ERGONOMICS AND LIFTING

SANFORD HEALTH OCCUPATIONAL MEDICINE CLINIC

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Goals & Objectives

- Identify what are cumulative trauma disorders (CTD's)
- Identify contributing factors to CTD's
- Identify signs/symptoms of CTD's
- Identify means to reduce CTD's in the workplace through ergonomics

Cumulative Trauma Disorders

- Injuries that develop over time (weeks, months or years).
- Different from an “acute” injury - injuries that occur immediately such as cuts, bruises, falls.
- Also referred to as repetitive motion injuries or musculoskeletal disorders.

CTD's Can Affect Many Parts of the Body

- Wrists, elbows, shoulders, back, neck, hips, knees and ankles.

- CTD's are injuries of the bones, muscles, nerves, tendons, ligaments, joints, cartilage, spinal discs or blood vessels.

Common CTD's

- Carpal tunnel syndrome (nerve)
- Dequervains syndrome (tendon)
- Epicondylitis/tennis elbow (tendon)
- Back/neck pain (muscle/nerve/ligament)
- Rotator cuff tendonitis (tendon)
- White finger/Raynaud's syndrome (vascular)

Six Contributing Factors to CTD's

1. Awkward Postures:
   A. Wrist-flexion, extension, ulnar/radial deviation.
   B. Elbow-extension, flexion.
   C. Shoulder-flexion greater than 90 degrees, extension, abduction.
   D. Back/neck-flexion, extension, lateral flexion, rotation.

Factors (con't)

2. High Repetitions - using the same motion with little or no variation
3. Forceful Exertions
4. Contact Stress
5. Cold
6. Vibration

Contributing factors may be independent of one another or multiple factors may play into development of a CTD.

The following are examples of contributing factors to CTD’s in the workplace

Awkward Postures

- Stress on muscles and tendons
- Contributing factors
  - Reaching overhead
  - Force the body must maintain to hold the position
  - Holding fixed positions (static loading)
- Lifting while twisting, reaching, or turning


Awkward Posture

Risk Factor—Repetitive Motion

- Stress on muscles and tendons
- Contributing factors
  - Duration and speed of repetitious movement
  - Number of muscles involved
  - Required force
- Raising and lowering the arm over and over again

- High Repetitions

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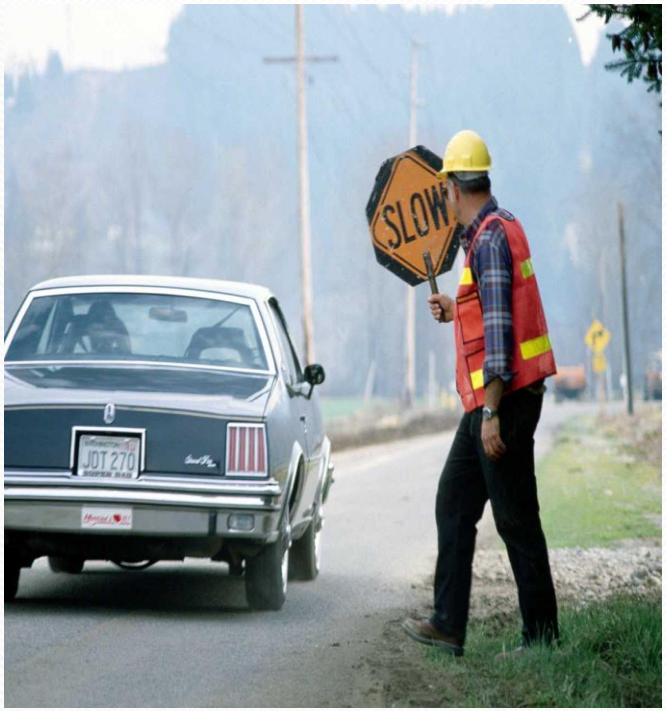
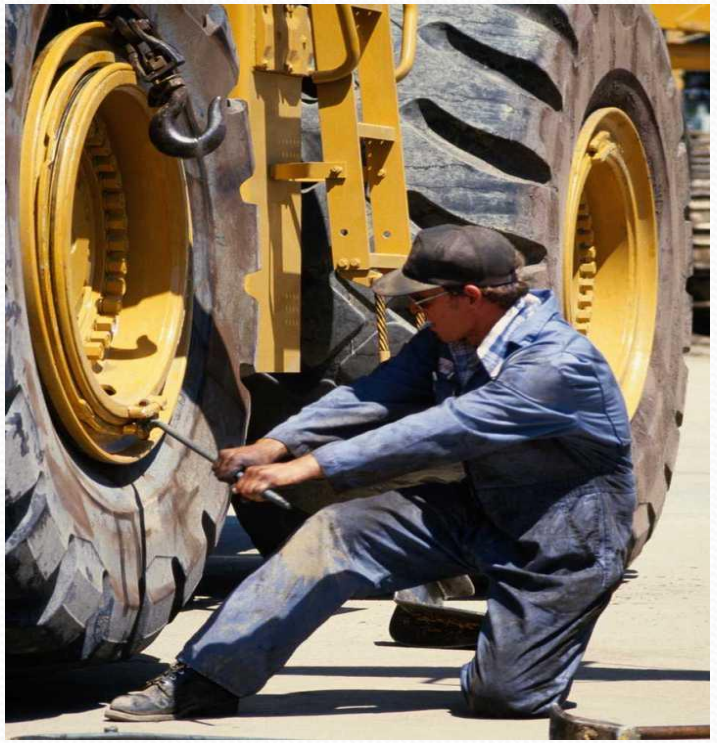


Forceful Exertion

Forceful Exertions

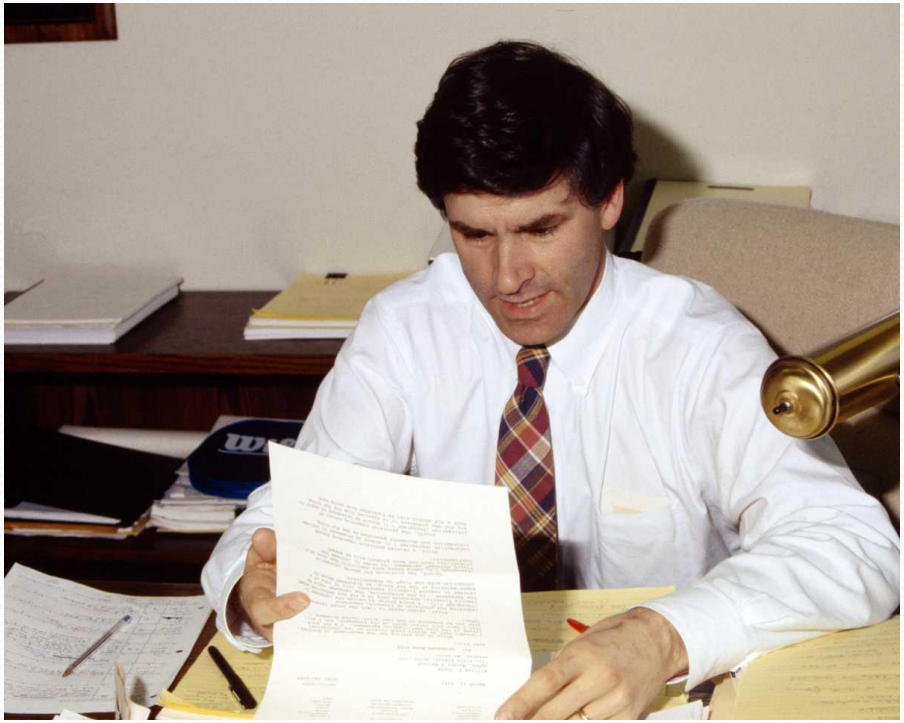
- Forceful Exertion



Contact Stress

- Pressing against or grabbing a hard object puts pressure on nerves, tendons,
  and blood vessels
- Contributing factors
  - Repetition
  - Duration of contact
  - Grip strength required

- Contact Stress



- Cold

Vibration

- Affects tendons, muscles, joints, nerves
- Contributing factors
  - Prolonged grip
  - Restricts blood supply to hands and fingers
  - Tools without vibration dampening device
  - Poor power tool maintenance

Activities within one’s personal life also contribute to Cumulative Trauma Disorders

Signs & Symptoms of CTD's

- Numbness, burning or tingling sensations (especially in the fingers)
- Pain in wrists, forearm, elbow, shoulder, neck, back, legs or feet
- Loss of grip strength or muscle weakness
- Fatigue or abnormal tiredness
- Limited range of motion
- Redness/inflammation

Ergonomics Reduces the Risk of CTD's

Ergonomics is the study of work to reduce risk factors that contribute to injuries in the work environment. The principle of ergonomics is to fit the job to the worker rather than the worker to the job.

Four Ergonomic Controls

- Engineering Controls
- Work Practice Controls
- Administrative Controls
- Personal Protective Equipment (PPE)

Engineering Controls

Involves altering the physical items in the workplace, such as modifying the workstation, obtaining different equipment, or changing tools, in order to eliminate the risk factor.

Engineering Controls (con't)

A. Workstation Design - should be easily adjustable and designed/selected to fit the task. Should be designed to accommodate the person who actually uses the workstation, rather than for the typical worker.

Engineering Controls (con't)

B. Design of Work Methods - Methods should be designed to reduce static, extreme and awkward postures, repetitive motion, vibration and excessive force.

C. Tool and Handle Design - Availability of variety of sizes; limit repetitive forceful motions; limit vibration; use proper tool for task.

Work Practice Controls

- Proper body mechanics
- Correctly utilizing tools and workstations
- Equipment maintenance
- Proper work techniques
- Employee conditioning

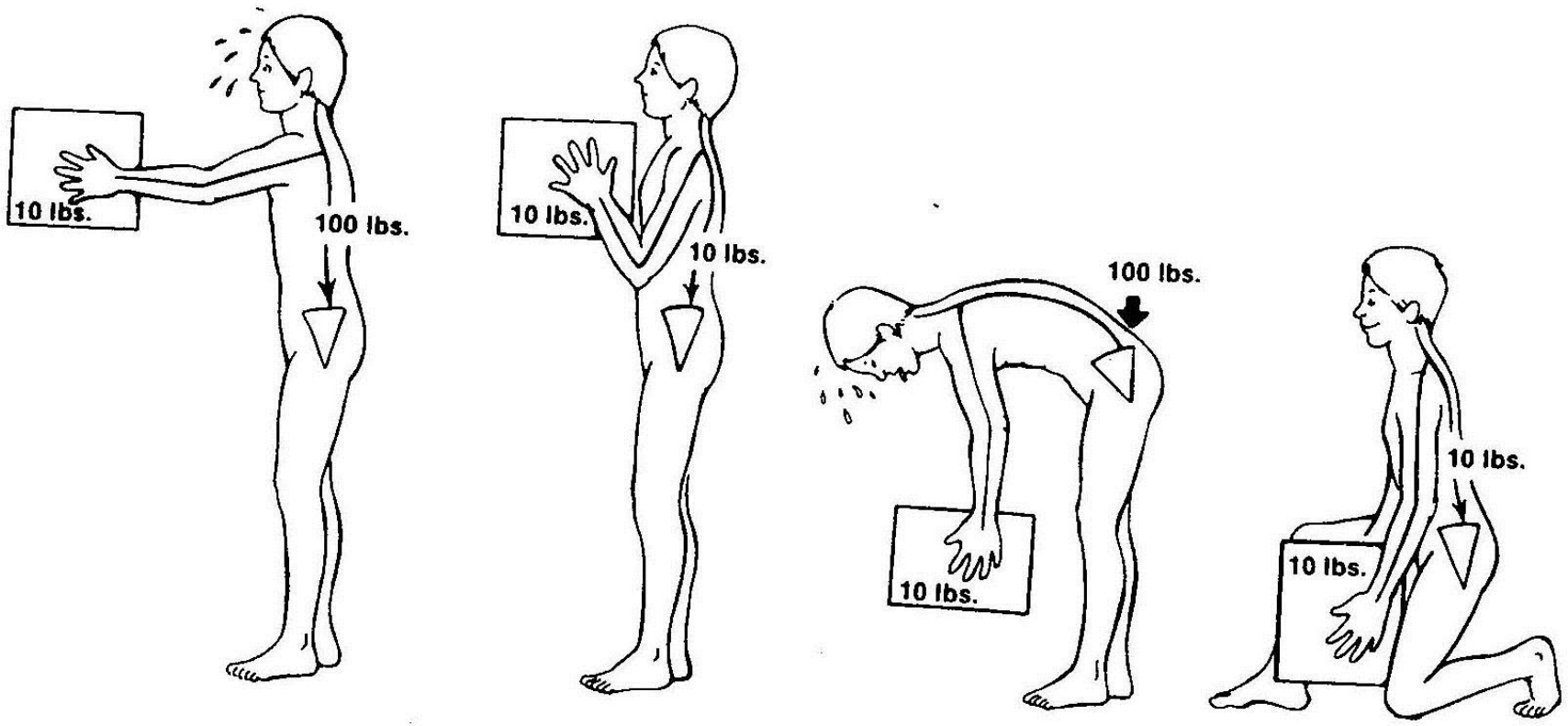
Administrative Controls

- Altering work organization to reduce the duration, frequency, and severity of exposure to ergonomic hazards
- Pacing
- Stretching
- Job rotations

Personal Protective Equipment

- Proper fitting
- Proper protection
- Braces, splints, back belts and other similar devices are **NOT** considered PPE

KEEP IT CLOSE



Keep Weight Close to Body

?? Questions ??

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