

# Proper Body Mechanics



# Body Mechanics

- ◆ The use of one's body to produce motion that is safe, energy conserving, and anatomically and physiologically efficient and that leads to the maintenance of a person's body balance and control

# Benefits of Proper Body Mechanics

- ✦ Conserve energy
- ✦ Reduce stress and strain to muscles, joints, ligaments, and soft tissues
- ✦ Promote effective, efficient respiratory, and cardiopulmonary function
- ✦ Promote and maintain proper body control and balance
- ✦ Promote effective, efficient, and SAFE movements

# Causes of Back Injuries

- ◆ Increase force/stress
  - ◆ Repetitive motion/twisting
  - ◆ Forward bending
  - ◆ Poor or improper lifting techniques
  - ◆ Poor posture
  - ◆ Poor job design
  - ◆ Poor physical fitness
- 

# Causes of Back Injuries

- ◆ Overweight
- ◆ Smoking
- ◆ Poor nutrition
- ◆ Stress



# Mechanics: Poor Posture

- ✦ One of the main reason that injuries occur
- ✦ Means that the spine's normal curves are exaggerated or decreased creating stresses and strains in the tissues
- ✦ The result is pain and dysfunction and can lead to serious injury

# Mechanics: Forward Bending

- ◆ Forward bending can over stretch the low back muscles to the point where they can lose strength to protect the spine from injury
- ◆ The ligaments are also weakened
- ◆ Can increase stress on the discs
- ◆ Range of the bend and time spent in the position can determine amount of damage

# Mechanics: Twisting

- ◆ Repetitive twisting can do damage to the spine
- ◆ It over stretches ligaments and muscles causing weakness
- ◆ Can damage discs especially combined with bending



# Mechanics: Poor Job Design/Ergonomics

- ✦ Injury can occur when:
  - Moving a load too heavy
  - Moving a load too often
  - Moving a load too far
  - Twisting with a load
  - Work too far too reach
  - Cold temperatures
  - Vibration
  - Improper chair/equipment

# Mechanics: Poor Work Habits

- ✦ Poor Positions
- ✦ Poor Movement
- ✦ Improper lifting habits
- ✦ Make the job more difficult
- ✦ Repetitive twisting and bending



# Mechanics: Poor Physical Fitness

- ✦ Decreased oxygen delivery to muscles can cause muscles to wear down and lead to weakness



# Mechanics: Overweight & Smoking

- ✦ Creates extra work for the spine
- ✦ Leads to excess fatigue and wear/tear in the body
- ✦ Nicotine damages connective tissue decreasing circulation and oxygen in the blood which affects muscle strength



# Mechanics: Nutrition & Stress

- ◆ Muscles need protein to repair worn musculoskeletal tissue
- ◆ Bones need minerals for strength
- ◆ Stress stiffens and weakens back muscles and increases pain sensitivity



# Body Mechanics: Quick Tips

- ✦ Think about what you are doing
- ✦ Know your work environment
- ✦ Know the tools available
- ✦ Know how to use the tools



# Quick Tips.....

- ✦ Bend knees
- ✦ Use legs
- ✦ No twisting
- ✦ Avoid long distances
- ✦ Keep objects close to you



# Proper Lifting Techniques

- ✦ Stand with feet apart one foot slightly ahead of the other
- ✦ Wide stance helps balance during lifting
- ✦ Squat down keeping back straight, keep chin tucked, and lift smoothly
- ✦ Keep objects close to you
- ✦ Bend your knees and hips using legs to lift



# Proper Lifting Techniques

- ✦ Maintain lumbar curve
- ✦ Do not twist or bend sideways
- ✦ Face the object you are picking up
- ✦ If changing direction, do not twist, pivot with your feet
- ✦ If you reach over shoulder level, raise onto a low step to get closer to the object



# Proper Lifting Techniques

- ✦ Push rather than pull
- ✦ Pushing is much easier for your back
- ✦ Stabilize hands on the object, keep back in extended position, and do all the pushing and moving with your legs
- ✦ Take your time! Hurrying causes muscles to contract inappropriately and increases chance of injury

# Proper Lifting Techniques

- ✦ Change stressful positions often
- ✦ If you are sitting too long: Stand
- ✦ If you are standing for too long: stop and squat
- ✦ Carrying an object: hold the load close to the body



# Prevention

- ◆ Keep muscles and joints flexible
- ◆ Exercise to decrease weight
- ◆ Stay in shape
- ◆ Increase muscle strength
- ◆ Prepare safety is a lifestyle
- ◆ Prepare for your job
- ◆ Back safety is a lifestyle
- ◆ Get plenty of rest/sleep
- ◆ Interrupt stressful positions
- ◆ Maintain good sitting posture
- ◆ Maintain good standing posture
- ◆ Perform back extensions
- ◆ Wear comfortable clothes to allow movement
- ◆ Healthy balanced diet

