Wednesday,
October 14, 2015

TARGET Discovery Series

Discover How Ergonomics Can Promote Health and Reduce Secondary Injuries

Defining Ergonomics

- Fitting the job or task to the worker.
- Seeks to improve the interaction between humans and the equipment they use to perform their jobs.
- Centers on the designing workspaces to improve job performance.

Today's Objectives

- Learn ergonomic principles to reduce the incidence and impact of musculoskeletal injuries, illnesses, and disorders in the workplace.
- Become familiar with how ergonomics may limit the onset of secondary injuries.
- Discover workplace prevention strategies.

Ergonomic Principles

- **Work in neutral postures:** postures that place the least amount of stress on the body.
- **Reduce excessive force:** activities that include pulling, lifting, and carrying heavy loads.
- **Limit extended reaches:** are items are within an arm's reach?

Ergonomic Principles

- **Work at correct heights:**
  - Precision work: work surface should be above elbow height.
  - Light work: work surface should be just below elbow height.
  - Heavy work: work surface should be 4-6 inches below elbow height.

- **Reduce excessive motions:** frequent reaching, lifting, and carrying actions.

Ergonomic Principles

- **Static postures**: maintaining fixed positions for a long time (e.g., standing work).

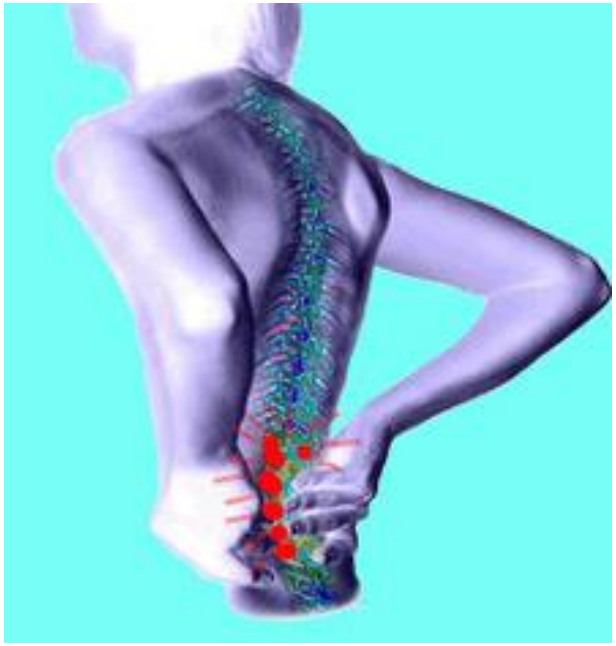
- **Move, exercise, stretch**
  - Take a mini-break at least once an hour.
  - Change work positions periodically.

Consider the Individual Worker

- There is no such thing as the average person.
- It is not normal to be in pain.
- Different people respond differently to their work environments due to:
  - Hereditary.
  - Age.
  - Gender.
  - Lifestyles.

Secondary Injuries

- Work-related musculoskeletal disorders (WMSDs)
- Cumulative trauma disorders (CTDs)
- Repetitive strain injuries (RSIs)



WMSDs, CTDs, and RSIs

- Disorders of the muscles, joints, nerves, tendons, ligaments, cartilage, or spinal discs.
- Mainly occur in the neck, back, arms, and wrists.
- Reflect gradual or chronic development.

Most Common WMSDs

- Carpal tunnel syndrome
  - **Causes:** poor wrist postures & repetitive motions
  - **Symptoms:** pain, numbness & tingling in the hands
- Back pain
  - **Causes:** lifting heavy objects, twisting
  - **Symptoms:** pain, tightness, sitting is uncomfortable

Other WMSDs

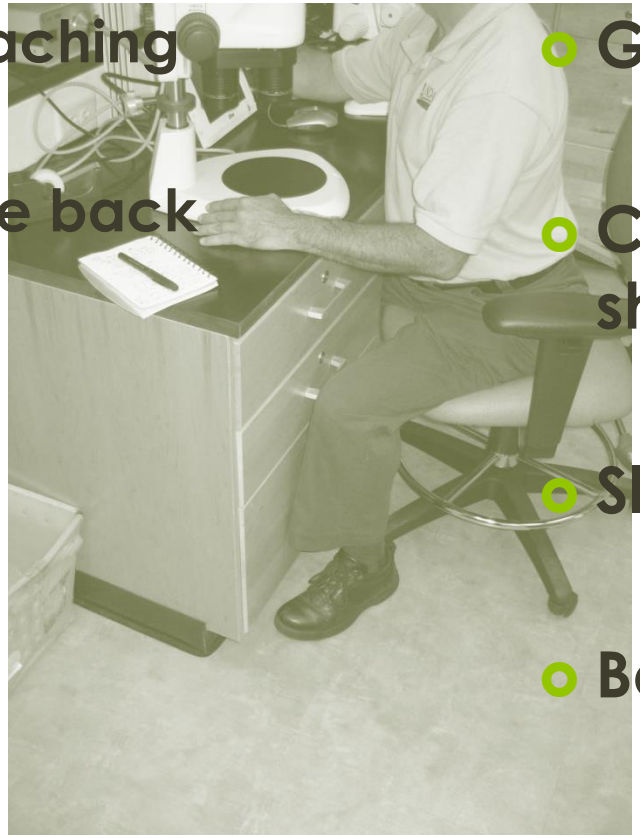
- Tendonitis
  - **Causes:** repetitive & forceful hand & wrist motions
  - **Symptoms:** pain & swelling at the hand and wrist
- Rotator Cuff Tendonitis
  - **Causes:** elevation of the arm
  - **Symptoms:** shoulder pain

Causes of WMSDs

- Awkward/Deviated Postures
  - Cradling the telephone between the neck & shoulder
  - Viewing the monitor off-center
- Highly Repetitive Work
  - Keyboarding
  - Lifting
- Excessive Force
  - Stapling
  - Mousing

Awkward Postures

- Overhead reaching
- Bending at the back
- Twisting
- Outstretching arms/legs



- Gripping
- Crouching shoulders
- Slouching
- Bent wrists

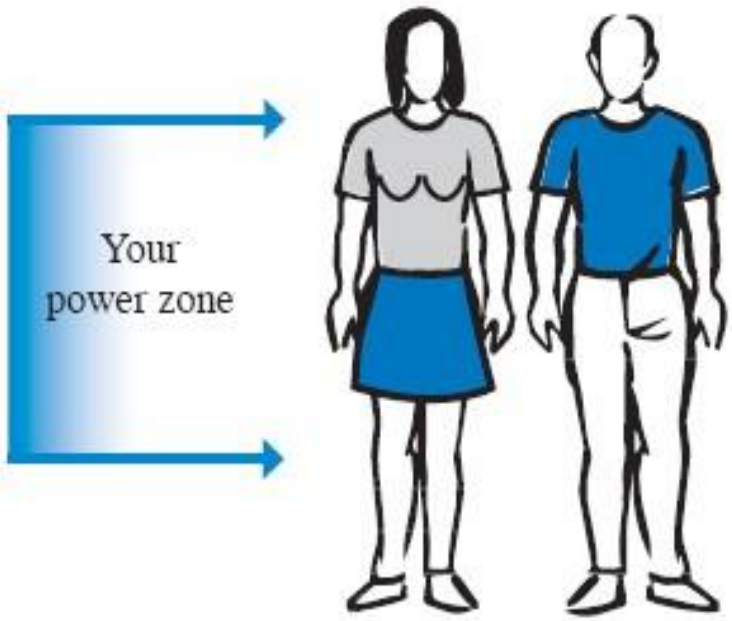
Prevention Strategies

- Engineering controls
  - Preferred method of control.
  - Involves a change in the physical features of the workplace.
- Administrative controls
  - Changing work practices or the way work is organized.
  - Improvements require continual monitoring by management & employee feedback to make sure improvements are effective.
  - Training should be used in combination with workplace changes.
- Personal protective equipment
  - Least effective control method - worker still exposed to risk factor(s).
  - Examples include providing knee pads for workers laying carpet, or anti- vibration gloves for workers using powered hand tools.

Engineering Controls

- ***Rearranging, modifying, redesigning, providing or replacing:***
  - Tools
  - Equipment
  - Workstations
  - Packaging
  - Parts
  - Processes
  - Products
  - Materials

Administrative Controls



- Alternate heavy tasks with light tasks.
- Provide variety in jobs to eliminate or reduce repetition.
- Adjust work schedules, work pace, or work practices.
- Provide recovery time (e.g., short rest breaks).
- Modify work practices so that workers perform work within their power zone (i.e., above the knees, below the shoulders, and close to the body).
- Rotate workers through jobs that use different muscles, body parts, or postures.

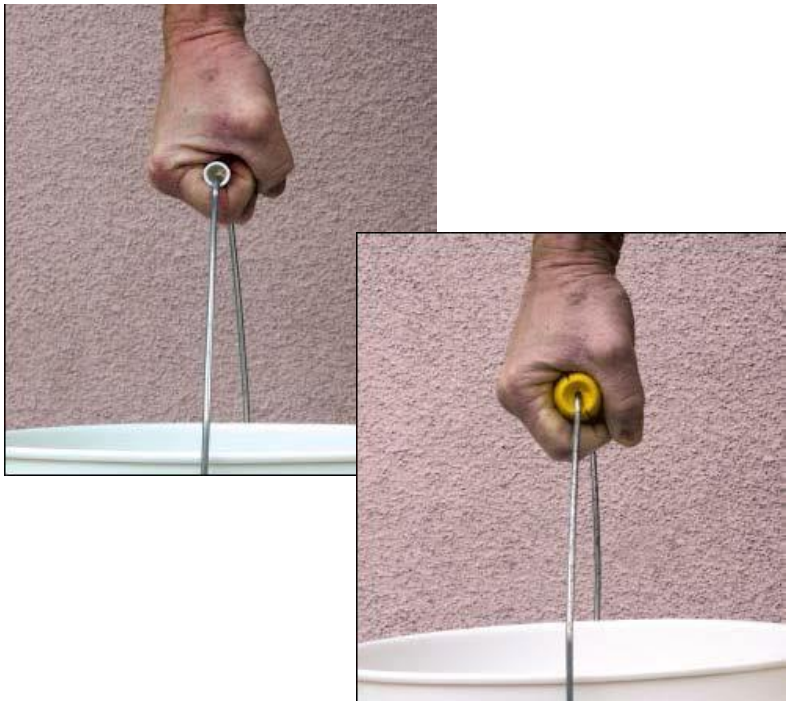
Promoting Health

- Conduct an ergonomics analysis:
  - Worker
  - Worksite
- Decrease risk of injury/illness.
- Enhance worker productivity.
- Improve quality of work life.

Office Environments

Laboratory Environments

Industrial Environments



Vehicle Operations

Other Improvements

- Anti-Fatigue Matting
- Footwear
- Foot Supports

Rest Breaks & Work Habits

- Take frequent (1 every ½ hr) mini-breaks to get up and stretch or walk around.
- Exercises can help energize your body and relieve muscle tension.
- Change positions periodically.

Recap

- Ergonomic principles
- Secondary injuries
- Prevention strategies

Contact Us

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