

**MEDAVIE**

**HealthEd**

College of Paramedicine

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# LIFTING AND MOVING PATIENTS

Advanced Care Paramedicine

Module: 02

Section: 01e

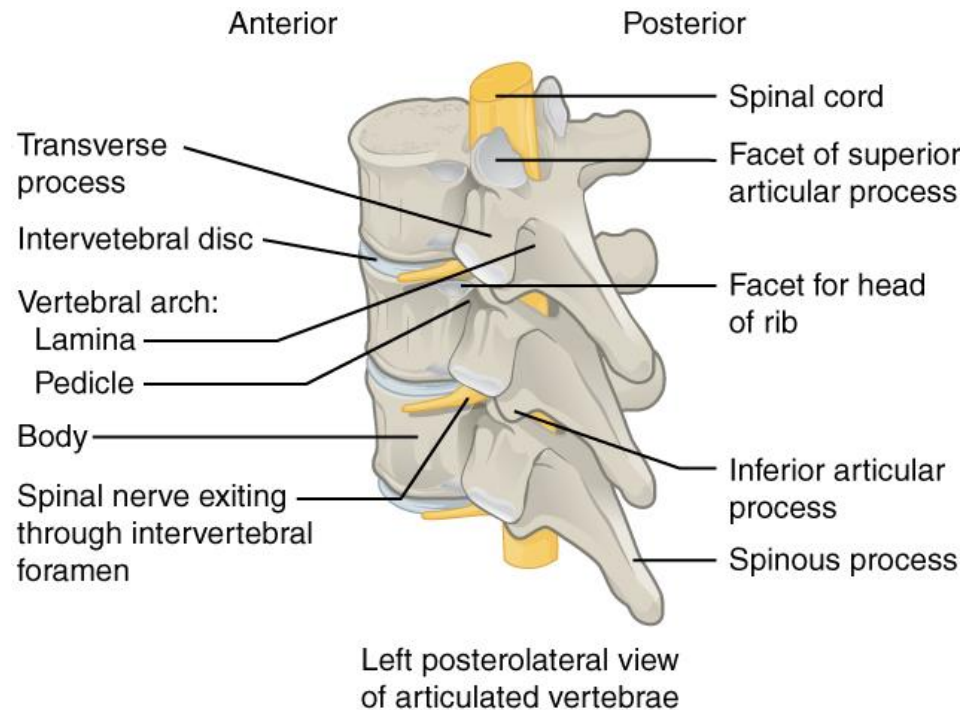
- Introduction
- Body Mechanics
- Principles of Moving Patients
- Equipment

- In addition to emergency care, patients may require safe:
  - Lifting
  - Handling
  - Transportation
- Patients should not be subjected to unnecessary pain or discomfort as a result of your care

- Paramedics are required to lift patients and equipment every shift
- Correct technique and practice will allow for a longer and healthier career
- 62% of prehospital providers back injuries result from lifting Patients (Hogya, PT 1990)
- Injuries are due to 3 major factors:
  1. Significant lifting force (Pt weight)
  2. Repetitive movements
  3. Awkward positions

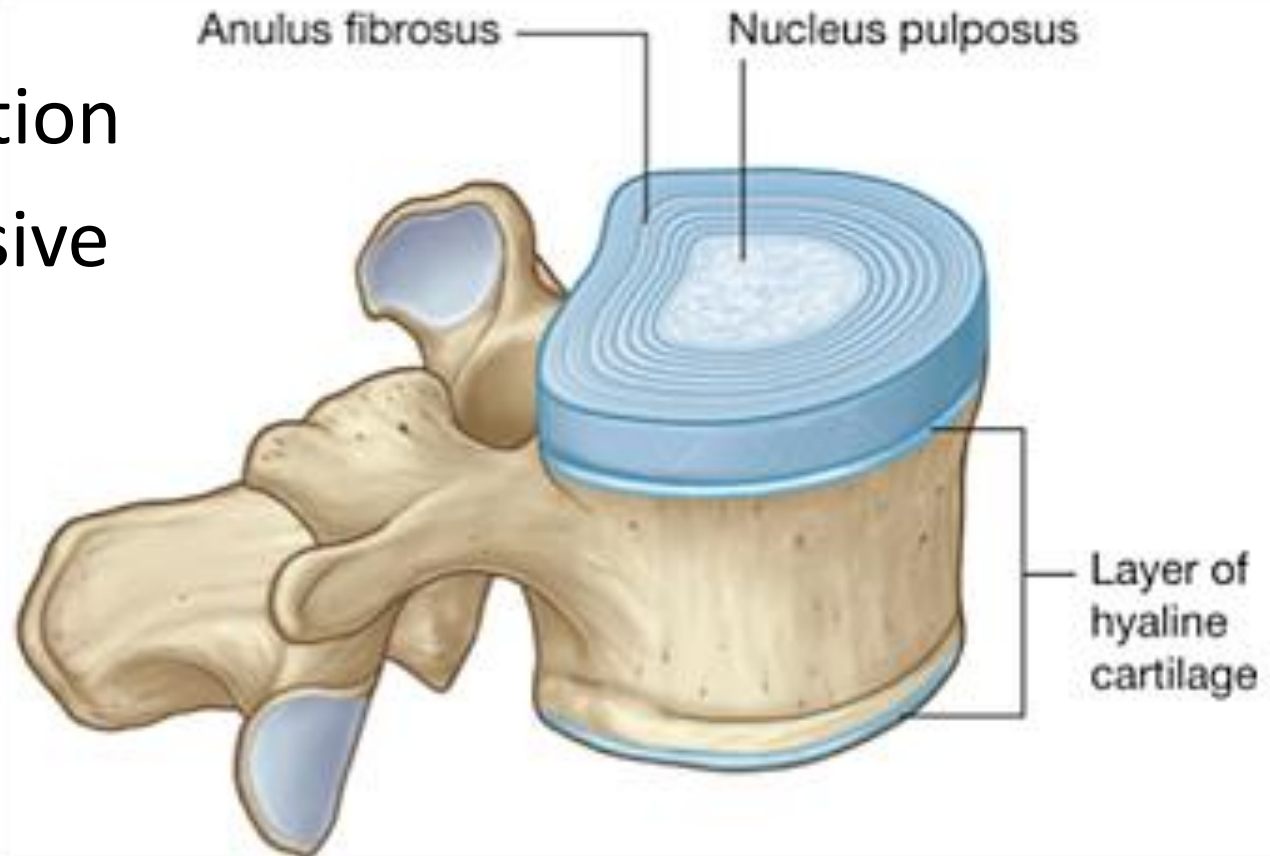
# Supporting the vertebrae:

- The back is a complex structure of bone and muscle, supported by cartilage, tendons and ligaments, and fed by a network of blood vessels and nerves.



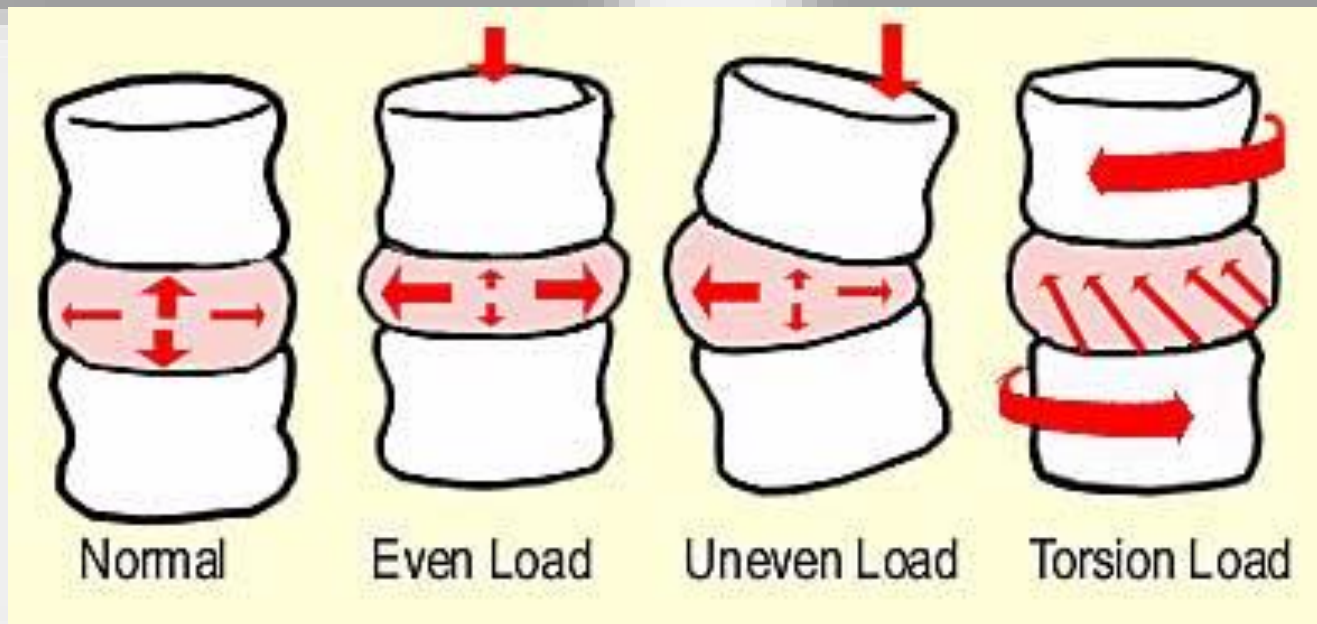
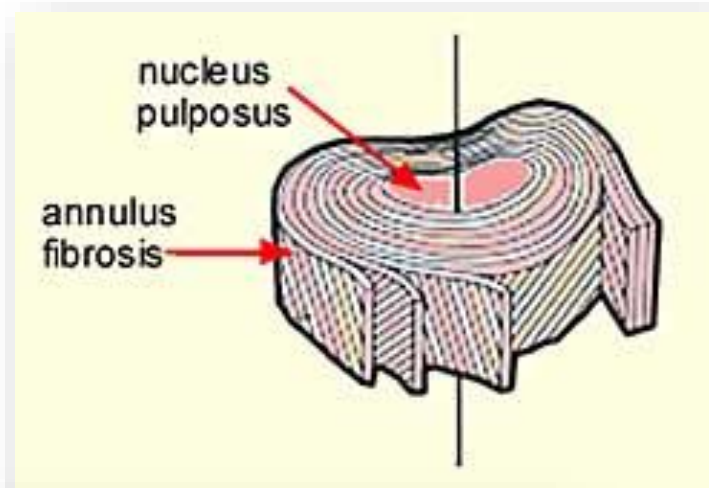
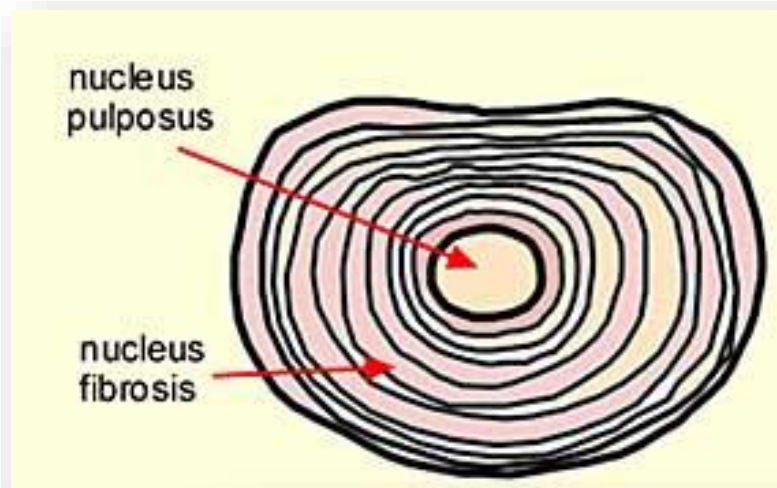
# Functions of the Disc

- Shock absorber
- Spacer
- Reduces friction
- Limits excessive movement

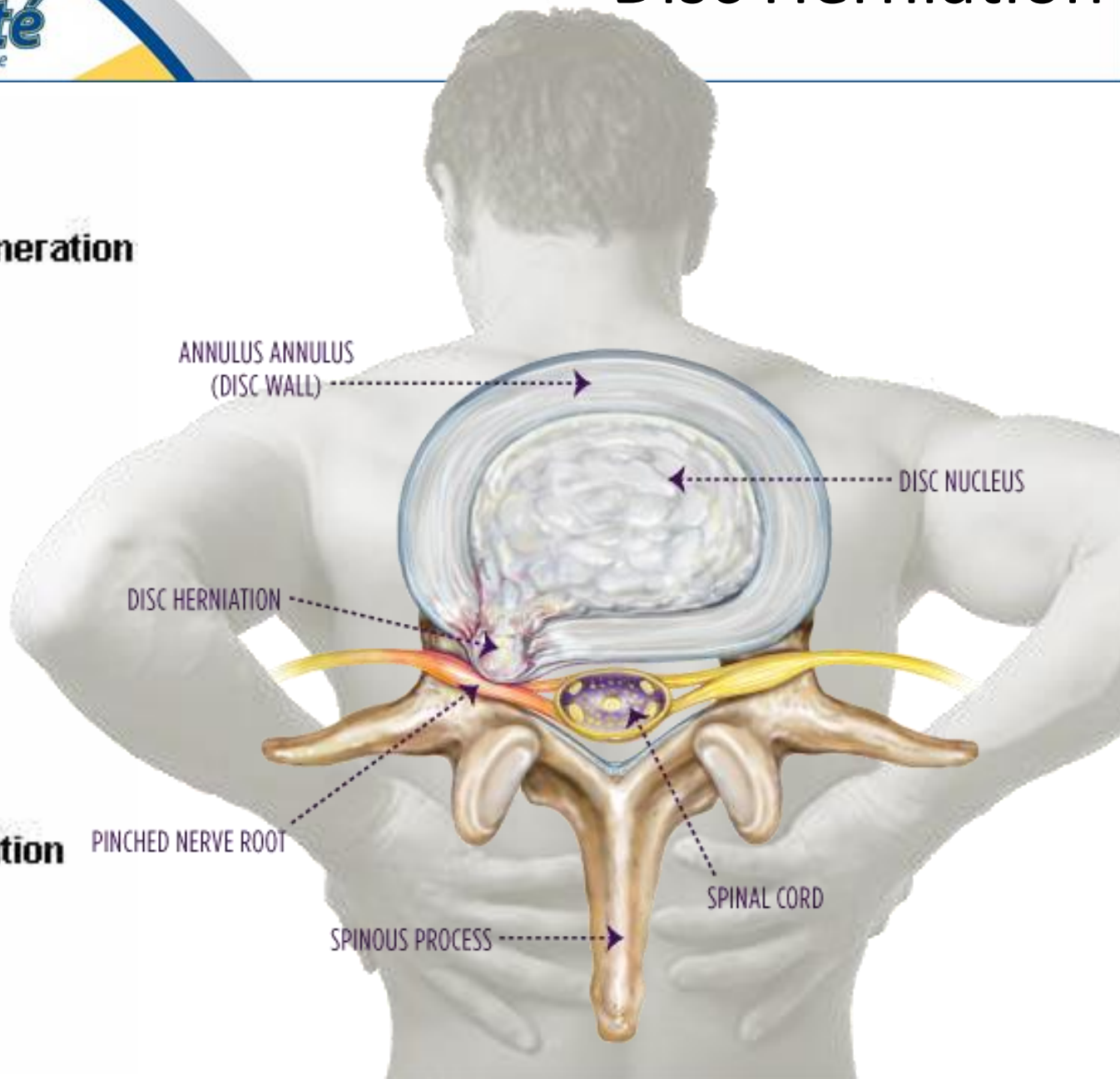




# Intervertebral Discs



# Disc Herniation





- Use your legs not your back to lift
- Keep the weight of the object as close to your body as possible
- Stack up your posture
- Reduce the height or distance you need to move the object

- All members should be trained in similar techniques
- Ideally partners should have adequate and equal strength
- Communication is critical
- Use commands that are easy for the team to understand

- Before moving a load either on your own or as part of a team;
  - Plan – your manoeuvre
  - Prepare – your route, equipment etc.
  - Position – stable & mobile base
  - Perform – in a safe manner
- Ensure each team member is fully aware of the plan and it's within their individual capability

- Allows for maximum control while raising or lowering a stretcher
- Hands ~25 cm apart
- Fingers completely wrapped around bar





- Place feet a comfortable distance apart
- Turn feet slightly outward
- Bend knees (should feel like sitting not falling)
- Tighten muscles of back and abdomen
- Keep feet flat, weight evenly distributed
- Place hands a comfortable distance apart (~25 cm)
- Use a power grip
- Back should remain locked









- Lift in unison, keeping your back locked, knees bent, and feet flat

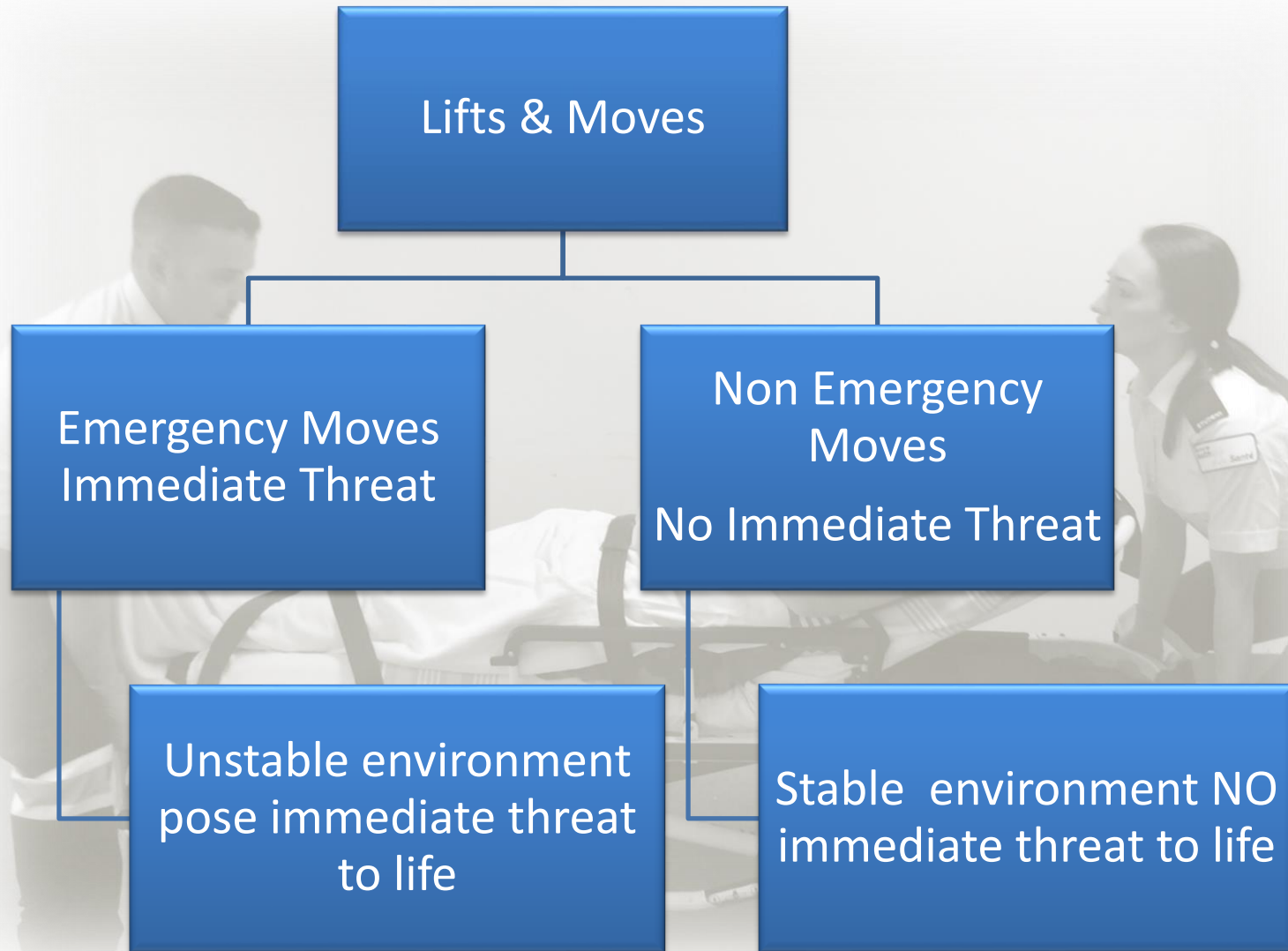
- Much overlooked part of body mechanics
- Poor posture can easily tire the back and abdominal muscles
- Awareness
  - Vertical alignment when standing
  - Even weight distribution when sitting
  - Fitness



Lifting and Moving Patients

# PRINCIPLES OF MOVING PATIENTS

# Types of Lifts and Moves



- An unstable or unsafe scene may require that the patient gets moved before emergency care can begin
- Occurs when the immediate danger outweighs the potential harm to the patient by moving them

- Fire or threat of fire
- Explosion or threat of explosion
- Inability to protect the patient from the hazards of the scene
- Inability to gain access to patients who need life-saving care
- When life saving care cannot be given due to patient location





**FIGURE 1-21** Shirt drag.



**FIGURE 1-22** Blanket drag.



**FIGURE 1-23** Shoulder drag.





**FIGURE 1-24C** One-rescuer crutch.

- Generally performed with other rescuers
- Require no equipment
- Should not be used with spinal injured patients
- Commonly used to transfer patients to stretcher



- Independent Transfer
  - Patient is able to perform all aspects of transfer ie sit up in a safe manner without assistance
- Assisted Transfer
  - Patient actively participates, but also requires assistance
- Dependant Transfer
  - Patient does not participate actively or very minimally. Care providers perform all aspects of the transfer.

- Pivot or slide. Do not twist
- Make sure step path is clear
- Properly position chair, bed or stretcher
- Transfer patient to stronger side
- Bend your knees, use legs when lifting. Do not lift with straight legs.
- Have patient assist as much as possible
- Provide clear directions to the patient on what you are about to do.

- Use draw sheet for bed mobility if patient can only minimally assist
- Adjust bed height to make transfers easier
- When ever possible, use your body weight and momentum to move patient rather than “muscle” the patient up.
- Place feet shoulder width apart or one foot in front of the other to make a wide base
- Do not lean over patient
- When/where available use mechanical lifting devices

- Assisted transfer for
  - Chair, bed, wheelchair and stretcher
- Requires one clinician
- Clinician grabs around Pt hips, Pt grabs shoulders.
- Do not allow Pt to place arms around neck
- Use momentum to bring patient forward
- Pivot, not twist toward intended target



# Stretcher to bed

- Always check first if Pt is able to move over on own.
- Use sheets to slide patient over
- Use at least four clinicians for move
- Someone needs to coordinate and call the move.
- Move in sync
- NEVER leave the side rail down when complete





- Indicated for immobile patients
- Use draw sheet
- Minimum three clinicians
- Slide patient to edge of bed
- Clinician(s) on bed side hop up on bed for final move
- Clinician to call move/ in sync

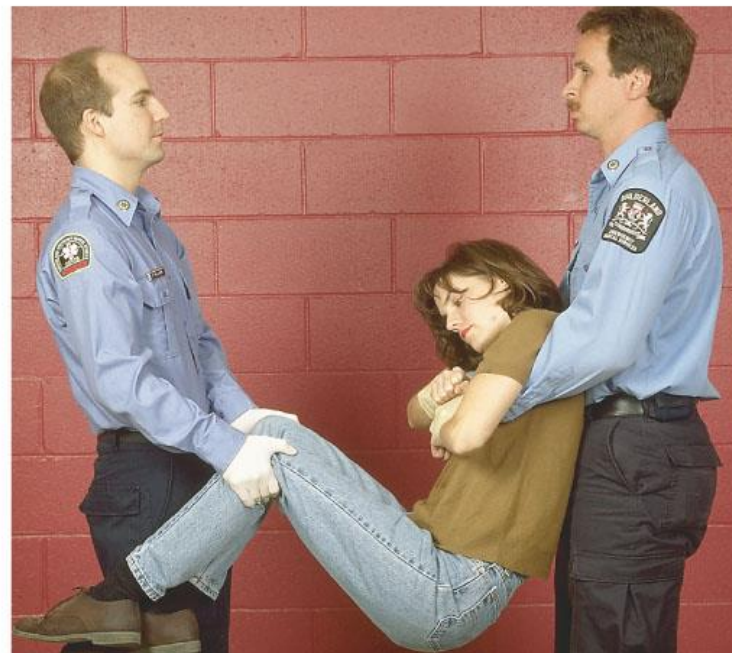


- Also known as the “Fore and Aft Lift”
- Used to move from a chair or floor to a stretcher
- Should not be used if patient has arm or leg injuries
- Requires two rescuers

- Take a position at the patient's head. The other rescuer should kneel at the patient's knees
- Place hands under the patient's shoulders and grasp their wrists
- Second rescuer should place hands under the patient's knees
- Lift to the desire height



**FIGURE 1-27A** Move up to a crouch and then to the standing position.



**FIGURE 1-27B** Get in position at the head and feet of the patient.

Lifting and Moving Patients

# EQUIPMENT



- Generally the best way to move a patient is the one that will cause the least pain
- Decision based upon:
  - Patient condition
  - Environment
  - Resources available
- Let your equipment do the work

# Patient Moving Equipment

## Patient Moving Equipment

Stretchers

Stair Chair

Backboard

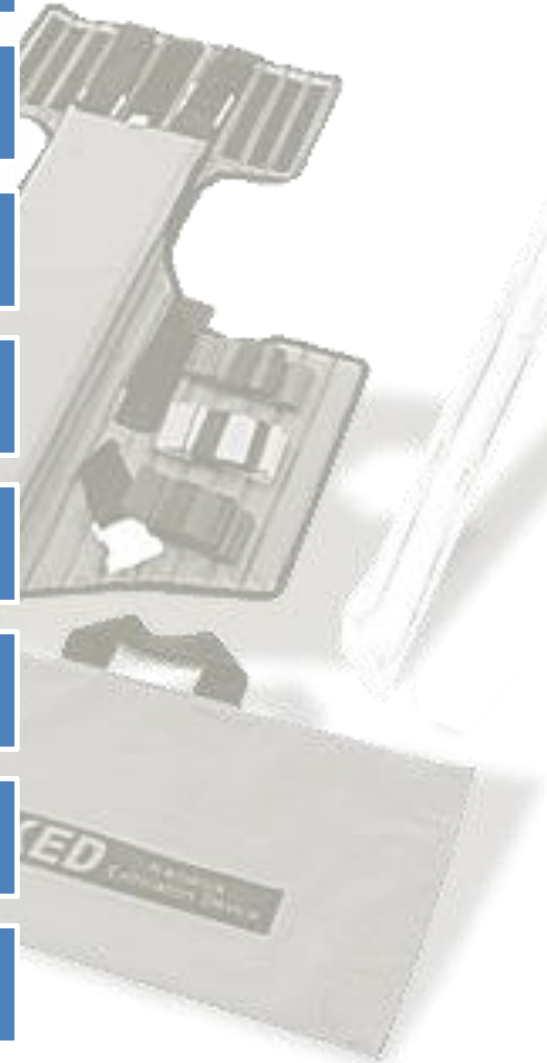
Wheel chair

Vest Type Immobilization  
Device (AKA "KED")

EZ Slider

Hover Matt & Jack

Transfer Belt



- Standard stretcher
  - Wheeled legs with a collapsible undercarriage
  - May be loaded into ambulance
- Powered Stretchers
  - Similar to standard model but with rechargeable battery that allows the stretcher raise and lower
- Portable stretcher
  - Does not have an undercarriage or wheels
  - Mostly used by air ambulance or disaster caches

- Bariatric Stretcher
  - Designed to transport pt between 600 to 1200 lbs.
- Scoop stretcher
  - Splits into two or four sections to be fitted around patient

# Standard Stretchers





# Portable Stretcher



# Powered Stretchers



# Bariatric Stretcher



# Scoop Stretcher

- Often used for:
  - Spinal immobilization
  - Tight extrications
  - Taking unconscious patients up/down stairs





- Unless there is a life-threatening emergency, patients should not be moved until a primary assessment is complete
- Patients in shock may benefit from having legs elevated
- Patients with pain or breathing problems may need to sit up
- Conscious patients should be placed in a position of comfort
- Unconscious patients should be placed in recovery position



# Stretcher Positioning



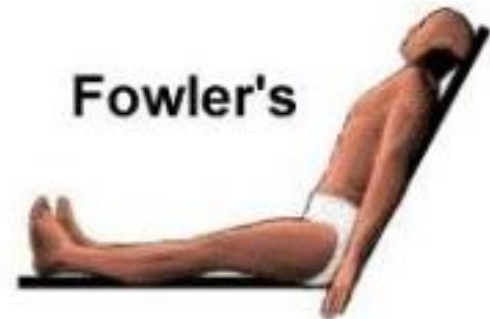
**Supine**



**Left Lateral Recumbent**



**Prone**



**Fowler's**



**Right Lateral Recumbent**



**Trendelenberg**

- Most stretchers have release handles on one side and the end
- Position patient
- Secure equipment
- Communicate with patient and partner
- Reassess patient after the lift

- Check Equipment
  - Daily inspection for wear and tear
  - Checking straps/buckles, mattress, frame, levers, wheels.
- Secure Patient
  - ALL straps must be applied including shoulder harness
- Maintain Situational Awareness
  - Always scan your environment / being familiar
- Communicate with Partner
  - Verbalize actions, acknowledge understanding

# STRETCHER SAFETY

**RULE OF FOURS:** PLEASE FOLLOW THESE  
RULES WHEN USING A STRETCHER

**4**

## **FOUR EYES**

Two people looking at each other and communicating

**4**

## **FOUR HANDS**

Use **FOUR** hands when using the stretcher on uneven ground

**4**

## **FOUR STEPS**

Scan the ground surface every **FOUR** steps (holes, rocks etc.)

**4**

## **FOUR WHEELS**

Look at all **FOUR** wheels during ground scan

Stretcher Safety



# Uneven Surfaces





- Patient movement up and down stairs dramatically increased risk of injury
- Stair chair provides the safest means
- Light weight folding device
  - Wheeled
  - Straps
  - Grab bar below patient's feet
  - Handles





- Patient movement up and down stairs dramatically increased risk of injury
- Stair chair provides the safest means
- Light weight folding device
  - Wheeled
  - Straps
  - Grab bar below patient's feet
  - Handles
  - Tracks for descent (only)





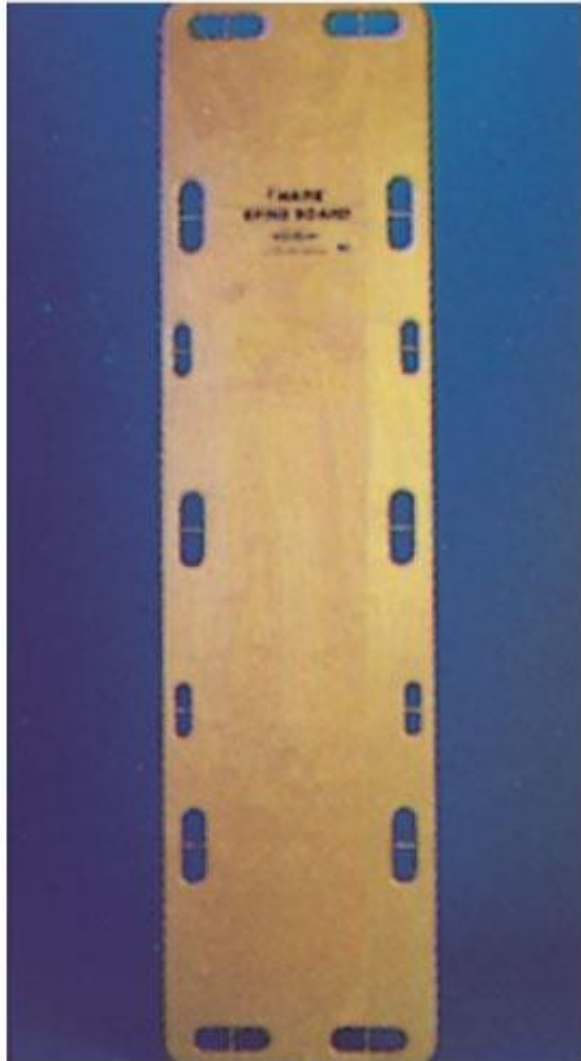
- Use as many people as required
- Use a spotter
- Backs in a locked position
- Flex at hip, bend at knees and keep arms close to body



**FIGURE 1-32B** Moving a patient up steps with a third rescuer as spotter.



**FIGURE 1-32C** Moving a patient down steps with a third rescuer as spotter.



- Utilized for patients with suspected spinal injuries
  - Feature handholds and straps
  - Newer models made of synthetic material that does not absorb blood
- Long backboard
  - ~2 m long, used to stabilize entire spine
- Used for taking unconscious patients up/down stairs.



- Always lock breaks
- Swing away/remove leg rests to position the chair in close proximity to the patient
- If leg rests can't be removed, elevate foot plates for transfer
- Remove arm rests if needed



# Vest Type Immobilization Device



- AKA “the KED”
- Extrication from
  - Vehicles
  - Tight places
- Fully immobilize Peds patients
- Also flipped upside down to immobilize hip fractures.



- Indication – Dependant transfers
- Friction reducing
- Place under draw sheet
- One clinician pushes while the other pulls on the draw sheet
- Patient slides over to the other bed



# Hover Matt & Jack



- Hover Matt – air filled mattress assist with transferring the pt.
- Hover Jack – Multi cell mattress used for lift and transferring patients
- Used in Bariatric calls



- Indication – Assisted transfers
- AKA Gait belt
- Fits around pt. has handles for clinician to grab onto

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