

Ergonomics in Collections Care

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Ergonomics

Please Note:

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Outline

- ⊙ Ergonomics
 - Definition, uses
 - 3 examples; awkward positions, lifting, prolonged sitting
- ⊙ Back
 - “Neutral Position”
 - Anatomy
 - Injury causes
 - Prevention

Ergonomics

Definition: Principles related to humans and their work
“Human factors”

Greek: **Ergon** (relating to work, accomplishments)
Nomos (laws or principles)

Applications of ergonomics;

Uses; examples-

productivity

ease of use

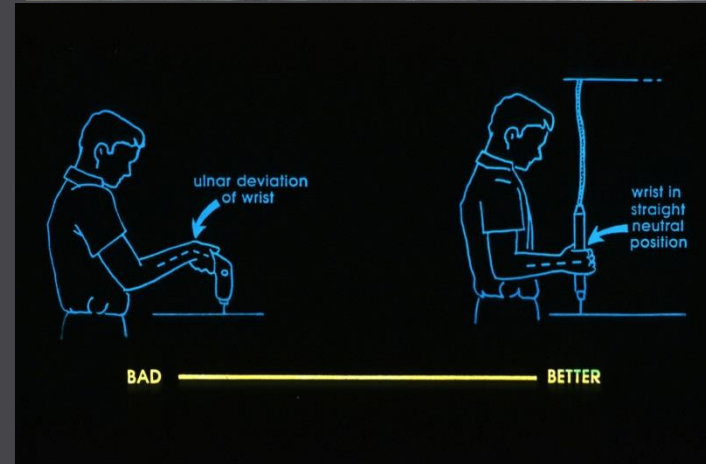
safety

injury prevention

Ergonomics

Uses; examples-

- productivity
- ease of use
- safety
- injury prevention



Ergonomics - injury prevention

- Back Injuries

- Cumulative Trauma Disorders

(aka; Repetitive Strain Injuries, Repetitive Motion Injuries)

- Examples

- Carpal Tunnel Syndrome
- Tendinitis
- Epicondylitis
- Others

Outline

⦿ Ergonomics

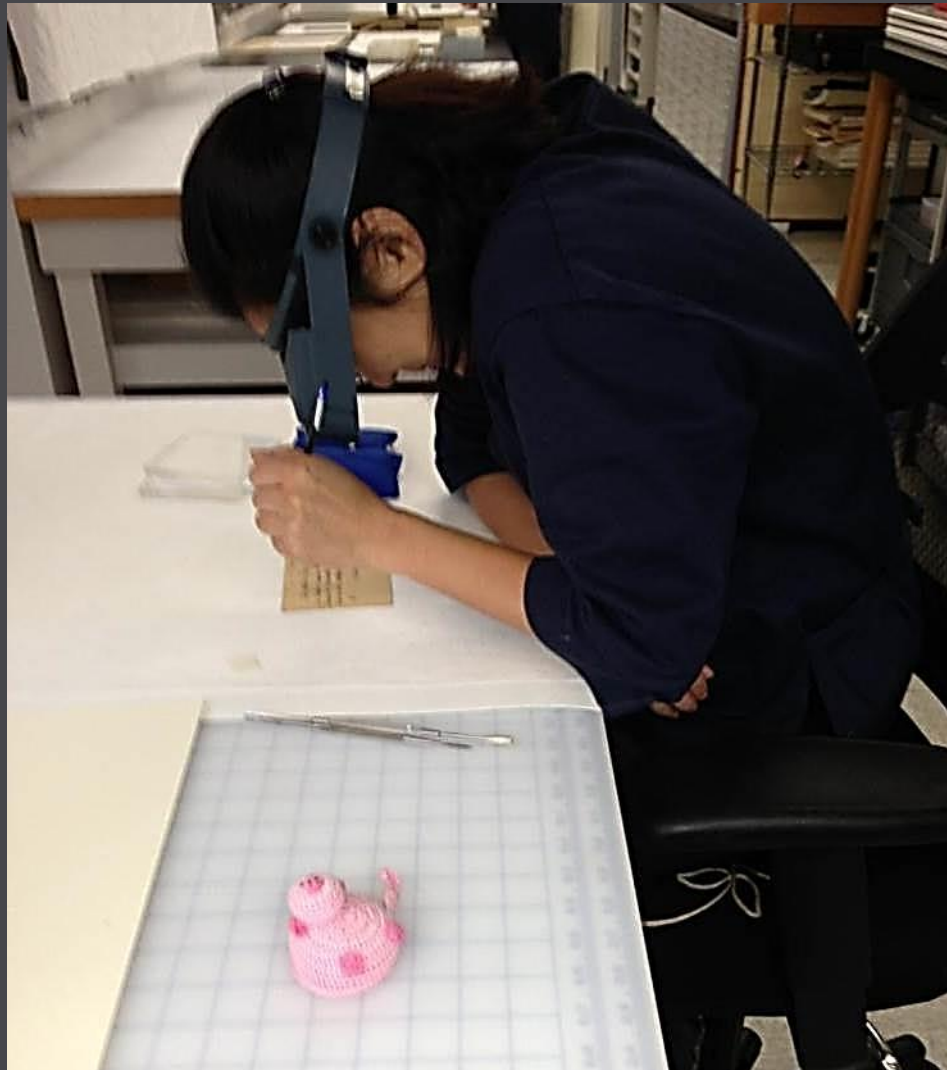
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⦿ Back

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Awkward position?



Awkward Position in Collections Care?



Before



After



Before



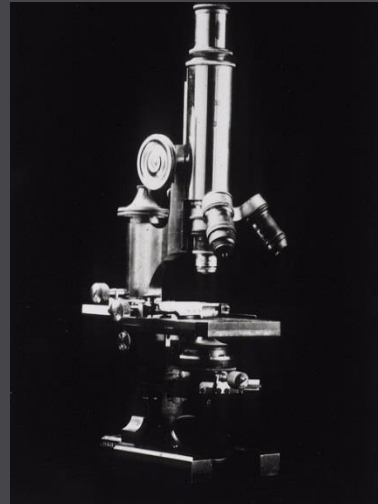
After



Ergonomics

- Awkward Postures?
 - Solution; reposition the work, equipment, tools
 - Not the body







Ergonomics

- Prolonged sitting



- Lifting

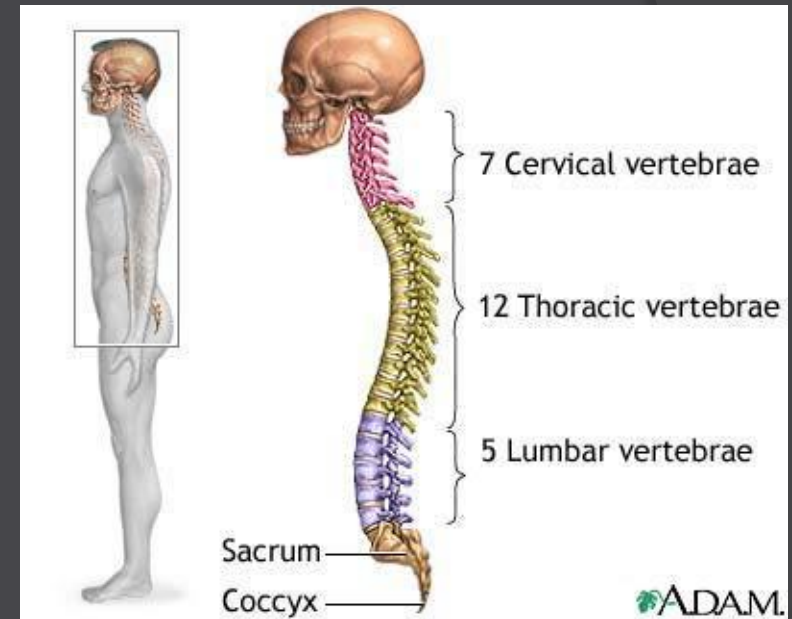
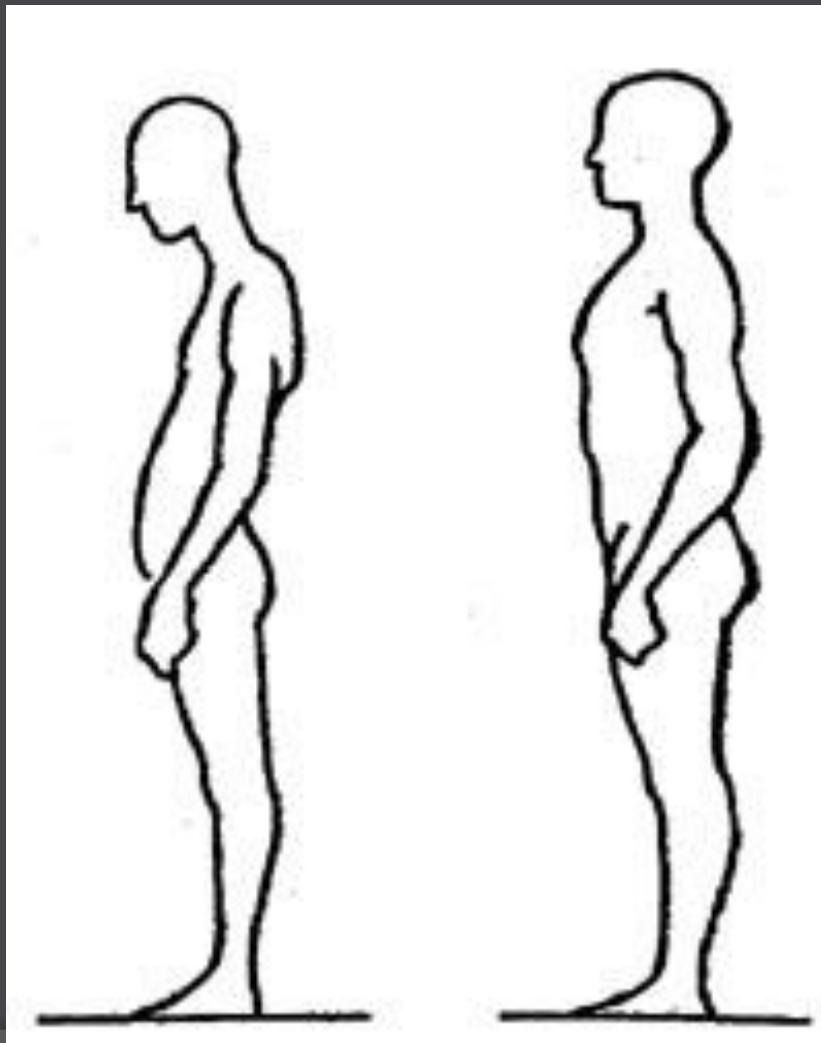


Outline

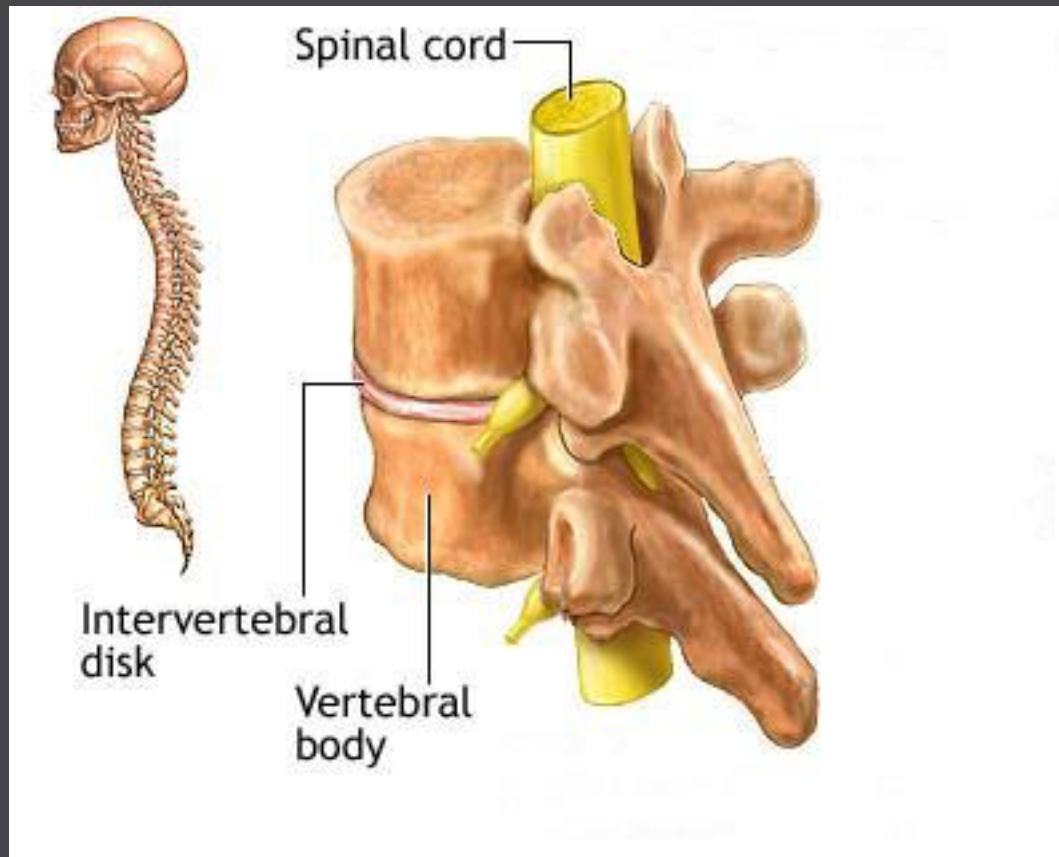
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Ergonomics

Neutral Position

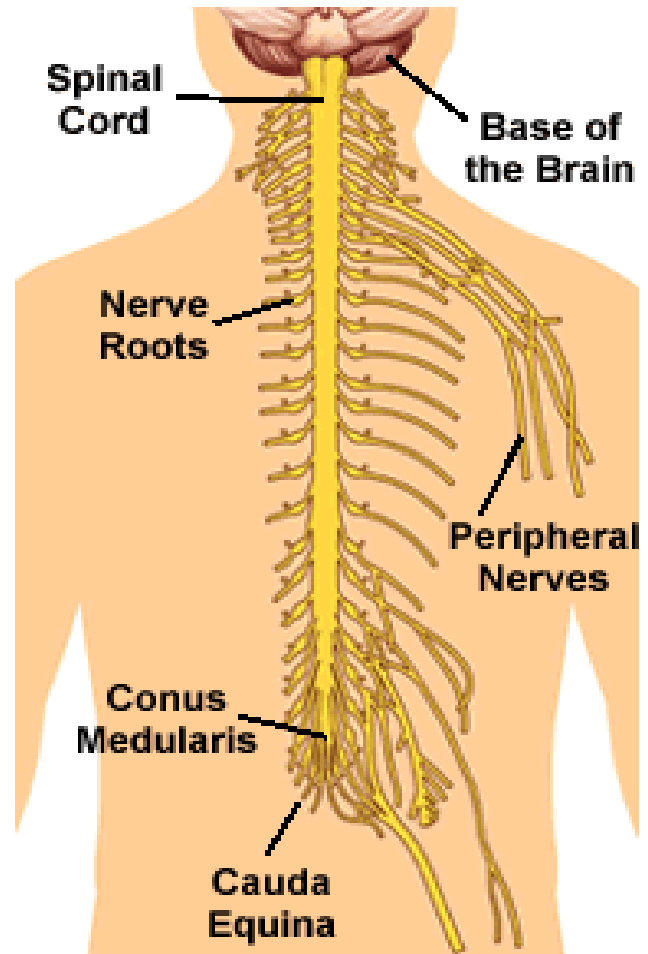


Back - Anatomy



<http://someinterestingfacts.net/what-does-a-human-spine-look-like/>

Spinal Cord and Nerve Structures



<http://www.coloradospineinstitute.com/subject.php?pn=anatomy-spinalcord15>

Muscles

- Always pull (never push)
 - Contract, can stretch
- 2 types of muscle
 - Strength type
 - Coordination type
- Injured by;
 - Stretching too far
 - E.g. sudden slip
 - Contracting too strongly
 - E.g. heavy lift
 - Stretching or Contracting too long in duration
 - E.g. awkward or prolonged positions

Lifting- Ergonomic studies

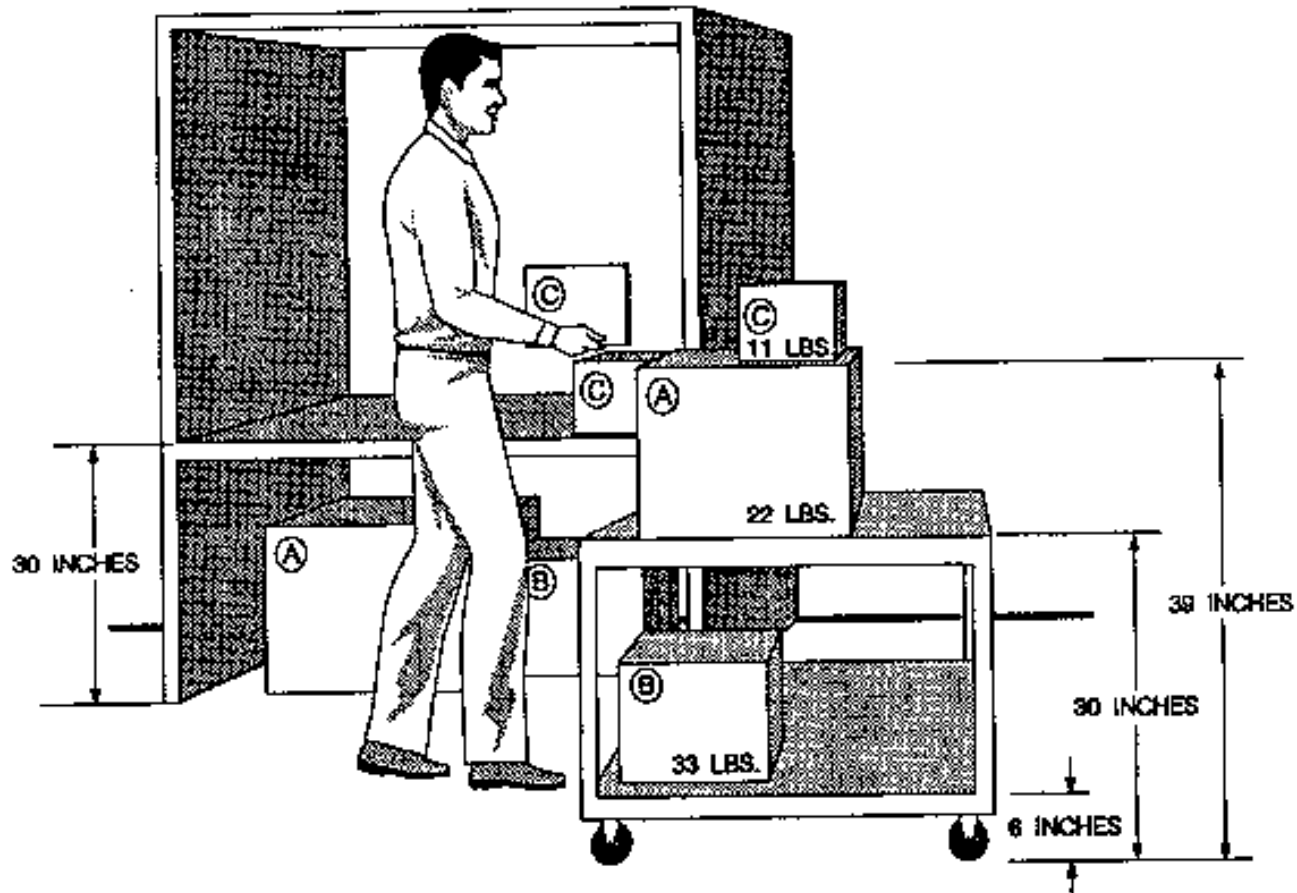
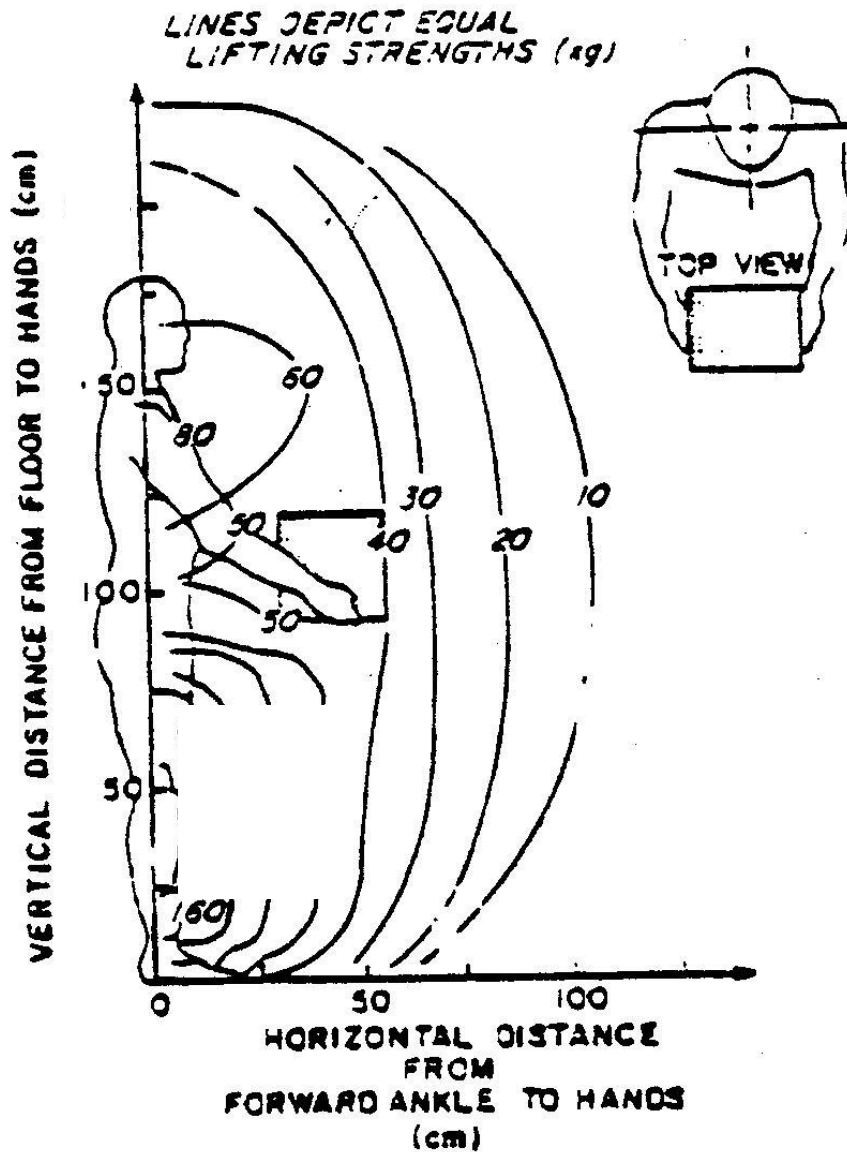
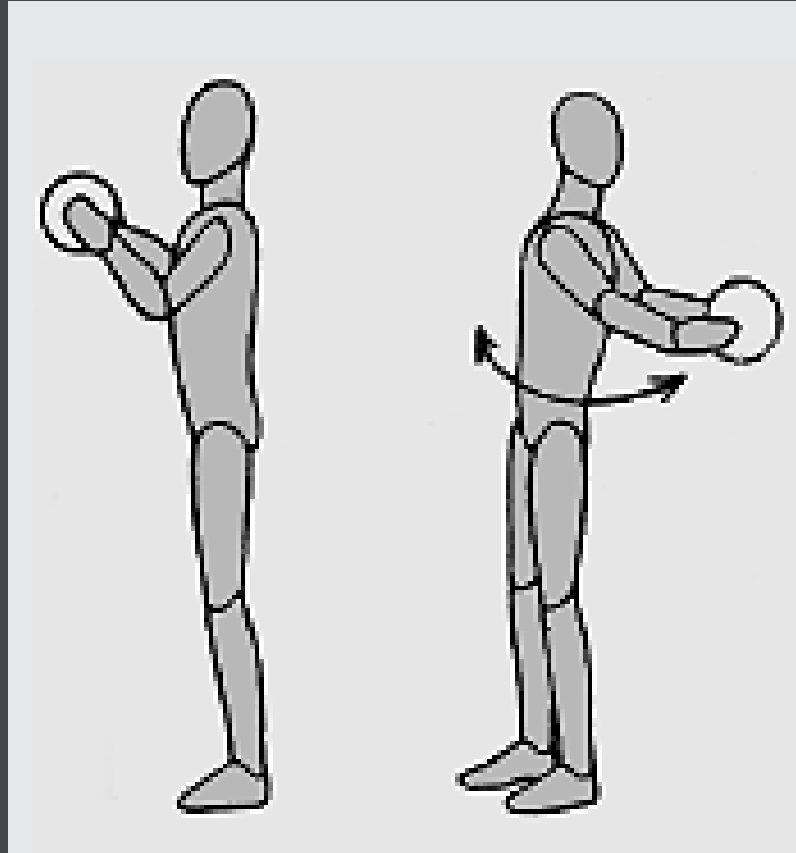


Figure 27 Warehouse Order Filling, Example 10



Predicted Lifting Strength of Large/Strong Male (Chaffin, 1974).

Twisting “Isolates” muscles - Bad



Ergonomics

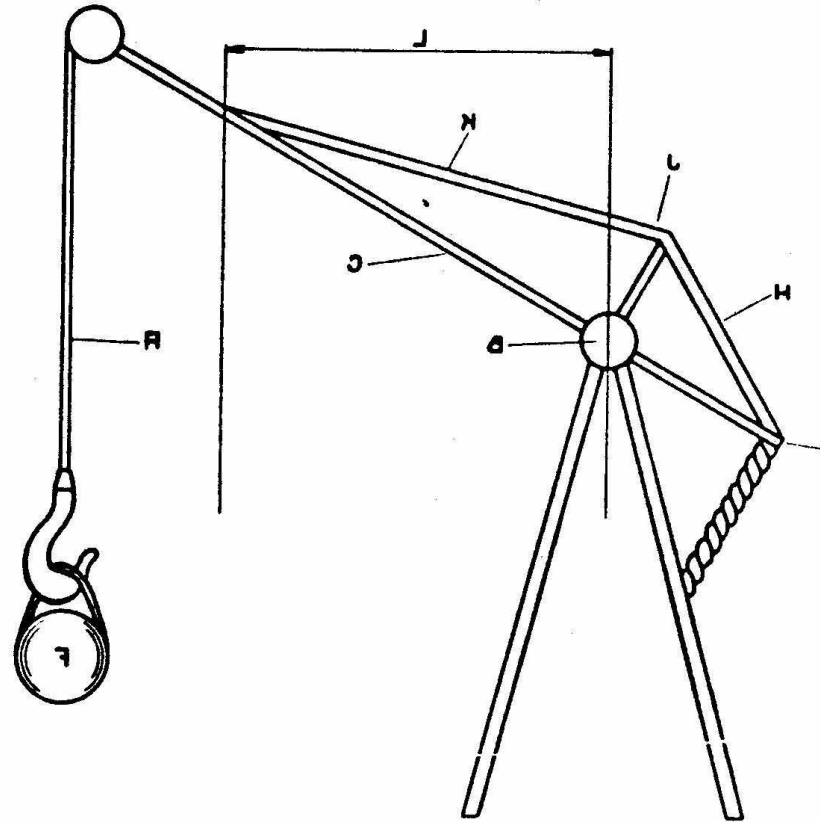
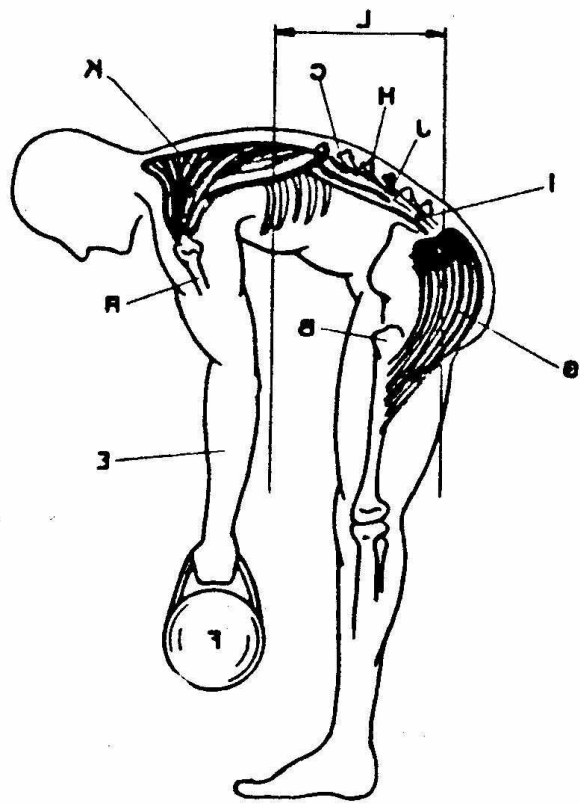
- ⦿ Back Injuries; look at injury rates for tasks
- ⦿ Ergonomics;
 - Lifting with back muscles -very high strain, high injury rate
 - Lift with legs
 - Lifting from floor -worse than from table
 - Kneel down, bring load close to body
 - Lifting far from body -worse than close
 - Bring load close to body
 - Twisting, awkward -“isolates,” strains muscles
 - Move feet, carry load in front, close to body

Wrong way to lift



Right way to lift









Ergonomics

Inflammation; (- itis)

- Pharynx inflammation => pharyngitis

Musculoskeletal injuries examples

- Tendon => tendinitis
- Synovium => synovitis
- Muscle => myositis

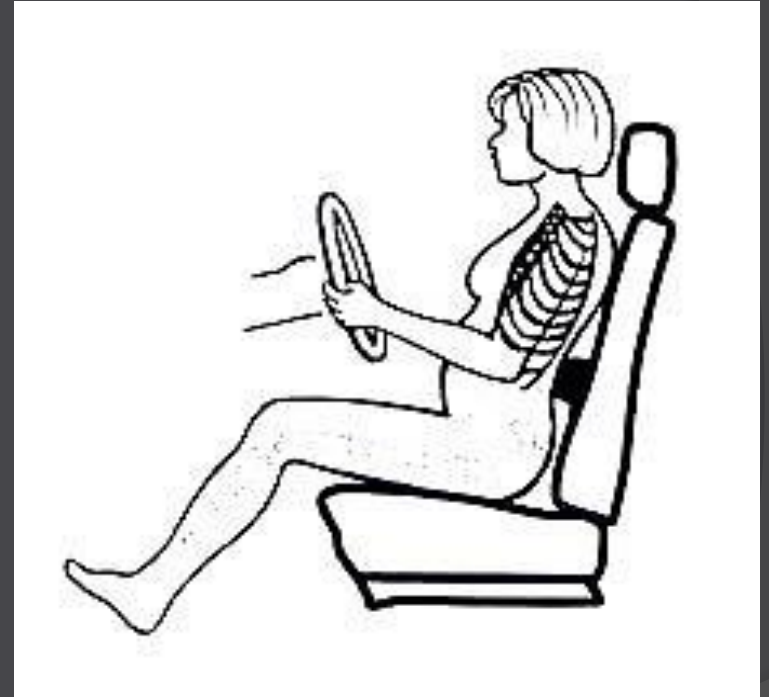
Early Treatment for Simple Back Injuries

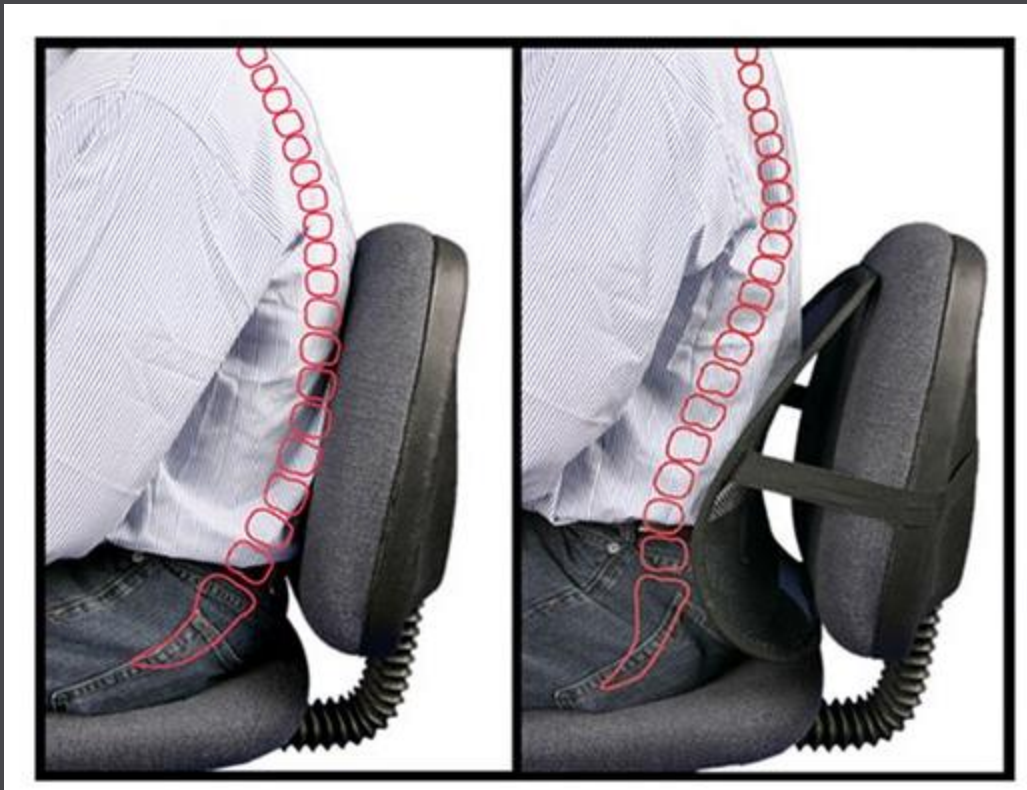
- **Rest:** the affected muscles
 - Gentle range of motion exercises
 - Maintain neutral posture
- **Ice:** helps reduce inflammation acutely
 - 1st hours -> 24 hours
 - No frostbite
 - Heat: may help more after 24 hours
 - Repeated warming of tissues with slow cool down.
- **Medications:** anti-inflammatory (NSAIDS)
 - Side effects; GI irritation, bleeding, interactions with other meds.

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Prolonged Sitting

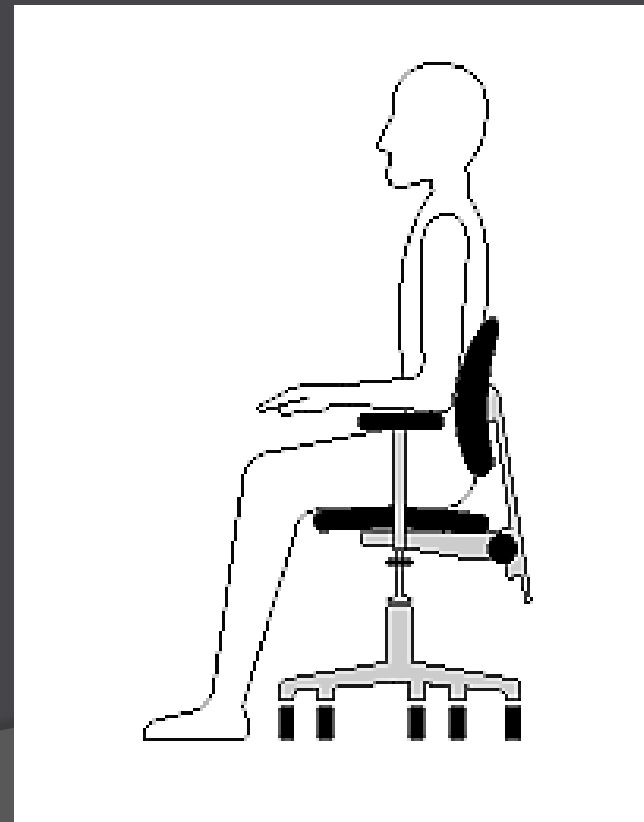
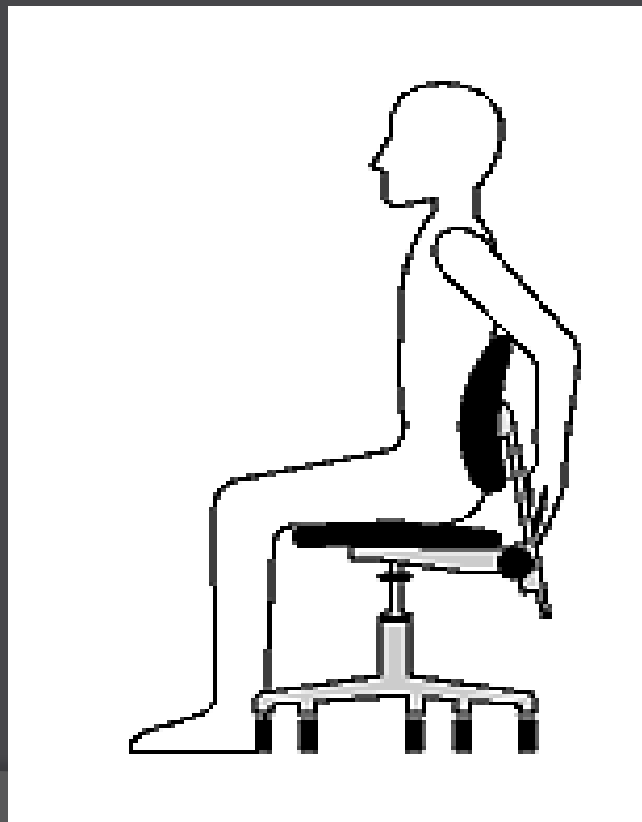




Posture Pro

<http://www.thebrainybuyer.com/2013/07/03/angel-sales-posture-pro-lumbar-support-only-4-58-shipped/>

Ergonomics – Chair adjustment



Ergonomics - Sitting

- ⦿ Back/ neck
- ⦿ Legs/ feet
- ⦿ Arms/ wrists

* Remember: glare



Top of monitor at or just below eye level

Head and neck balanced and in-line with torso

Shoulders relaxed

Elbows close to body and supported

Lower back supported

Wrists and hands in-line with forearms

Adequate room for keyboard and mouse

Feet flat on the floor



Resources

- ⦿ Canadian Centre for Occupational Health and Safety
 - ⦿ <http://www.ccohs.ca/oshanswers/ergonomics/>
- ⦿ Occupational Safety and Health Administration (OSHA)
 - <https://www.osha.gov/SLTC/ergonomics/controlhazards.html>
- ⦿ CDC/ NIOSH (Nat'l Inst. For Occ. Safety and Health)
 - <http://www.cdc.gov/niosh/topics/ergonomics/>

The End!