



Topic : Principles of lifting and Moving
Subject Code : BET4T1
Subject Name : Trauma care – First aid triage , life
Support and Resuscitation
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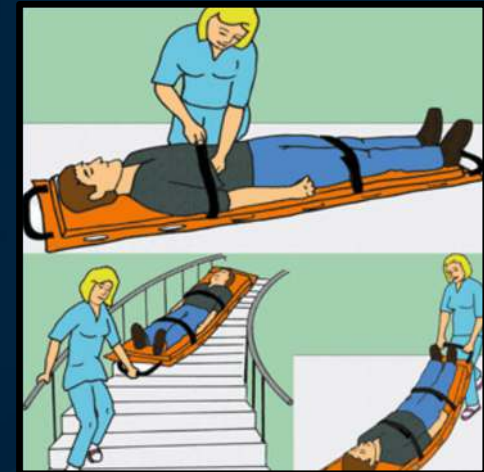
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LIFTING AND MOVING:

- Moving and lifting of the patients means shift or transfer the patient from one place to another place when the patient is not able to move or lift own self with use of different types of devices importantly spinal motion restriction devices
- For example-.Wheelchair, stretcher.



DEVICES USED:

1. Wheel chair or arm chair
2. Wheeled ambulance stretcher
3. Portable ambulance stretcher
4. Stair chair
5. Scoop stretcher
6. Long spine board
7. Basket stretcher
8. Flexible stretcher

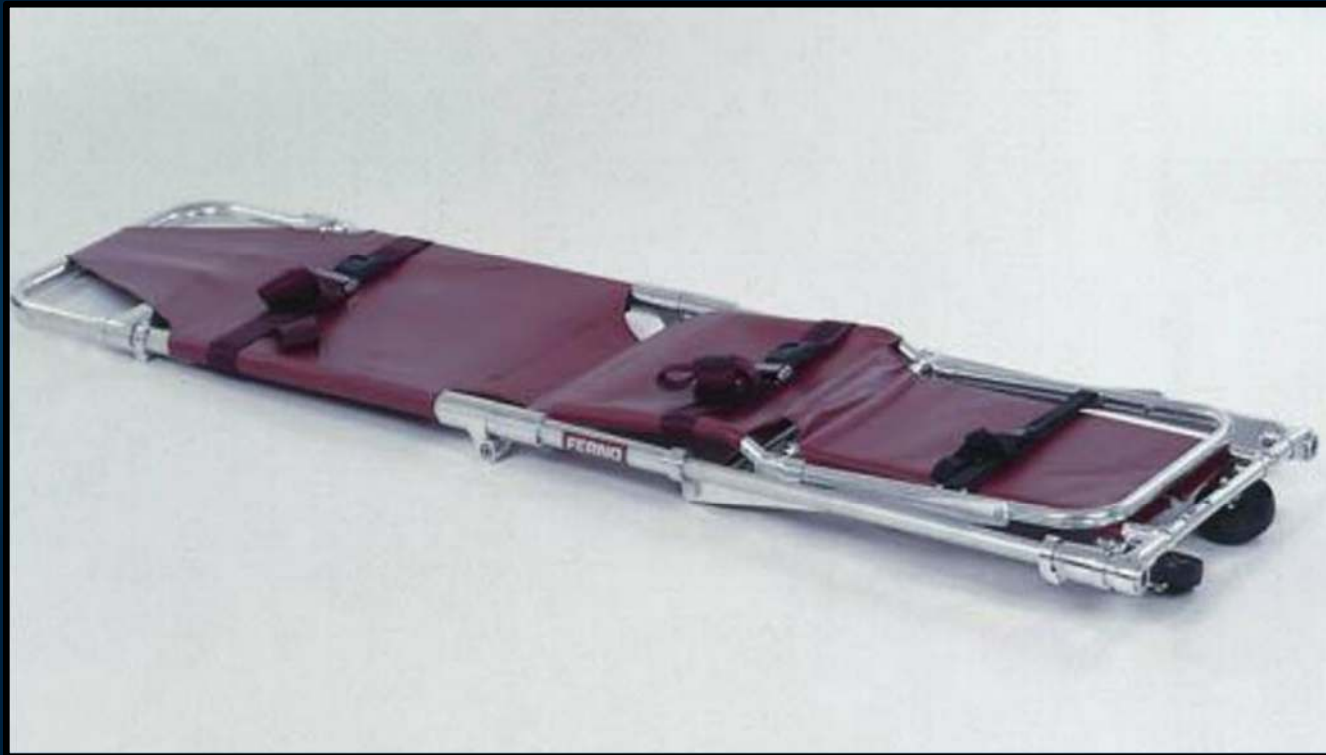
1. WHEEL CHAIR/ ARM CHAIR



2. WHEELED AMBULANCE STRETCHER



3. PORTABLE AMBULANCE STRETCHER



4. STAIR CHAIR



5.SCOOP STRETCHER



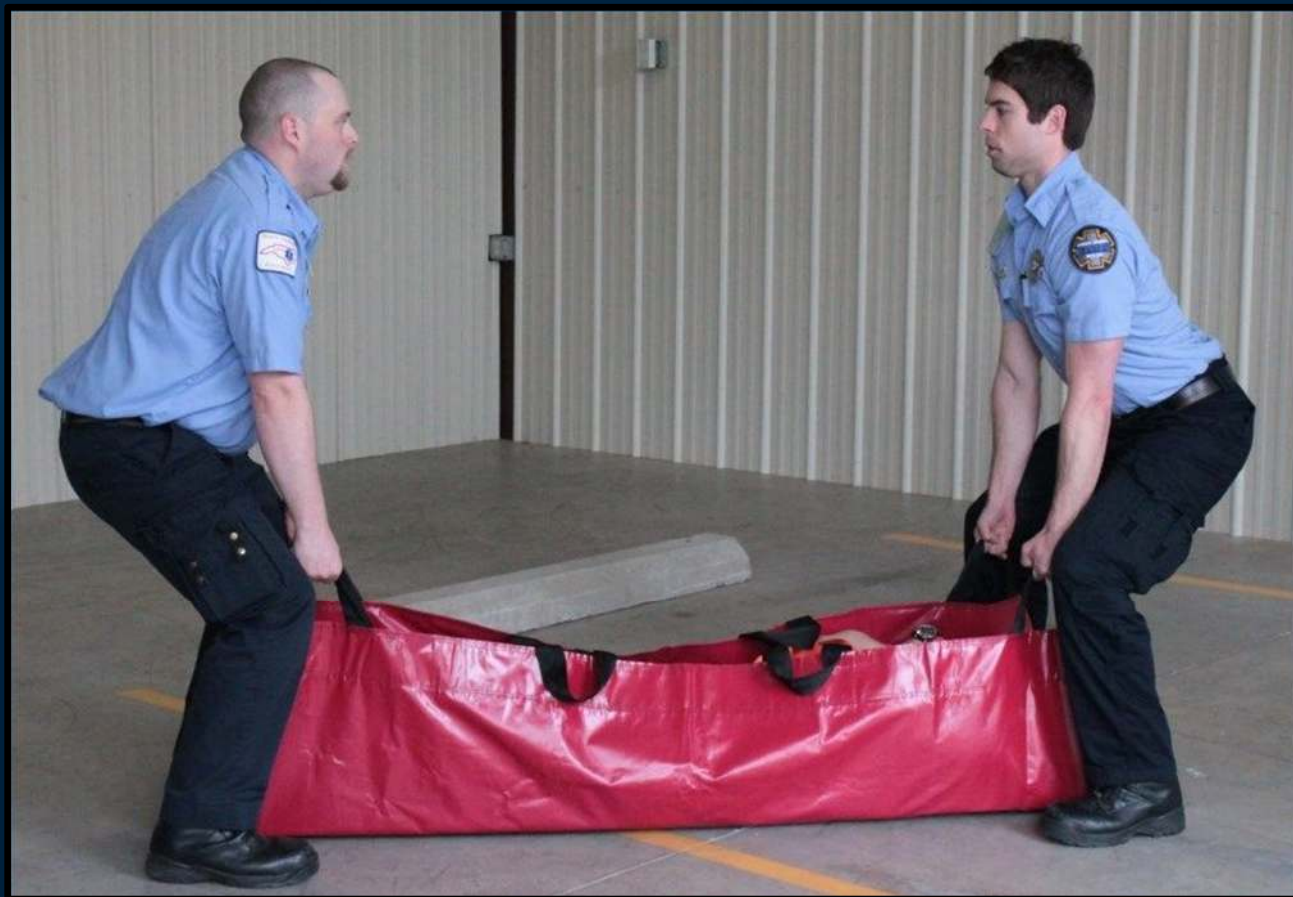
6.LONG SPINE BOARD:



7.BASKET STRETCHER



8.FLEXIBLE STRETCHER



INDICATIONS:

- ✓ Motor vehicle collision
- ✓ Elder people skid and fall
- ✓ Sports injuries
- ✓ Diving injuries
- ✓ Assault
- ✓ Fall >10 to 20 feet
- ✓ Motor cycle crash
- ✓ Rollover
- ✓ Hanging
- ✓ Drug or Alcohol intoxication

WITH SPINAL MOTION
RESTRICTION DEVICES

GENERAL INSTRUCTIONS IN MOVING AND LIFTING PATIENTS:

1. Plan the movement of the patient ahead of the time and be sure the path is clear.
2. Face the direction in which the movement will be made to avoid twisting.
3. The areas to be supported are head, shoulder and chest, hips, thighs and ankle.
4. Take the help of the worker and co-ordinate the movements
5. Unless contraindicated, encourage the patient to use his abilities as much as possible.

GENERAL INSTRUCTIONS IN MOVING AND LIFTING PATIENTS:

6. Use power grip

7. Always lock the wheels of the chair and stretcher

8. Avoid jerking and twisting during the lift

9. Find out how much the patient weighs. Know how much you can safely lift

10. Do not attempt to lift a patient who weighs over 250 lbs with fewer than four rescuers

BODY MECHANICS :

- Shoulder girdle should be aligned over the pelvis
- Feet shoulder-width apart
- Keep backs straight
- Lift with legs
- Keep weight close to the body
- Do not twist
- Grasp should be made with palms up



POWER GRIP

- A power grip gets the maximum force from your hands force from your hands
- Arms and hands face palm up
- Hands should be at least 10" apart.
- Curl fingers and thumb tightly over the top of the handle



POWER LIFT

- Tighten your back in normal upright position
- Spread your legs apart
- Grasp with arms extended down side of body
- Reposition feet
- Lift by straightening legs



EMERGENCY DRAGS

1. Clothes Drag
2. Blanket drag
3. Arm-to-Arm Drag
4. One-Person Rapid Extrication



5. One-Rescuer Drags, carries & lifts -Front cradle, Firefighters drag, One-person walking assist, firefighters carry, pack strap



Front cradle



Fire fighter's drag



One-person
walking
assist



Fire fighter's
carry



Pack strap

URGENT MOVES :

Used to move a patient who has potentially unstable injuries

Use the rapid extrication technique to move patients seated in a vehicle

Rapid Extrication Technique Extrication Technique is used in:

- Vehicle or scene is unsafe
- Patient cannot be properly assessed.
- Patient requires immediate care.
- Patient's condition requires immediate transport
- Patient is blocking access to another seriously injured patient

Rapid Extrication

- Provide in-line support and apply cervical collar.
- Rotate patient as a unit
- Lower patient to the backboard.



NON - URGENT MOVES :

Direct ground lift

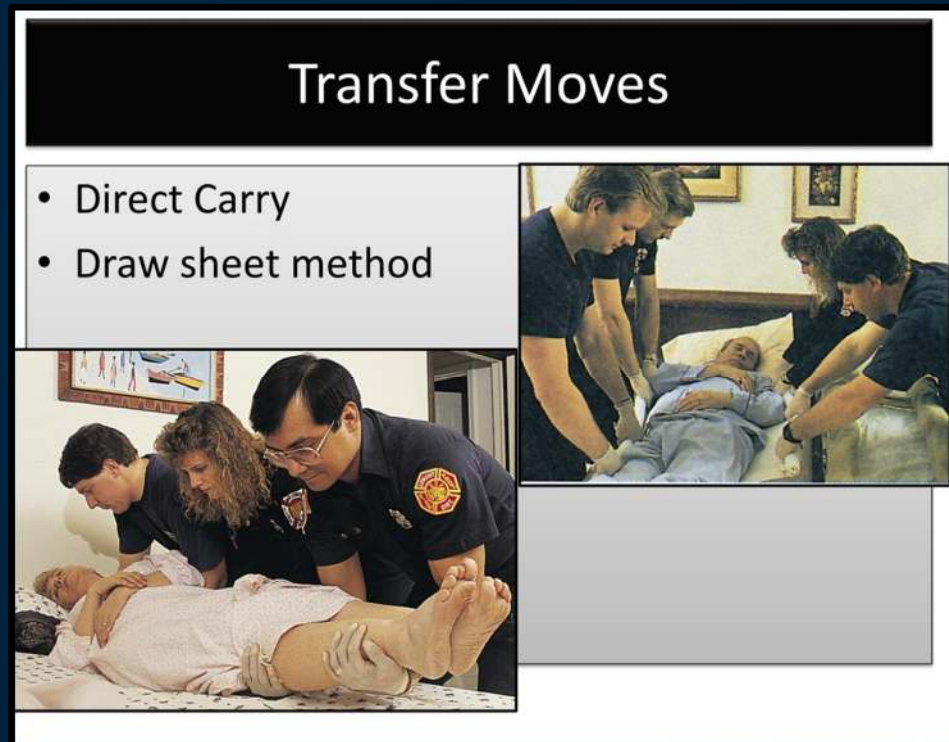


Extremity lift



Transfer Moves

- Direct carry
- Draw sheet method



SPECIAL CONCERNS :

- **Geriatrics**

- Emotional concerns –Fear
- Skeletal concerns– Osteoporosis,Rigidity,Kyphosis,Spondylosis
- Pressure sores
- Use special immobilizing techniques
- Be compassionate

- **Bariatrics**

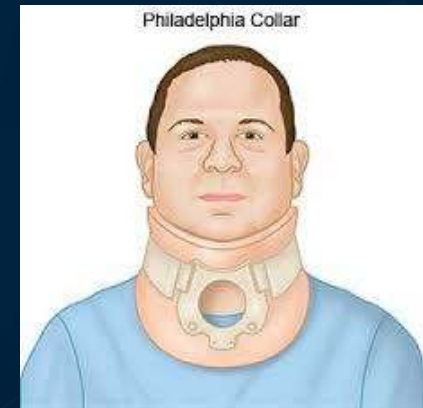
- ““Care of the obese”
- Increase in back injuries among among EMTs
- Manufacturing of higher capacity equipments
- Use proper lifting techniques



SPINAL MOTION RESTRICTION DEVICES

SPINAL MOTION RESTRICTION DEVICES :

- SMR can be achieved with a backboard, scoop stretcher, vacuum splint, ambulance cot, or other similar device to which a patient is safely secured.
- These devices are used to immobilize cervical spine and entire spinal column to prevent secondary injuries following trauma.



INDICATIONS FOR SMR FOLLOWING BLUNT TRAUMA:

- Acutely altered level of consciousness (e.g., GCS <15, evidence of intoxication)
- Midline neck or back pain and/or tenderness
- Focal neurologic signs and/or symptoms (e.g., numbness or motor weakness)
- Anatomic deformity of the spine
- Distracting circumstances or injury (e.g., long bone fracture, degloving, or crush injuries, large burns, emotional distress, communication barrier, etc.) or any similar injury that impairs the patient's ability to contribute to a reliable examination
- SMR should apply to the entire spine. This necessitates the use of an appropriately sized cervical collar.
- Patients should be removed from a long backboard, scoop stretcher, or vacuum mattress as soon as possible after arrival at the hospital.

SPINAL MOTION RESTRICTION DEVICES :

- The goal of spinal motion restriction is to reduce or prevent secondary injury to the spine during transport.
- SMR should be applied appropriately to those patients who have sustained or are at high risk for spine injuries and cannot be adequately assessed clinically for the presence of such injuries.
- Patient should be in SMR till cervical spine by a physician or advanced practice clinician in the ED or who do not meet SMR requirements.
- Patient should be removed from a long back board by traditional Log roll or lift and slide technique
- Always document pulse, motor function, sensation in the extremities before and after you move the patient in rapid extrication
- Appropriate cervical collar should be placed to reduce motion of the cervical spine

SPINAL MOTION RESTRICTION DEVICES AND TECHNIQUES:

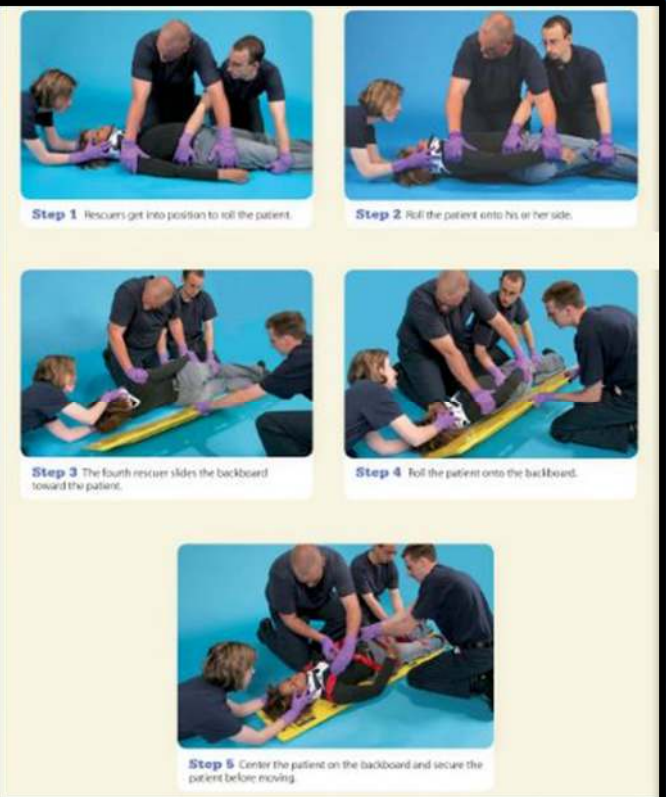
- Spine board
- Cervical collar
- Scoop stretcher
- Log roll

INDICATIONS OF SMR:

- SMR should be considered for the patients who fit the following criteria:
- Spinal deformity
- Spinal pain
- Spinal tenderness
- Blunt trauma and altered level of consciousness
- High energy mechanism of injury with drug or alcohol intoxication
- Focal neurologic complaint

LOG ROLL :

- One team member manually maintains cervical spine while one at the shoulders, one at the hips and one at the end legs log roll the patient 90 degrees.
- Once the patient is on his or her side, the backboard is slid away to the side of the patient.
- The patient is then log rolled back to the supine position.





Step 1 Rescuers get into position to roll the patient.



Step 2 Roll the patient onto his or her side.



Step 3 The fourth rescuer slides the backboard toward the patient.



Step 4 Roll the patient onto the backboard.



Step 5 Center the patient on the backboard and secure the patient before moving.



Straddle Slide



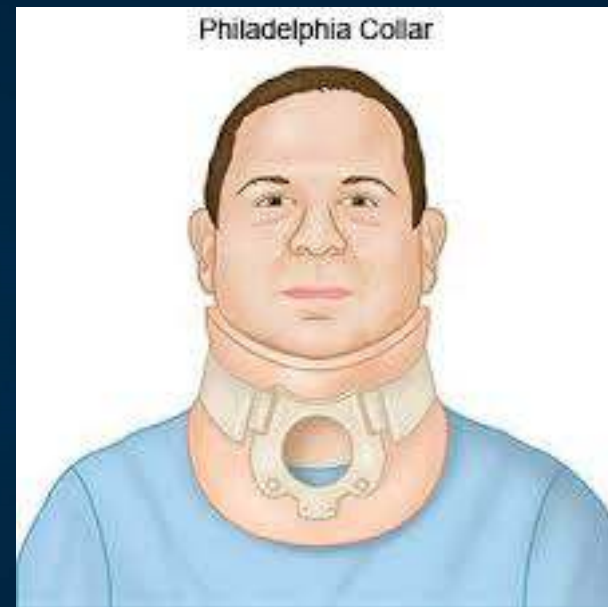
LIFT AND SLIDE TECHNIQUE:

- One team member manually maintains cervical spine ,while additional team members align on both sides of the long backboard at the shoulders,hips and legs and lift the patient four inches.while patient is lifted,another team member slides the backboard out from the foot end of the patient.
- Patient is then slowly lowered to a supine position



CERVICAL COLLAR :

- A Philadelphia collar is a neck brace used to prevent head and neck movement after a spinal cord injury. It supports your neck muscles and gives your spinal cord and ligaments time to heal. The collar is made of hard plastic, with Velcro straps to keep it closed.
- They are used to prevent neck flexion (forward movement), extension (backward movement) or rotation (sideways movement) of the cervical spine.



PHILADELPHIA COLLAR



PARTS

- Anterior and posterior struts, with molded mandibular and occipital support. Extends to upper thoracic region anteriorly and posteriorly

ADVANTAGES

- Restricts flex/extension due to chin and occiput support and thoracic extension

DISADVANTAGES

- Ineffective in controlling rotation and lateral bending
- Pressure over clavicle

CERVICAL COLLAR/PHILADELPHIA COLLAR



ÖSSUR ADJUSTABLE PHILADELPHIA® SIZING & FITTING GUIDE

HEIGHT ADJUSTMENT



Figure 1

Figure 2

NECK HEIGHT

With spine in desired alignment, place the chin-cup of the front to the patient's chin and slide the lower front down to the patient's sternum (Figure 1). Lift the front away from the patient and push the two tabs to lock the size (Figure 2).

SIZE ADJUSTMENT



Figure 3

Figure 4

CIRCUMFERENCE

Identify your patient's profile type according to the chart in (Figure 3). Adjust the circumference by tearing away sections of the back piece foam to change to a smaller circumference (Figure 4).

Warning: This collar is designed to be sized and locked into a single position only once; it is not intended to be resized.

Note: If you are familiar with the previous Philadelphia sizes you can use the size numbers marked on the front parts where 2 refers to 2 1/4", 3 refers to 3 1/4", etc. Simply slide the lower front down until the correct size number appears in the size window and lock.

APPLICATION



After adjusting the collar, apply the back piece of the collar to the back of the patient's neck. Center the collar. The back arrow should point upward.



Apply the front piece of the collar with the chin centered in the recess. The FRONT piece OVERLAPS the Back piece to ensure effective immobilization and comfort. The front arrow should point upward.



With Velcro® hook and loop fasteners, tighten the collar with a bilateral adjustment. Check that spine is in desired alignment.

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"Life Without Limitations"

CERVICAL COLLAR PLACEMENT :

- Establish manual stabilization by holding the head between the two hands of emergency care provider 1.
- Application of semi-rigid cervical collar is best accomplished when the patient is in a supine position
- If necessary emergency care provider 1 may attempt to reposition the head if the patient is unresponsive and not in a mid line neutral position.

CERVICAL COLLAR PLACEMENT :

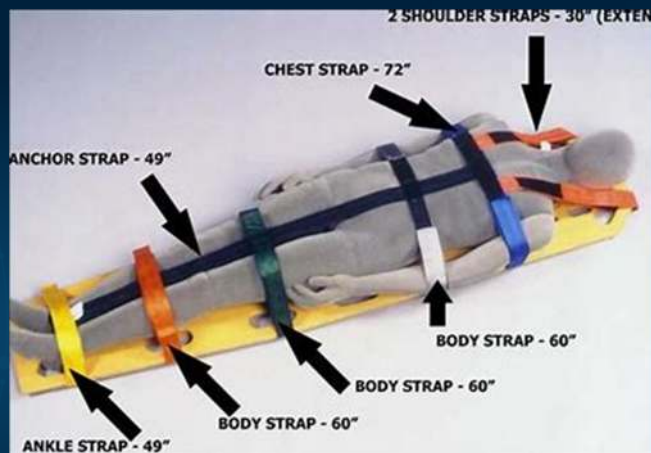
- Emergency care provider 2 measures the patient to identify an appropriate size semirigid collar. Although the angle of the mandible and the trapezius are the most common anatomical points for measuring the size of the collar needed, provider must refer to the individual manufacturer instructions for application. Emergency care provider 2 applies the cervical collar and secures in place.

SPINE BOARD /LONG BACK BOARD

- A spinal board, is a patient handling device used primarily in pre-hospital trauma care.
- It is designed to provide rigid support during movement of a person with suspected spinal or limb injuries.
- They are most commonly used by ambulance staff, as well as lifeguards and ski patrollers



SPINE BOARD:



APPLICATION OF SPINE BOARD

- Log rolling supine patient onto a long backboard
- Establish and maintain in-line manual stabilization while applying a semi rigid cervical collar
- With the long backboard positioned beside the patient ,emergency care providers 2,3 and 4 assume their positions at the patients side opposite to the board leaving space to roll the patient toward them
- Emergency care provider 1 or emergency care provider 2 may direct the other team members to roll the patient as a unit on to the side toward the emergency care providers

APPLICATION OF SPINE BOARD

- After assessing the patients posterior surface from occiput to heels ,the emergency care provider at the waist reaches over ,grasps the backboard and pulls it into position against the patient and rolled onto backboard
- Position patient mid line on the backboard and secure with straps
- Use head blocks to secure the patients head to the backboard after securing the body and extremities
- Transfer the patient and backboard as a unit to the stretcher and proceed to loading the patient into the ambulance

SCOOP STRETCHER :

The scoopstretcher (or clamshell, Roberson orthopedic stretcher, or just scoop) is a device used specifically for moving injured people. It is Ideal for carrying casualties with possible spinal injuries.

INDICATIONS :

Pelvic fracture
Bilateral femur fractures
Possible spinal injuries

CONTRA-INDICATION:

unconscious patient who does not have a possibility of spinal injury and who is breathing





APPLICATION SCOOP STRETCHER

- Separate the scoop stretcher into 2 halves
- Place on either side of the patient ,being careful not to pass the scoop stretcher directly over the patient
- Adjust height of 2 halves to match,ensuring the head and heels will be positioned in the scoop area
- Re-attach the head end of the scoop stretcher first,this may require repositioning the patient shoulder
- Carefully close the foot ends of the scoop stretcher so as to not pinch the patients posterior tissue,and reattach

APPLICATION SCOOP STRETCHER

- Secure the patient to scoop stretcher using appropriate number of straps to ensure patient safety while moving
- Patient should be transferred after confirming the head and foot ends are locked together
- Removal of the scoop stretcher is completed by reversing the steps of application
- Once removed the patient may be secured to the ambulance stretcher

TIME LIMIT IN SCOOP STRETCHER :

- The recommendation that the total duration spent on the scoop stretchers should not exceed 45 minutes is not based on any robust evidence; indeed tissue pressure injury can occur after a very short time frame in some frail patients.

REFERENCE

- From the book of International trauma life support for emergency care providers 8th edition
- Authors :John E. Campbell and Roy L. Alson



THANK YOU!!!



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