



**An Introduction to Ergonomics:
An Active Approach to Workplace Safety
Courtesy of Dr. Loren Marks**

What is Ergonomics?

- **The scientific discipline concerned with understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, methods and data to design in order to optimize human well-being and overall system performance.**
- **Ergonomics means: “fitting the job to the worker”**
- **From the Greek**
 - **Ergo = Work and Nomos = Laws**
- **Source : International Ergonomics Association**

What Are Work-Related Musculoskeletal Disorders (WMSDs)?

- WMSDs are also known as:
 - Cumulative Trauma Disorders (CTDs)
 - Repetitive Strain Injuries (RSIs)
 - Overuse injuries
- They are soft tissue injuries which occur gradually

What are Ergonomic Conditions?

- Disorders of the soft tissue – specifically:
 - Muscles
 - Nerves
 - Tendons
 - Ligaments
 - Joints
 - Cartilage
 - Blood vessels
 - Spinal discs



What are Some of the Symptoms of WMSDs?

- Discomfort
- Pain
- Numbness
- Tingling
- Inflammation
- Burning
- Swelling
- Change in color
- Tightness, loss of flexibility

•If you are experiencing any of these symptoms, make sure to see your physician or an occupational physician as soon as possible to determine the cause of your pain.

What Causes WMSDs?

- Heavy, Frequent, or Awkward Lifting
- Pushing, Pulling or Carrying Loads
- Working in Awkward Postures
- Hand Intensive Work
- Vibration
- Contact Stress

Risk Factors

- Risk of injury depends upon:
 - Duration of exposure
 - Frequency of exposure
 - Intensity of exposure
 - Combinations of risk factors

(how ~~long~~)
(how often often)
(how **MUCH**)
+++

Risk Factors for WMSDs

Heavy, Frequent or Awkward Lifting

Heavy Lifting



- There are only recommendations for the maximum weight a person can lift.

Frequent Lifting

- A little more than twice per minute



Awkward Lifting

- Lifting above the shoulders, below the knees or at arms' length



Risk Factors for WMSDs

Awkward Postures

Awkward Postures: Low Work



Bending



Kneeling



Squatting

Reducing Low Work

- Raise and/or tilt the work for better access
- Use a stool for ground level work
- Use tools with longer handles
- Alternate between bending, kneeling, sitting, and squatting

Reducing Reaching

- Keep items within close reach
 - Design reach distance for the shortest worker
- Remove obstacles
- Use gravity feed racks

Risk Factors for WMSDs

Hand Intensive Work

Hand Intensive Work

- Repetitive Motion



Hand Intensive Work: Highly Repetitive Motion

- Making the same motion repeatedly can cause a lot of wear and tear on the joints being used, and if you don't rest to allow time for them to heal, the damage can just keep building up.

Reducing Repetition

- **Arrange work to avoid unnecessary motions**
- **Let power tools and machinery do the work**
- **Spread repetitive work out during the day**
- **Take stretch pauses**
- **Rotate task with co-workers if possible**
- **Change hands or motions frequently**

Hand Intensive Work: Gripping & Pinching

- A power grip is 5 times stronger than a pinch grip.



10 lbs.

=



2 lbs.

Other Factors

- Your grip strength decreases when you:
 - Bend your wrists
 - Pick up slippery items
 - Wear poorly fitting gloves
 - Have cold hands

Hand Intensive Work Combinations

**Risk of Injury Goes Up as
Your Combine Factors**

**Repetition
Gripping or Pinching
Bent wrists**

**Repetition
Gripping or Pinching**

Repetition

Recognition & Reporting Signs and Symptoms

- Report signs or symptoms if:
 - Pain is persistent, severe or worsening
 - Pain radiates
 - Symptoms include numbness or tingling
 - Symptoms keep you from sleeping at night
 - Fingers blanch or turn white

Why is it Important to Report Signs and/or Symptoms Early?

- Acute injuries can easily become chronic injuries and can sometimes lead to disability, even surgery.
- Early treatment save time and money.
- It's important for your own health to report symptoms as early as you can.

Getting Involved

- Look at your job
- Come up with solutions
- Work with solutions
- Take part in training
- Take responsibility for changing the way you do your job
- Help to make sure efforts are successful

Five Key Points to Remember

1. Ergonomics can help you on your job
2. WMSDs can happen in jobs with risk factors
3. Risk factors can be reduced and WMSDs prevented
4. Reporting signs and symptoms early is important
5. You can help your company put ergonomics changes into place

Need Help?

Call us

On The Mark Health and Wellness

Dr. Loren Marks

Chiropractor

Clinical Nutritionist

200 W 57th St. New York, NY 10019

212-333-7300

Visit us on the web

Docmarks.com

Stop your pain

Improve your mobility