Chapter 4: Lifting and Moving Patients

Pre-Lecture

I. You are the Provider

Time: 10 minutes

Small-Group Activity/Discussion

Instructor Directions
1. Direct students to read the “You are the Provider” scenarios found throughout the chapter.
2. You may wish to assign students to a partner or group. Direct them to review the discussion questions at the end of the scenario and prepare a response to each question. Facilitate a class dialogue centered on the discussion questions.
3. You may also assign this as an individual activity and ask students to hand in their comments on a separate piece of paper.

Lecture

I. Lifting Techniques

Time: 7 minutes

Slides: 2-6

Lecture/Discussion

A. Body mechanics

1. When you stand upright, the weight of anything you lift and carry in your hands is transferred to your shoulder girdle, spinal column, pelvis, and legs.
2. When you are lifting, if your shoulder girdle is aligned over your pelvis and your hands are held close to your legs, the force exerted against your spine occurs in an essentially straight line down the strong stacked vertebrae in the spinal column.
3. With your back properly maintained in an upright position, little strain occurs against your muscles and ligaments and significant weight can be lifted and carried without injury to your back.
4. You may injure your back if you lift with your back curved and if you are bent significantly forward at the hips.
5. The first key rule of lifting is to always keep the back in a straight upright (vertical) position and to lift without twisting.

B. Power lift

1. Tighten your back in its normal upright position.
2. Position your feet about 15" apart and bend your legs to lower your torso and arms.
3. Grasp the stretcher or backboard with your hands held palms up.
4. Adjust your position to balance the weight.
5. Lift by straightening your legs until you are standing. Always keep the weight you are lifting as close to your body as possible.

C. Power grip

1. Gets the maximum force from your hands whenever you are lifting a patient
   a. The arms and hands have their greatest lifting strength when facing palm up.
   b. Your hands should be at least 10" apart whenever you grasp a litter or backboard.
   c. Each hand should be inserted under the handle with the palm facing up and the thumb extended upward.
   d. Curl your fingers and thumb tightly over the top of the handle.
   e. Make sure that the underside of the handle is fully supported on your curved palm.
   f. Never grasp a litter or backboard with the hand placed palm down over the handle.

D. General principles of lifting

1. Be aware of your own physical abilities and limitations.
2. Always consider the patient’s weight. Call for additional help if necessary.
3. Bend at your knees, not your waist.
4. Use your legs, not your back, to lift.
5. Keep the weight as close to your body as possible.
7. Keep your feet properly positioned and balanced to maintain your center of gravity.
8. Communicate clearly and frequently with your partner.
9. Evenly distribute the weight.

II. Carrying

Time: 4 minutes
Slides: 7-9
Lecture/Discussion

A. Whenever possible, carry and move patients on devices that can be rolled.
B. Make sure you understand and know the guidelines to carry patients on a stretcher, backboard, or other device.

C. Whenever possible, use four rescuers for a diamond carry.

D. Use a stair chair to carry a patient down stairs or other significant inclines.

E. Ensure that patient is securely strapped to the device and that sufficient manpower is available to lift and carry the patient, regardless of the device used.

III. Principles of Safe Reaching

A. When you use a body drag, the same basic body mechanics and principles apply as when lifting and carrying.

B. When reaching overhead, avoid hyperextending your back.

C. When pulling a patient on the ground, kneel to minimize the distance that you will have to lean over.

D. When pulling, extend your arms no more than about 15” to 20” in front.

E. Keeping your reach within the recommended distance, reach forward and grasp the patient so that your elbows are just beyond the anterior torso.

F. Reposition your feet so the force of pull will be balanced equally between both arms, and the line of pull will be centered between them.

G. Pull the patient by slowly flexing your arms.

H. When you can pull no further, stop and move back another 15” to 20”. When properly positioned, repeat the steps.

IV. Emergency Moves
A. Use an emergency move to move a patient before initial assessment if there is some potential danger and you and the patient must move to a safe place.

1. The only other time you should use an emergency move is if you cannot properly assess the patient or provide the immediate potentially critical emergency care necessary because of the patient's location or position.

2. If you are alone and danger at the scene makes it necessary to leave, drag the patient to safety by pulling along the long axis of his or her body.

3. Your primary concerns are the danger of aggravating an existing spinal injury.

B. Moving a patient on his or her back along the floor or ground

1. Pull on the patient's clothing in the neck and shoulder area.

2. Place the patient onto a blanket, coat, or other item that can be pulled.

3. Rotate the patient's arms so that they are extended straight on the ground beyond his or her head, grasp the wrists and, with the arms elevated above the ground, drag the patient.

4. Place your arms under the patient's shoulders and through the armpits.

5. While grasping the patient's arms, drag the patient backward.

C. Removing an unconscious patient from a car solo

1. First, move the patient's legs so they are clear of the pedals.

2. Rotate the patient so his or her back is positioned facing the open car door.

3. Place your arms through the armpits and grasp either the patient's forearms or your own forearms.

4. Support the patient's head against your body.

5. Drag the patient from the seat to a safe location.

6. If the legs and feet do not clear the car, slowly lower the patient until he or she is lying on his or her back next to the car, clear the legs, and use a long axis body drag to move the patient.

V. Urgent Moves

Time: 7 minutes

Lecture/Discussion

A. May be necessary for patients with an altered mental status, inadequate breathing, or shock (hypoperfusion)

B. When a patient sitting in a car or truck must be urgently moved, use the rapid extrication technique.

C. Rapid extrication technique
1. If you used the rapid extrication technique because the scene was dangerous, immediately move the cot a safe distance away from the vehicle before you assess or treat the patient.

2. Steps of the rapid extrication technique must be considered a general procedure to be adapted as needed.
   a. Provide in-line manual support of the head and cervical spine.
   b. Apply a cervical collar and perform the initial assessment.
   c. Provide continuous support of the patient's torso until the patient is on the backboard. Rotate the patient's legs and feet to ensure they are free of obstructions.
   d. Rotate the patient in short, coordinated moves.
   e. Support the neck and lower patient onto a long spine board.
   f. Slide the patient along the backboard until the hips rest on the backboard.
   g. Continue to slide the patient until he or she is completely on the backboard.
   h. Maintain stabilization and carry the patient away.

VI. Geriatrics

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A. Skeletal changes and spinal curvatures present special challenges in packaging and moving older patients.

B. Many patients cannot lie supine on a backboard.

C. Consult local protocols and medical direction about alternative immobilization techniques.

VII. Bariatrics

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A. Although equipment manufacturers are producing equipment with higher weight capacities, this does not address the danger to the users of that equipment.

B. Take great care in the proper lifting and moving techniques when lifting obese patients to reduce the risk of injury, and call for help if needed.

IX. Skill Drills

Time: 40 minutes

Demonstration/Group Activity

NOTE: Remember to maintain an adequate instructor-to-student ratio. A ratio of one instructor to six students is recommended by the U.S. DOT Paramedic National Standard Curriculum. Also remember that each student is to be evaluated on each skill before completing the course.

Purpose

To allow students the opportunity to observe, practice, and perform patient care skills associated with lifting and moving patients

Materials Needed

1. Patient-carrying devices (backboards, gurneys, scoop stretcher, basket stretcher, stair chair, bed sheets, flexible stretcher, folding stretcher)
2. Patient-securing devices (straps, tape, belt, gauze rolls, etc.)
3. Cervical collars (assorted sizes)

Instructor Directions

1. Demonstrate each skill, emphasizing any critical points or procedures.
2. Based on the specific skill, assign each student to a partner or team. Provide each partner/team with necessary equipment or materials.
3. Direct students to practice each skill, using team members as patients and observers. Closely monitor the practice sessions and provide constructive comments and redirection.
4. As individual students achieve success, conduct skill proficiency exams. Students who fail the exam should be given redirection and opportunity to practice before being retested.

Skills

A. Power Lift (Skill Drill 4-1)
B. Using a Stair Chair (Skill Drill 4-2)
C. Carrying a Patient on Stairs (Skill Drill 4-3)
D. Rapid Extrication Technique (Skill Drill 4-4)
Post-Lecture Prep Kit

Time: 15 minutes

Individual/Small-Group Activity/Discussion

Assessment in Action

This activity allows the student an opportunity to analyze an emergency care scenario and develop responses to critical-thinking questions. As time permits, this activity may be presented in class or used as homework.

Instructor Directions

1. Direct students to read the Assessment in Action scenario located in the Prep Kit.
2. Direct students to read and individually answer the quiz questions at the end of the scenario. Facilitate a class review and dialogue of the answers, allowing students to correct responses as may be needed. Use the quiz question answers noted here to assist in building this review.
3. You may also wish to assign these as individual activities and ask students to turn in their comments on a separate piece of paper.

Answers to Multiple-Choice Questions

You are on scene with an obese patient complaining of dyspnea. The patient is over 500 pounds. The fire department is also there to provide assistance.

1. Which of the following is considered the most powerful and safest way to lift?
   A. Power grip
   B. Power lift
   C. Curls
   D. Stair chair
   **Rationale:** B. The power lift; lifting by extending the properly placed flexed legs is considered the most powerful and safest way to lift

2. Which of the following is considered proper body mechanics when using a body drag?
   A. Keep your back locked and straight.
   B. Avoid any twisting.
   C. Avoid hyperextending your back.
   D. All of the above
   **Rationale:** D. When you use a body drag to move a patient, the same basic body mechanics and principles apply as when lifting and carrying.
3. When there is potential danger, which of the following methods should be used to move a patient before initial assessment and care are provided?

A. Alternate move  
B. Emergency move  
C. Nonurgent move  
D. Rapid extrication technique  

**Rationale:** B. An emergency move is used when you and the patient must move to a safe place to avoid serious harm or death. The only other time is if you cannot properly assess the patient or provide immediate critical emergency care because of the patient's location or position.

4. When transporting a geriatric patient, one concern is brittle bones or ________.  

A. osteoporosis  
B. kyphosis  
C. spondylosis  
D. none of the above  

**Rationale:** A. Osteoporosis = brittle bones, kyphosis and spondylosis = spinal curvatures

5. What branch of medicine is concerned with the management of obesity and associated diseases?  

A. Osteorthotics  
B. Bariatrics  
C. Iatrogenics  
D. Obstetrics  

**Rationale:** B. Americans are becoming so large that a new field of medicine has been named for the care of the obese called bariatrics.

**Challenging Questions**

6. Lifting and moving are dynamic processes. What is meant by this?  

**Rationale:** Dynamic means constantly changing. When lifting and moving a patient, you must constantly work together to keep the patient upright and to make sure the move is accomplished smoothly and efficiently and none of the rescuers is injured during the move.

7. What is the purpose of pulling a patient along the long axis of the body when you must perform an emergency move?  

**Rationale:** It helps to keep the spinal column aligned as much as possible. It is impossible to remove a patient quickly from a vehicle while providing the spinal immobilization they would get by using an immobilization device, but by proceeding cautiously you can minimize further damage.

**Lesson Review**

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**Time:** 10 minutes  

**Discussion**
NOTE: Facilitate the review of this lesson’s major topics by using the review questions as directed or overhead questions. Answers are found throughout this lesson plan.

A. What is the first rule of lifting?
B. Describe the power grip.
C. Where is the largest percentage of patient weight when horizontal?
D. What are the safety considerations for lifting a patient over 250 pounds?
E. What is the furthest distance an EMT-B should reach?
F. When do you use an emergency move?
G. When do you use an urgent move?
H. What are the common nonurgent moves?

Assignments

Time: 5 minutes

Lecture

1. Review all materials from this lesson and be prepared for a lesson quiz to be administered (date to be determined by instructor).
2. Read Chapter 5: Airway for the next class session.