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Oh My Aching Back!

How to Reduce Strains and Sprains in the Workplace

PASMA 2009 Professional Development Conference,
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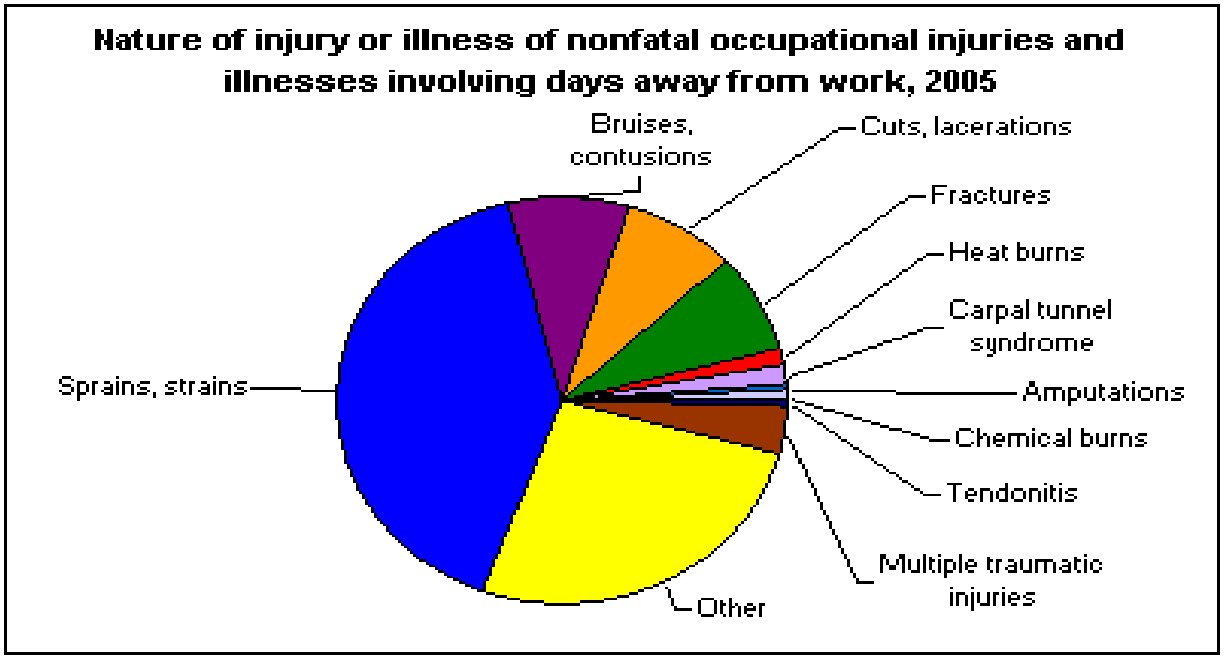
Introduction

Our Goal is to:

- Discuss frequency of sprains in the workplace
- Provide general information regarding strains vs. sprains
- Clarify risk identification and remediation
- Discuss training concepts to prevent back injuries
- Explain repetitive motion injuries and methods of prevention
- Discuss preventative measures for slips, trips, and falls

Strain and Sprain Rates

- The leading nature of injury and illness for every major industry sector in 2005
- Accounted for 41% of all workplace injuries and illnesses requiring days away from work

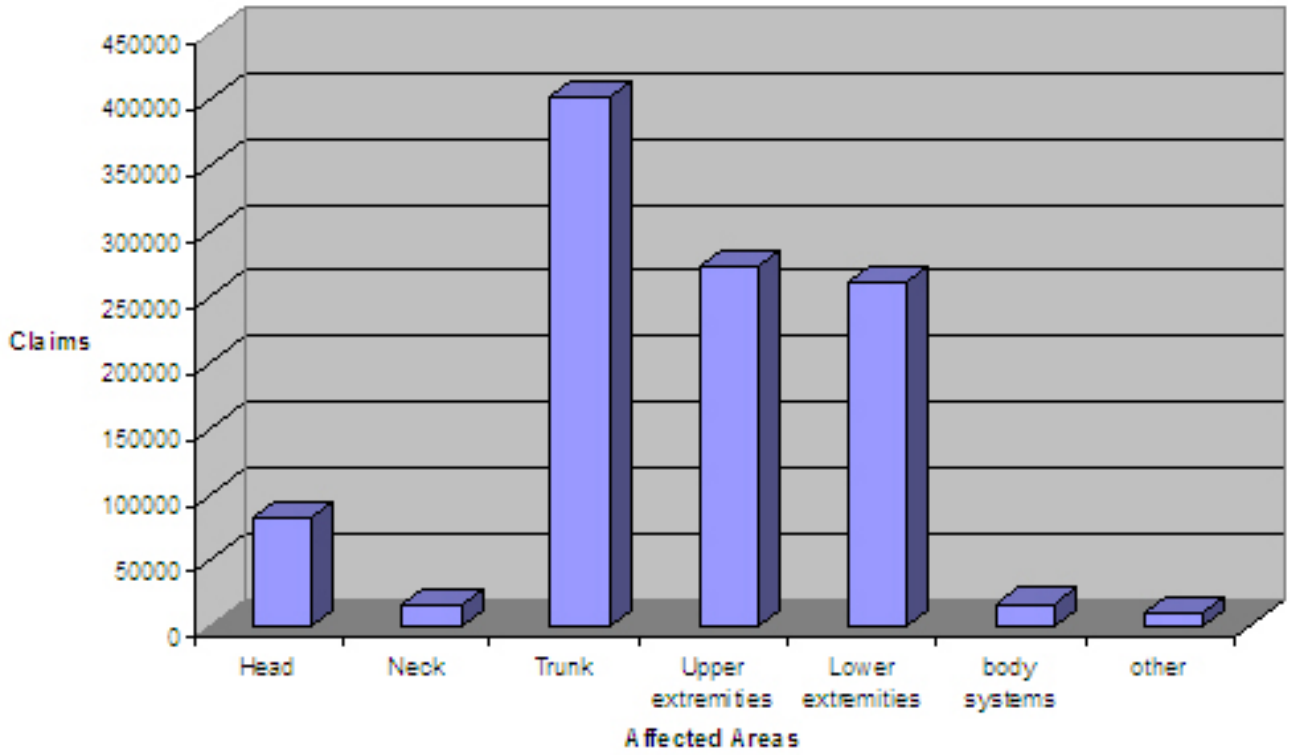


Resource: Bureau of Labor Statistics

Strain and Sprain Rates (Continued)

The highest percentage of sprains and strain occur to the trunk

Resource: Bureau of Labor Statistics



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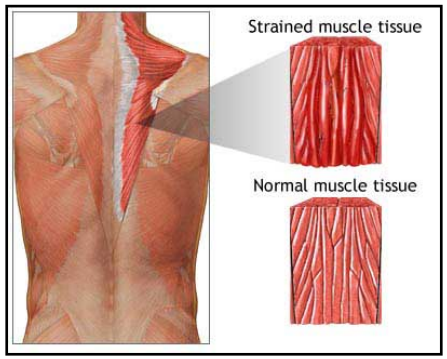
Strains vs. Sprains

Strains

- Strains affect the muscle and/or tendon that attaches to the bone
- Injuries are typically acute resulting from an over stretched or over contracted muscle and/or tendon
- Back strains are the most common forms of back injury



Sprains

- Sprains involve a stretching of the ligament or joint capsule
- Injuries are also derived from acute overexertion to the joint complex

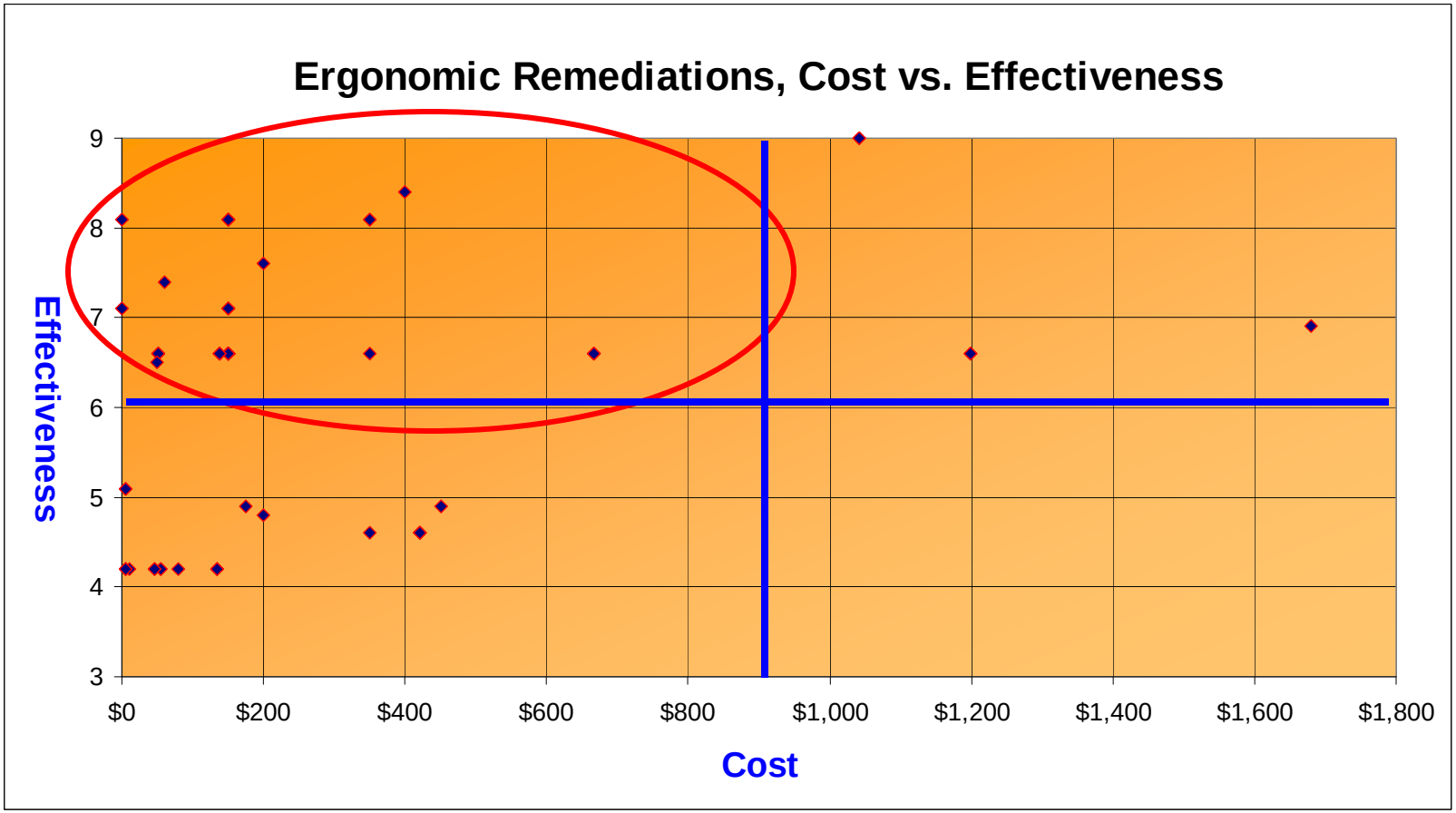
Risk Identification

- How are you identifying risk?
  - Lagging indicators
    - Injury rates
    - Lost time
    - OSHA log
  - Leading indicators (preferred)
    - Employee report of work environment issue
    - Observation and analysis
    - Pain and discomfort / surveys
  - Comparison to industry best practices for certain job tasks
- Identifying risk exposures forms the basis for determining possible remediations

Correlating Risk to Remediation (objectively)

- Effective remediations will be targeted at specific risk factors
- Effectiveness factors - how effective is a remediation?
  - Risk exposure is reduced or eliminated
  - Remediation addresses multiple risk exposures
  - Repetitions or cycle times are reduced
  - Adherence to industry best practices for specific job tasks
  - Byproduct - productivity may be increased
- Cost factors - how costly is a remediation to implement?
  - Direct Parts/Materials cost
  - Internal labor hours
  - Workstation down time
  - Outsourced service, such as training

Prioritizing & Justifying Remediations



Identify highly effective remediations with relatively low costs.

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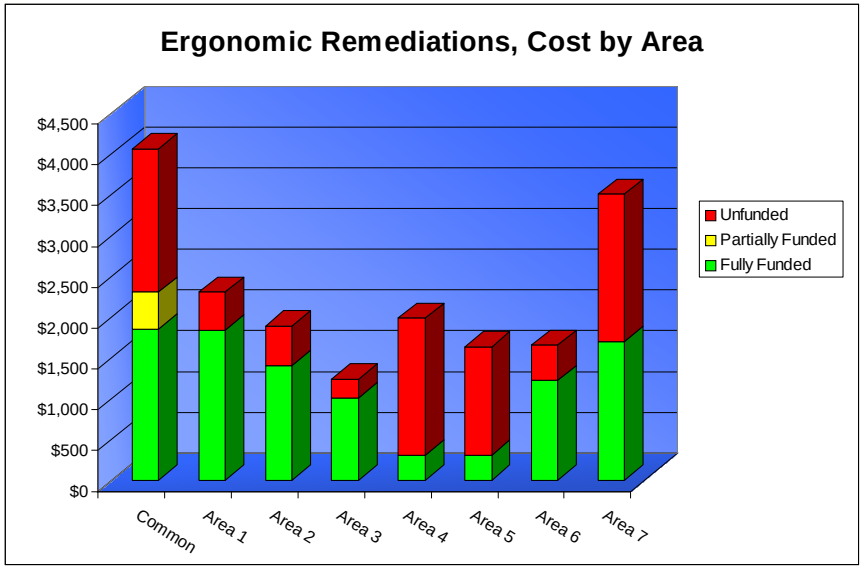
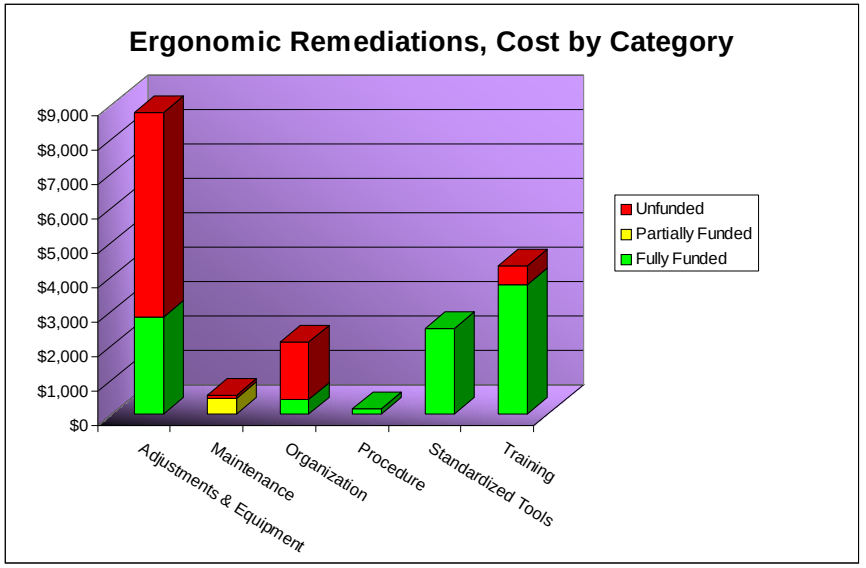
Remediating in the “Real World”





- Set a budget threshold and *stick to it*
- Some remediations will be implemented, *some may not.*

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Choosing Remediations

- What are potential remediations for workplace strains and sprains?
  - Administrative
    - Policies / procedures
  - Equipment
    - Tools, workstation design
  - Training
    - Proper job training
    - General body mechanics
    - Safety training

Challenges

- What are the challenges with remediating workplace strains and sprains?
  - Administrative
    - Policies / procedures
      - *don't exist or too broad*
      - *no enforcement*
      - *not written, or posted for employees/supervisors to see*
  - Equipment
    - Tools, workstation design – job is *heavy, hard, awkward, hazardous, etc.*
  - Training – *Workers trained but they keep doing the same thing!*
    - Proper job training
    - General body mechanics
    - Safety training

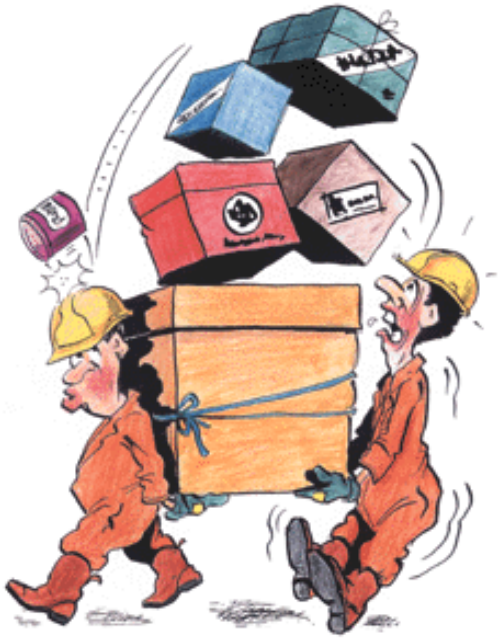
Solutions

- What are possible solutions?
  - Administrative
    - Policies / procedures – *develop policies to be enforced, focus on the problem area of the organization, sell the concept to upper management by targeting their "pain points"*
    - Form the basis for data collection, measuring achievement, and presenting metrics
  - Equipment
    - Tools, workstation design – *research and identify whether tools or workstation design will make an impact on reducing injuries*
  - Training – *Get employee buy-in that this training works!*
    - Proper job training
    - General body mechanics
    - Safety training

Safe Lifting - Concerns

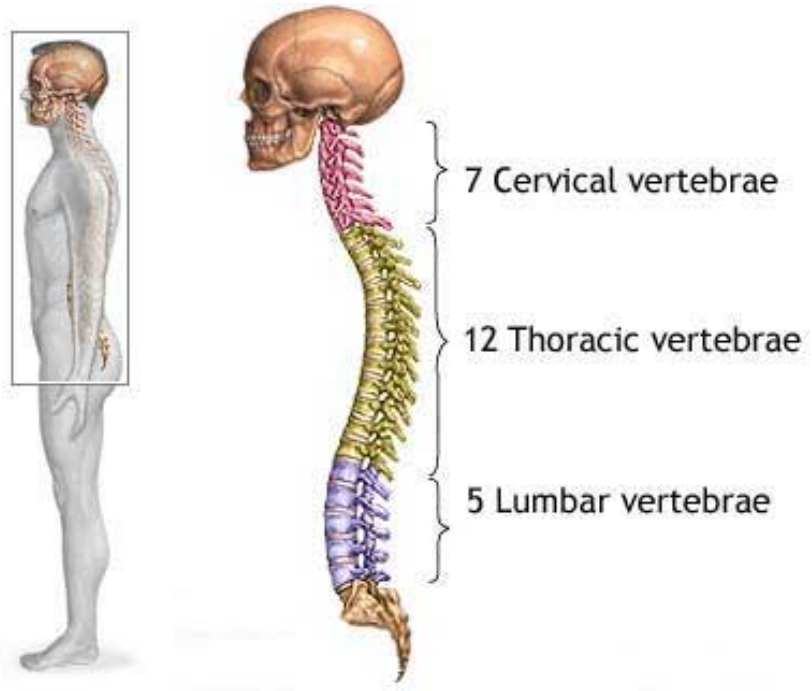
The **main risk factors**, or conditions, associated with the development of injuries in manual material handling tasks include:

- Awkward Postures (i.e. Bending, twisting)
- Repetitive Motions (i.e. Frequent lifting, carrying, reaching)
- Forceful Exertions (i.e. Heavy Loads)
- Static Postures (i.e. Fixed position for an extended period of time)



Safe Lifting - Training

- Explain how the spine works
  - Cervical, thoracic, lumbar
  - Discs
  - Muscles
  - Proper posture
  - Forces on the back



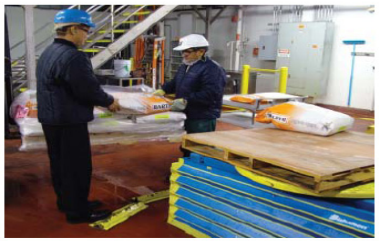
Safe Lifting - Training

- Review Do's and Don'ts of proper lifting
  - Feet firm on the ground
  - Bend at the knees
  - Use abdominal muscles
  - Use both hands
  - Keep the load close to the body

If at all possible...
Try to avoid lifts from the floor

Safe Lifting - Training

- Discuss the procedure for requesting help for a lift
  - Give workers education on how to request help
  - Make sure all workers are aware of the procedure



Note: It would be ideal to find a co-worker of similar height

Discuss the policy for Team lifts

- When are they mandatory?
- Is the policy posted?

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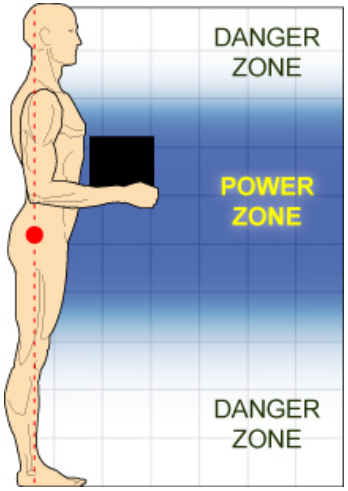
Safe Lifting - Training

Organization is Key

- It is best to store heavier or bulkier items in the **power zone**
- Lighter items can be stored higher or lower



The **power zone** for lifting is between mid-thigh and mid-chest height

Comparable to the strike zone in baseball, this zone is where arms and back can lift the most with the least amount of effort

Safe Lifting – Mechanical Devices

Some industries have the need for **mechanical devices** to assist in lifting
These devices take away close to all the risks of lifting

People who oppose the use of mechanical devices argue they are:

- High in costs
- Large learning curve
- Bulky in size and take up space

Safe Lifting - Proper Use of Equipment

Discuss when to use -

- Dollies
- Carts
- Hand Trucks
  - Specialty hand trucks even come with hand brakes
  - Other hand trucks can convert to four wheels
  - Some hand trucks are specially designed for cylinders



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Safe Lifting – Assistive Devices

Non-Mechanical Devices are constantly being developed and improved. These devices typically consist of straps and/or belts that allow the user maintain posture while lifting large objects

Other Non-Mechanical Devices that use leverage or magnets work to make everyday tasks easier and safer

Safe Lifting – Back belts

Are back belts good for you?

Physical Implications

- Prolonged use of back belts have been known to cause atrophy in back extensor muscles (Department of Defense, 2005)
- Mechanical compression to the abdomen, forces blood away from the trunk
  - Blood then travels to upper or lower extremities causing a rise in blood pressure (Department of Defense, 2005)

Mental Implications

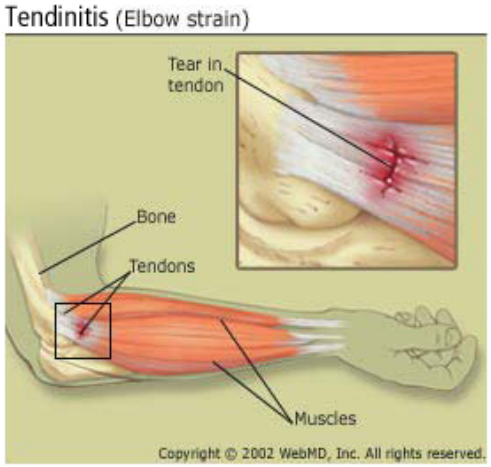
- The tighter the back belt is worn the heavier the capacity the participant is willing to lift (Yi-lang, 2002)

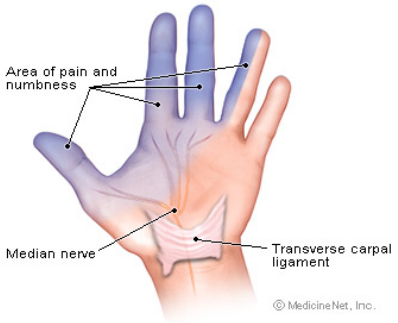
Repetitive Motion Injuries/ (Repetitive Strain Injuries)

According to the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), repetitive strain injuries are the nation's most common and costly occupational health problem, affecting hundreds of thousands of American workers, and costing more than $20 billion a year in workers compensation.

Repetitive Motion Injuries – Common Syndromes

- Carpal tunnel
  - Compression to the median nerve
- Tendonitis
  - Tendon inflammation
  - Wrist, elbow, shoulder
- Trigger Finger
  - Tendon disorder
  - Snapping or jerking
- Tennis Elbow
  - Lateral epicondylitis
  - Outside bump of the elbow
- Golfer's Elbow
  - Medial epicondylitis
  - Inside bump of the elbow
- Rotator Cuff Tendonitis
  - Working with the hands above the head





Carpal Tunnel Syndrome

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Repetitive Motion Injury Prevention

Administrative Controls:

Job Rotations

Repetitive motion injuries occur during extended periods of producing the same motion - these injuries can often be combated by rotating the job task of the employee.

Instituting breaks

Often times employee's skip breaks. Mandatory breaks are a way to make sure employee's are taking a rest from their continuous activity.

- Instituting **stretch breaks** can ensure that the employee not only will take a rest from work, but can also lessen the fatigue of muscles, allowing a more consistent stream of work throughout the day.

Repetitive Motion Injury - Prevention

- Design a customized **stretch program** for your organization – employees will see value in knowing the stretch program was developed with their needs in mind!
  - Observe and document the specific job demands
  - Identify the potential risks
  - Correlate appropriate stretches to the job demands
  - Provide employees with training on the stretches and materials to review regularly

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Repetitive Motion Injury Prevention (Continued)

Benefits

- Increased Flexibility –
  - When flexibility is increased to an optimal level, muscle activity is performed with greater ease.
- Increased Blood Circulation –
  - Stretching muscles will activate an increase of blood flow throughout the body.
- Increase in Joint Range of Motion –
  - An increased range of motion in the joints may **prevent more sprains upon slips, trips, and falls**.

Repetitive Motion Injury Prevention

Taking a "stretch break" every few hours for 5 to 9 minutes can significantly reduce injuries caused by repetition.

Success Stories

"After a flex and stretch program was introduced in the converting plant in 1997, where rolls of paper are converted into grocery bags and specialty sacks, **days lost from worker injuries dropped from 368 in 1996 to 70 the next year**."

The Seattle Daily Journal of Commerce, Feb. 28, 2001., Steve Pierce

"All employees working on the Mortenson Messer Healthcare Construction Project (subcontractor and construction management staff) were required to participate in a daily stretch and flex program. This program is one component of the M.A. Mortenson Zero Injury Program. It includes a series of nine exercises to help employees warm up their muscles prior to performing work duties. **The implementation of this program has helped M.A. Mortenson and Messer Construction reduce repetitive Motion Injuries (sprains/strains) and lower injury and illness rates on theworksite."**

Dick Gilgrist, AD and Gaye Johnson, CAS, OSHA.GOV, March 2009

Avoiding Slips, Trips, and Falls

A **slip** occurs when there is too little friction or traction between the footwear and the walking surface. Some common causes of slips are:

- Slippery floor surfaces
- Liquid, moisture, or ice on the floor
- Food, trash, or small objects on the floor
- Oil or grease on the floor
- Footwear that does not have nonskid soles

Avoiding Slips, Trips, and Falls (Continued)

A **trip** occurs when a person's foot contacts an object or drops to a lower level unexpectedly and the person is thrown off balance.

Some of the more common causes of tripping are:

- Materials stored in passageways, aisles, and stairways
- Electrical or telephone cords that cross passageways and aisles
- Hazardous floor conditions such as protruding nails, holes, or loose boards
- Loose, ripped, or bunched carpets and rugs
- Objects protruding into passageways and aisles
- Floor level changes or hidden steps that may not be obvious
- Unsafe stairway conditions or use
- Elevator cars that do not level off at the same height of the floor where the elevator stopped
- Insufficient lighting for walking or working areas

Avoiding Slips, Trips, and Falls (Continued)

Statistics show that the majority (60 percent) of **falls** happen on the same level resulting from **slips** and **trips**.

The remaining 40 percent are falls from a height.

Some causes of falls are:

- Using "makeshift" items (boxes, buckets, chairs, etc.) to gain more height
- Carrying large or too many items that prevents seeing where you are going
- Jumping from one level to another

Slip, Trip, and Fall Prevention

Good **housekeeping** is the most fundamental level of preventing falls due to slips and trips.

Make sure to:

- Clean all spills immediately
- Mark spills and wet areas
- Mop or sweep debris from floors
- Remove clutter from walkways
- Secure (tacking, taping, etc.) mats, rugs and carpets that do not lay flat
- Always close file cabinet or storage drawers
- Cover cables that cross walkways
- Keep working areas and walkways well lit

Slip, Trip, and Fall Prevention (Continued)

Other Suggestions

- Level/elevation changes should always be indicated with cautionary paint
- Reduce slick surface floors by implementing mats, or abrasive strips to create more friction
- Observe your working environment and create mandatory footwear regulations

Comments or Questions?

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