

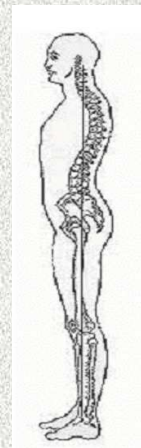
# Dental Clinic Body Mechanics

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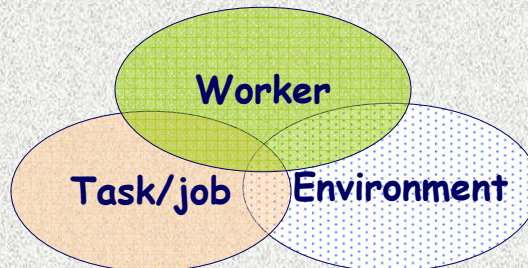
## Today's Workshop

We will

- Review Ergonomics
- Review Risk factors
- Discuss
  - Principles of body mechanics
  - Static postures
  - Neutral Spine
  - Exercises



# What is Ergonomics?



The goal of ergonomics is to design the job to fit the worker  
**NOT** make the worker fit the job.

## Risk Factors for Musculoskeletal Disorders

- Excessive force
- Awkward and/or prolonged postures
- Repetition
- Direct Pressure
- Vibration
- Noise
- Work organization
- Combinations of factors



## What is Body Mechanics?

- Moving and using your body in the **best way possible** to prevent injury
- It should be part of **every activity**
- Good body mechanics takes **practice and awareness**
- Body mechanics should be part of a comprehensive ergonomics program. Used alone, body mechanics will not prevent injuries



## Why Body Mechanics?

Just as taking care of your car makes it last and work when you need it....

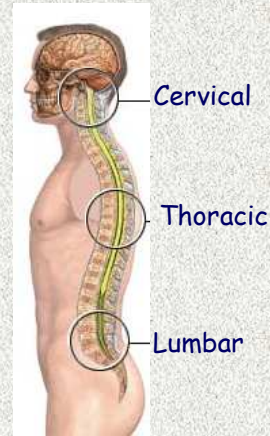


taking care of your body means it will last until retirement and function when you need it!



## Neutral Spine Posture

- Lack of spinal curves increases risk of injury
- Maintain neutral spine when moving, bending, sitting and lifting
- This includes work, home, sports and other activities



## Neutral Spine Posture

- Neutral spine posture is the most important aspect of body mechanics
- It's the reason body builders can lift so much weight without injury
- In neutral, the spine, muscles, discs, ligaments, tendons and bones most stable and strong



## Practice Neutral Spine



- Place a yard stick along your spine
- With one hand feel the hollow of your lumbar lordosis
  - Rock the pelvis slightly anterior and posterior
- Feel the lordosis increase and decrease
- Find your 'sweet spot' - this is your neutral spine

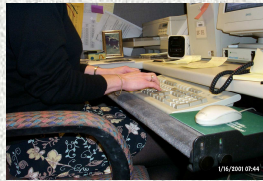
## Bodymechanics Tips

- Keep loads close to your body
  - This reduces the torque on your low back
- When bending to floor use one leg as a counter balance (golfers stance)
- Keep your nose between your toes....don't twist



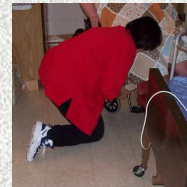
## Bodymechanics Tips

- Try to avoid awkward postures
- change positions regularly
- Keep wrists neutral by keeping key board flat



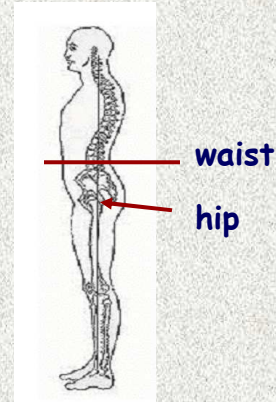
## Bodymechanics Tips

- Squat rather than kneel
- Minimize reaching
- Keep wrists in neutral position
- Minimize gripping- use all your fingers
- Work with elbows bent
- Switch hands whenever possible



## Bodymechanics for Lifting

- Bend at hips not at the waist
- Contract abdominal muscles
  - 10% contraction provides additional stability to the low back
- Use a wide base of support
  - Provides stability in the anterior-posterior direction
- Plan your move
- Use a scissored stance
  - Provides stability medial-lateral direction



## Bodymechanics when Sitting

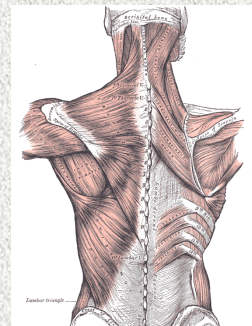
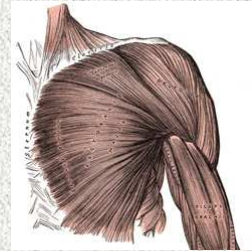


- Maintain neutral spine by slightly arching the back
- Turn the entire body not just from the waist



## Muscle Symmetry

- Opposing muscles should have **equal tone and symmetry**
- Overuse and/or underuse can lead to impaired function
- Some consistent patterns:
  - Certain muscles tend to become tight
  - Others tend to become weak



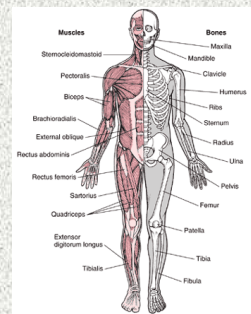
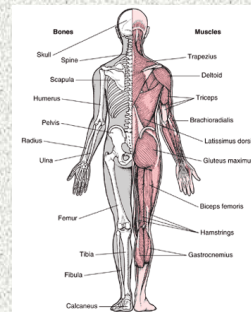
## Balance & Symmetry

### Stretch tight muscles

- Upper trapezius
- Levator scapulae
- Pectoralis
- Lumbar erectors/lats
- Ilio-psoas
- Hamstrings
- Sternocleidomastoid

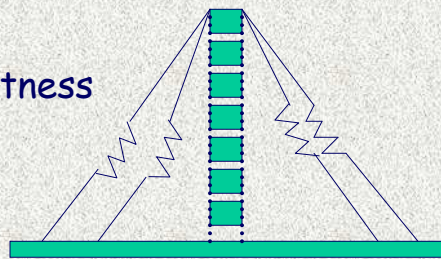
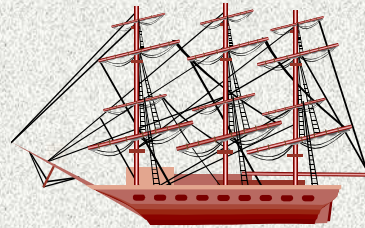
### Strengthen weak muscles

- Abdominals
- Gluteus maximus
- Rhomboids/Lower trapezius
- Scalenes
- Quadriceps



## Stiffness & Stability

- Your spine is like a ships mast.
- Trunk muscles, like guy wires, disperse forces and provide stability
- Unequal muscle tightness decreases stability



## Exercise

- Exercise goals to enhance
  - Flexibility
  - Strength
  - Endurance



- Flexibility is good for improving muscle tone but there is little evidence that stretching alone prevents injury
- Endurance enhances ability to perform prolonged activities

## Trunk Stabilization

### Warm up

#### 1. cat & camel



#### 2. lunges



#### 3. curls-ups (abs)



#### 4. side bridge (obliques)



#### 5. birddog (back)



## Wrist Stretches

### Prayer stretch

- Hands together
- Raise elbows
- Hold 10 to 30 seconds



### Reverse prayer stretch

- Place backs of hands together
- Lower elbows
- Hold 10 to 30 seconds



### Wrist rotation

- Rotate wrists clockwise and counter clockwise
- Repeat each stretch 3 to 5 times

## Shoulder Stretches

### Shoulder rotation

- Stand with arms out to the sides
- Make large circles clockwise/counter clockwise with arms



### Corner stretch

- Place hands on adjacent walls at eye level
  - Lean body into the wall
  - Repeat with hands higher or lower
  - Hold 10 to 30 seconds
- Repeat each stretch 3 to 5 times



## Wrist Endurance Exercises

### Hand Squeeze (or exercise putty)

- Squeeze tightly, hold 20 seconds
- Release
- Repeat 20 times



### Weights

- Hold 2 - 5 pound weights in hands, palms up
- Or use rocks in socks
- Arms at side, elbows bent
- Bend wrists up and back to neutral
- Repeat 20 - 30 times



- Repeat exercise with palms downward



## Arm Endurance Exercises

### Weights

- Hold 2 to 5 pound weights in hands
- arms forward and horizontal
- Elbows straight, palms face in
- Bring arms up over head
- Return to start



- Hold weights, arms horizontal
- Bend elbows 90°
- Straighten arms
- Return to start



- Repeat 15-20 times

## Conclusions

- Cumulative trauma occurs over time and may result in an injury
- Body mechanics is learning to use your body in the least stressful ways
- Body mechanics should be part of EVERY activity, at work, sport and home
- Maintaining **Neutral spine** is key to good body mechanics
- **Body mechanics** is part of a comprehensive ergonomics program and alone will NOT prevent injuries

Questions and Feedback

Thank you