last using padding, towels, etc. to fill any void spaces and maintain in-line positioning. Use lateral head immobilizer restraint pads and straps and/or tape over the forehead and at the chin to assist with stabilization / immobilization
- i) Reassess vital signs at 2-3 minute intervals
- j) Transport to the most appropriate medical facility as per the University of Maryland Sports Medicine Emergency Plan.

## **Football Cervical Spine Injuries-**

### **General Guidelines-**

- The facemask should be removed, rather than retracted, as quickly as possible prior to transport regardless of current respiratory status.
- The facemask should be removed using a screwdriver, FM extractor, Trainers' Angel, or other readily accessible tool with as little movement of the head and neck as possible.
- The helmet / shoulder pad unit should be thought of as an "all-or-none" scenario with regards to spinal immobilization and both must be removed simultaneously by trained personnel.
- The football helmet AND shoulder pads should only be removed under the following circumstances-
  - If after a reasonable period of time (**30-45 seconds**), the face mask cannot be removed to gain airway access;
  - If the rescuer is unable to access the airway by all other means and/or if the helmet does not adequately secure the head;
  - If the design of the helmet & chin strap is such that even after removal of the face mask, the airway cannot be controlled or ventilation provided;
  - If the helmet & chin straps do not hold the head securely such that immobilization of the helmet does not also immobilize the head;
  - If the helmet prevents immobilization for transport in an appropriate position;
  - Multiple injuries require full access to the shoulder area;
  - Ill-fitting shoulder pads caused the inability to maintain spinal immobilization;
- The front of the shoulder pads can be opened in most cases to allow access to the athlete's chest for evaluation, auscultation of breath & cardiac sounds, CPR, & defibrillation;

### **Football helmet & shoulder pad removal technique-**

- a) Team leader (*Person A*) is positioned at the top of the patient's head & provides firm, manual, in-line stabilization of the head & neck by placing his/her hands on the injured athlete's shoulders (under the shoulder pads) with the thumbs pointed away from the athlete's face. The athlete's head should then be resting between the rescuer's forearms;
- b) Assistant (*Person B*) removes the facemask (if not already done), cuts the chinstrap, and removes the cheek pads through the insertion of a tongue depressor, butter knife, or other similarly stiff, flat-bladed object; Person B also deflates the air inflation system by releasing the air at the external port with an inflation needle;
- c) Person B cuts the jersey & all other shirts from the neck to the waist & from the midline to the end of each arm sleeve, cuts (do not attempt to unbuckle and/or unstrap) all straps used to secure the shoulder pads to the torso & to the arms, cuts the laces or straps over the sternum to allow for quick & efficient access to the anterior portion of the chest, & cuts and/or removes any & all accessories such as neck rolls or collars;
- d) Person B then takes over in-line stabilization of the head & neck by manually stabilizing the chin & back of the neck in a **cephalad direction** by placing his/her forearms on the athlete's chest; the occiput & maxilla MUST be supported during and after helmet removal;
- e) Additional rescuers position themselves along the athlete's sides (one on each side of the chest, pelvis, & legs). The rescuer's hands are slid under the athlete & equipment to provide a firm, coordinated lift (*8-man lift technique*);
- f) Person A gives the command to lift the injured athlete ("*ready to lift*" ... "*lift*") & the injured athlete is lifted 4-6 inches off of the ground with a coordinated lift;

- g) An additional rescuer positions the spine board underneath of the injured athlete from the foot end;
- h) While the patient is lifted, Person A places a finger inside each ear hole & removes the helmet using a "tilt & slide" method & then IMMEDIATELY removes the shoulder pads by spreading apart the front panels & pulling them around the head;
  - o The helmet should slide off of the occiput with slight forward rotation of the helmet;
  - o DO NOT pull the ear holes laterally in an attempt to spread the helmet;
  - o Before the helmet is completely removed, Person B must carefully move his/her hands completely under the occiput in a cephalad direction until it is further under the head to keep the head from dropping when the helmet is finally removed;
  - o Person B's hands should be moved so that the thumb & first fingers grasp the maxilla at each side of the nose in the maxillary notch;
- i) Immediately after removal of the helmet & shoulder pads, Person A regains in-line stabilization & gives the commands to lower the injured athlete onto the spine board ("*ready to lower*" ... "*lower*") & the injured athlete is slowly lowered onto the spine board;
- j) A rigid cervical collar should then be applied to prevent movement of the head and the head lying in extension;
- k) The injured athlete should be strapped to the spine board in the appropriate fashion;

## Lacrosse Cervical Spine Injuries-

### **General Guidelines-**

- The helmet should be removed as quickly as possible prior to transport regardless of current respiratory status.
- The front of the shoulder pads can be opened in most cases to allow access to the athlete's chest for evaluation, auscultation of breath & cardiac sounds, CPR, & defibrillation;

### **Lacrosse helmet removal technique-**

- a) Team leader (*Person A*) is positioned at the top of the patient's head & provides firm, manual, in-line stabilization of the head & neck by placing his/her hands on the injured athlete's shoulders (under the shoulder pads) with the thumbs pointed away from the athlete's face. The athlete's head should then be resting between the rescuer's forearms;
- b) Assistant (*Person B*) cuts the chinstrap and then takes over in-line stabilization of the head & neck by manually stabilizing the chin & back of the neck in a **cephalad direction** by placing his/her forearms on the athlete's chest; the occiput & maxilla MUST be supported during and after helmet removal;
- c) Additional rescuers position themselves along the athlete's sides (one on each side of the chest, pelvis, & legs). The rescuer's hands are slid under the athlete & equipment to provide a firm, coordinated lift (*8-man lift technique*);
- d) Person A gives the command to lift the injured athlete ("*ready to lift*" ... "*lift*") & the injured athlete is lifted 4-6 inches off of the ground with a coordinated lift;
- e) An additional rescuer positions the spine board underneath of the injured athlete from the foot end;
- f) While the patient is lifted, Person A removes the helmet;
  - o Before the helmet is completely removed, Person B must carefully move his/her hands completely under the occiput in a cephalad direction until it is further under the head to keep the head from dropping when the helmet is finally removed;
  - o Person B's hands should be moved so that the thumb & first fingers grasp the maxilla at each side of the nose in the maxillary notch;
- g) Immediately after removal of the helmet, Person A regains in-line stabilization & gives the commands to lower the injured athlete onto the spine board ("*ready to lower*" ... "*lower*") & the injured athlete is slowly lowered onto the spine board;
- h) A rigid cervical collar should then be applied to prevent movement of the head and the head lying in extension;
- i) The injured athlete should be strapped to the spine board in the appropriate fashion;

### **Supine Lift & Slide / 6-8 Person Lift Technique-**

Take into consideration the number of people, size, strength, size of athlete, experience level of assistants. Ten (10) persons may be needed for larger athletes.

- a) Team leader (*Person A*) is positioned at the top of the patient's head & provides firm, manual, in-line stabilization of the head & neck by placing his/her hands on the injured athlete's shoulders (under the shoulder pads) with the thumbs pointed away from the athlete's face. The athlete's head should then be resting between the rescuer's forearms;
- b) Team leader (*Person A*) should position his/her foot and/or knee at the exact point on the ground where the head of the spine board should stop;
- c) Additional rescuers position themselves along both sides of the athlete's at the shoulder's / chest, hips / pelvis, and legs at a minimum. The rescuer's hands are slid under the athlete & equipment to provide a firm, coordinated lift;
- d) Team Leader (*Person A*) gives the command to lift the injured athlete ("*ready to lift*" ... "*lift*") & the injured athlete is lifted 4-6 inches off of the ground with a coordinated lift;
- e) An additional rescuer positions the spine board underneath of the injured athlete from the foot end until the spine board makes contact with the Team Leader's (*Person A*) foot / knee;
- f) Team Leader (*Person A*) should give the commands to lower the injured athlete onto the spine board ("*ready to lower*" ... "*lower*") once the spine board is appropriately positioned;
- g) The injured athlete should be slowly lowered onto the spine board;
- h) The injured athlete should be strapped to the spine board in the appropriate fashion;

### **Supine Log-Roll Technique-**

- a) Team leader (*Person A*) is positioned at the top of the patient's head & provides firm, manual, in-line stabilization of the head & neck by placing his/her hands on the injured athlete's shoulders (under the shoulder pads) with the thumbs pointed away from the athlete's face. The athlete's head should then be resting between the rescuer's forearms;
- b) The patient's arm on the side toward which the athlete is to be rolled should be abducted to 180 degrees if it is initially located above 90 degrees, or placed at the side if it is initially located below 90 degrees;
- c) The straps and head immobilizer should be removed from the spine board or placed out of the way;
- d) The spine board should be positioned next to the athlete on the side opposite the way the athletic is to be rolled;
- e) Additional personnel should position themselves at the shoulders / chest, hip / pelvis, and legs on the side toward which the athlete is to be rolled. Additional personnel may be necessary for larger athletes.
- f) Team Leader (*Person A*) gives the command to roll the injured athlete ("*ready to roll*" ... "*roll*") & the injured athlete is rolled onto his/her side with a coordinated effort while maintaining in-line stabilization;
- g) While the athlete is on his/her side, another rescuer slides the spine board underneath the athlete (wedges / tilts up);
- h) Team Leader (*Person A*) should give the commands to lower the injured athlete onto the spine board ("*ready to lower*" ... "*lower*") once the spine board is appropriately positioned;
- i) The injured athlete should be slowly lowered onto the spine board;
- j) If necessary, the injured athlete should be appropriately centered on the spine board (cross-arm slide, bridge slide, in-line slide, lift & slide);
- k) The injured athlete should be strapped to the spine board in the appropriate fashion;

### **Prone Lift & Slide / 6-8 Person Lift Technique-**

- a) Personnel use the prone log-roll technique to place the injured athlete in the supine position.
- b) Personnel use the supine lift & slide / 6-8 person lift technique to place the injured athlete onto the spine board.
- c) The injured athlete should be strapped to the spine board in the appropriate fashion.

### **Prone Log-Roll Technique-**

- a) Team leader (*Person A*) is positioned at the top of the patient's head & provides firm, manual, in-line stabilization of the head & neck using reverse hand positioning (thumbs down; bottom arm supinated; top arm pronated);
- b) The patient's arm on the side toward which the athlete is to be rolled (bottom hand side of the Team Leader) should be abducted to 180 degrees if it is initially located above 90 degrees, or placed at the side if it is initially located below 90 degrees;
- c) The straps and head immobilizer should be removed from the spine board or placed out of the way;
- d) The spine board should be positioned next to the athlete on the side toward which the injured athlete is to be rolled;
- e) Additional personnel should position themselves at the shoulders / chest, hip / pelvis, and legs on the side toward which the athlete is to be rolled (kneel on the spine board). Additional personnel may be necessary for larger athletes.
- f) Team Leader (*Person A*) gives the command to roll the injured athlete ("*ready to roll*" ... "*roll*") & the injured athlete is rolled 180 degrees directly onto the spine board with a coordinated effort while maintaining in-line stabilization;
  - o The injured athlete may be rolled onto his side → pause → continue roll onto spine board
  - o The injured athlete may be rolled directly onto his/her back and then placed on the spine board using the supine lift & slide / 6-8 person lift technique OR the supine log-roll technique;
- g) The injured athlete should be fitted with a rigid cervical collar as soon as possible when in the supine position and before additional movement takes place;
- h) If necessary, the injured athlete should be appropriately centered on the spine board (cross-arm slide, bridge slide, in-line slide, lift & slide);
- i) The injured athlete should be strapped to the spine board in the appropriate fashion;

### **Appropriate Equipment-**

- Long spine board
- Spine board straps (6 – 8)
- Head immobilizer
- "Helmet Hugger" (football)
- Duct tape
- Screwdriver
- FM extractor, Trainers' Angel, or other suitable device for removing a football facemask
- Scissors
- Tongue depressor / butter knife
- Inflation needle
- BP cuff / stethoscope
- CPR mask / bag-valve-mask
- Supplemental oxygen
- AED
- Emergency blanket(s)

**Training-**

University of Maryland Sports Medicine personnel should complete a training session every calendar year including, but not limited to:

- Review of signs and symptoms and emergency care procedures for cervical spine injuries;
- In-line stabilization, rigid cervical collar application, and long-spine board applications ("lift & slide / 6-8 person lift technique, supine log roll technique, prone log-roll technique)
- Football facemask removal and football helmet and shoulder pad removal techniques
- Lacrosse helmet removal techniques

**Approval-**

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Dr. Craig Bennett, MD Team Physician	Date
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Dr. Jamie Dreese, MD Team Physician	Date
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Dr. Yvette Rooks, MD Team Physician	Date
_____	_____
Dr. Tom Maino, MD Team Physician	Date