



# Musculoskeletal Disorders (MSDs)



Workplace  
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# Part 1: What are MSDs?

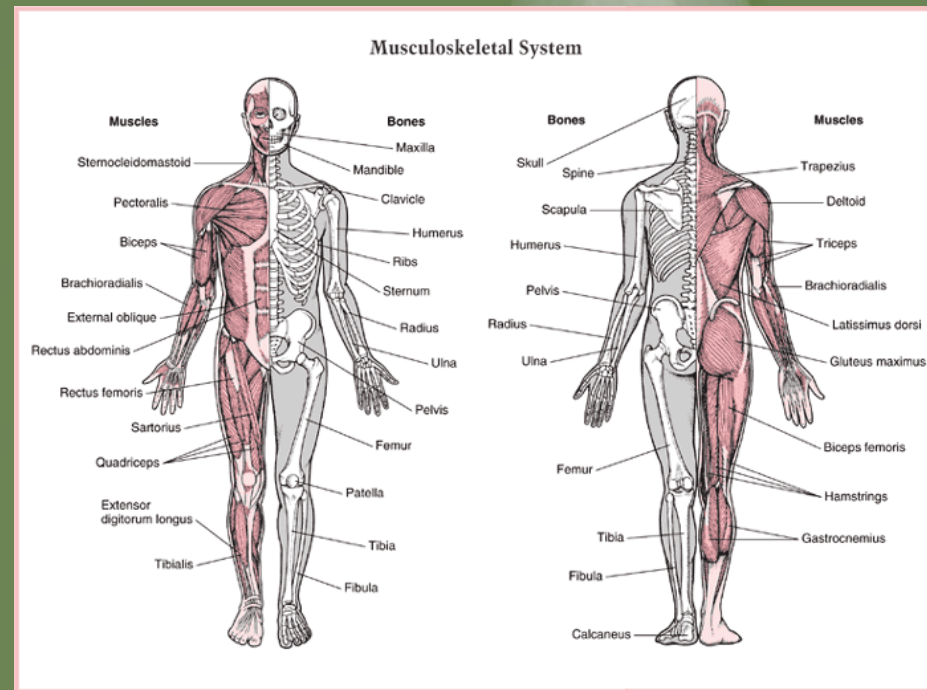


# Musculoskeletal System Components

The musculoskeletal system includes:

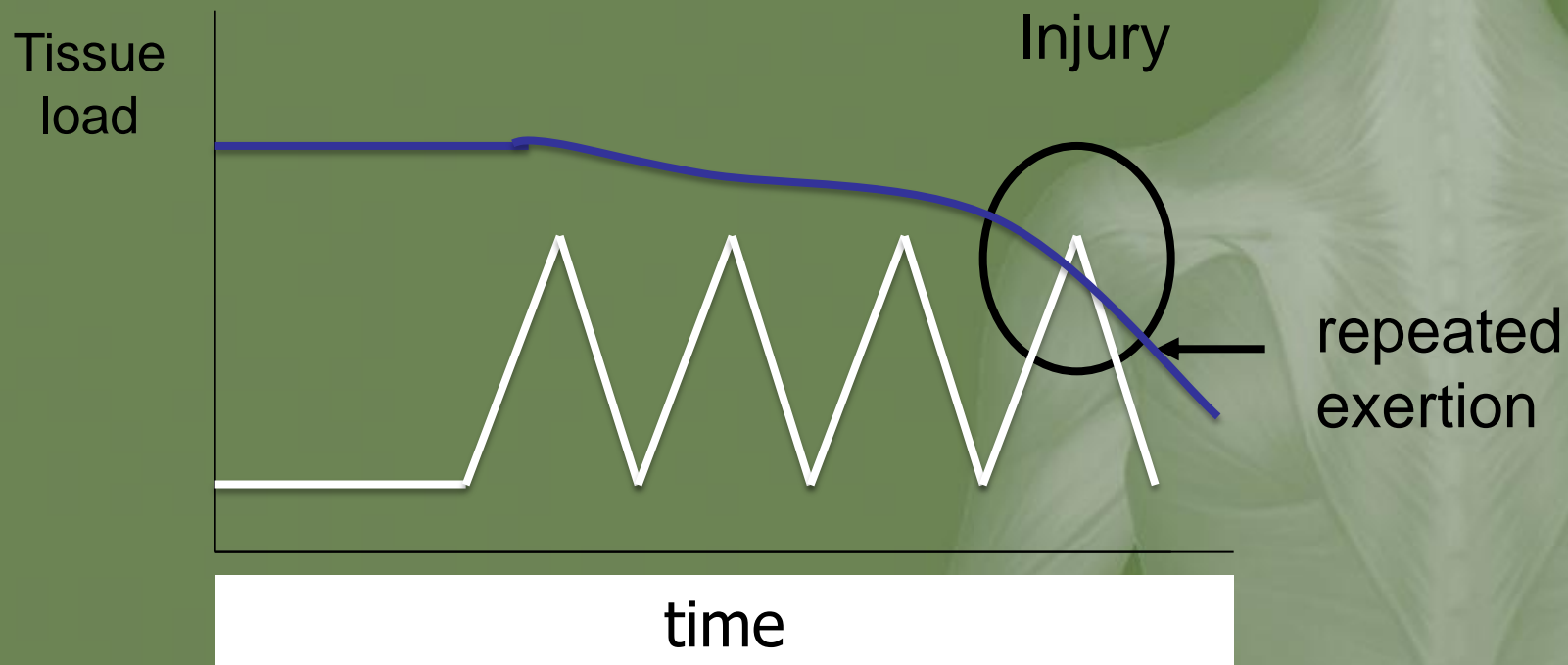
- Muscles, tendons and tendon sheaths
- Joints and ligaments
- Spinal column and discs

= Soft Tissue

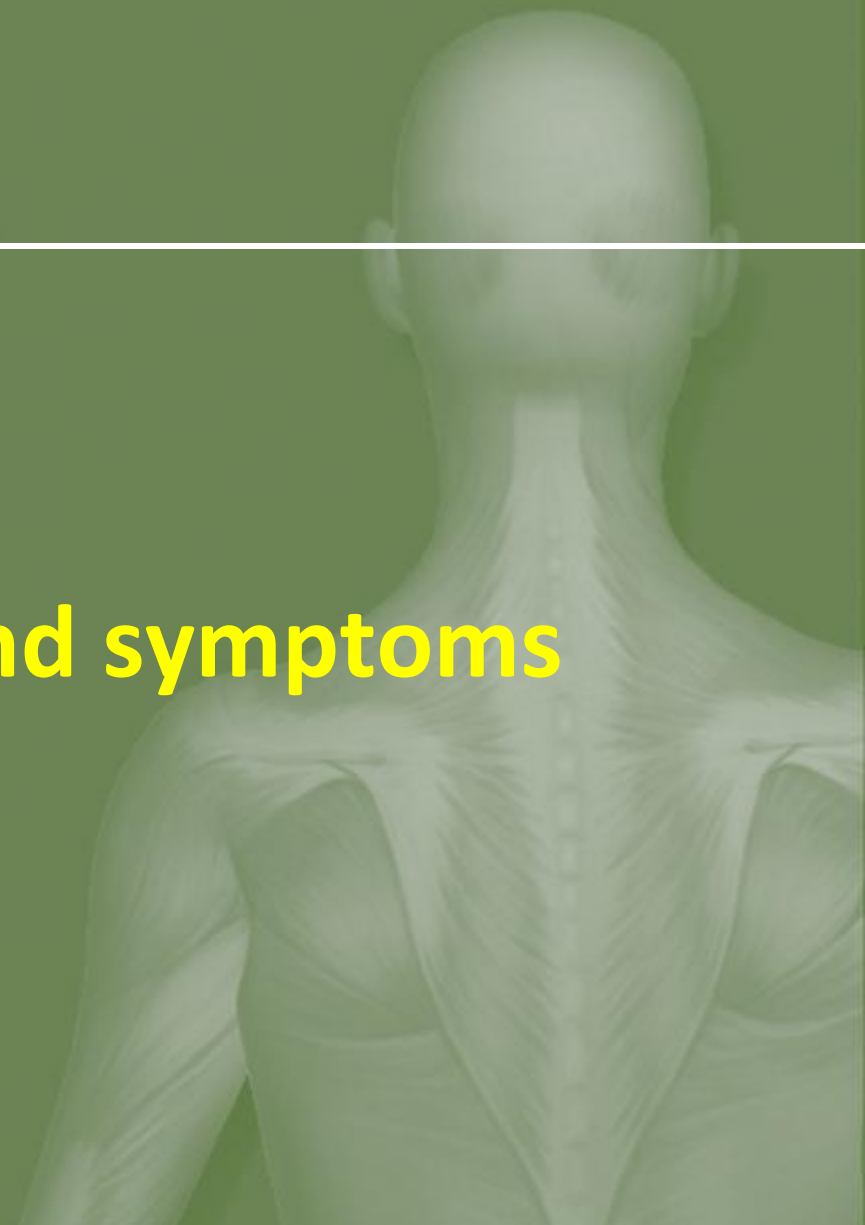


# Why MSDs happen?

MSDs can result from repeated loading



# Part 2: MSD Signs and symptoms



# What should I look for?

## Signs:

- redness, heat, swelling, reduced movement

## Symptoms:

- pain, discomfort, weakness, tingling, numbness, sleep interruption
- taking anti-inflammatory medication

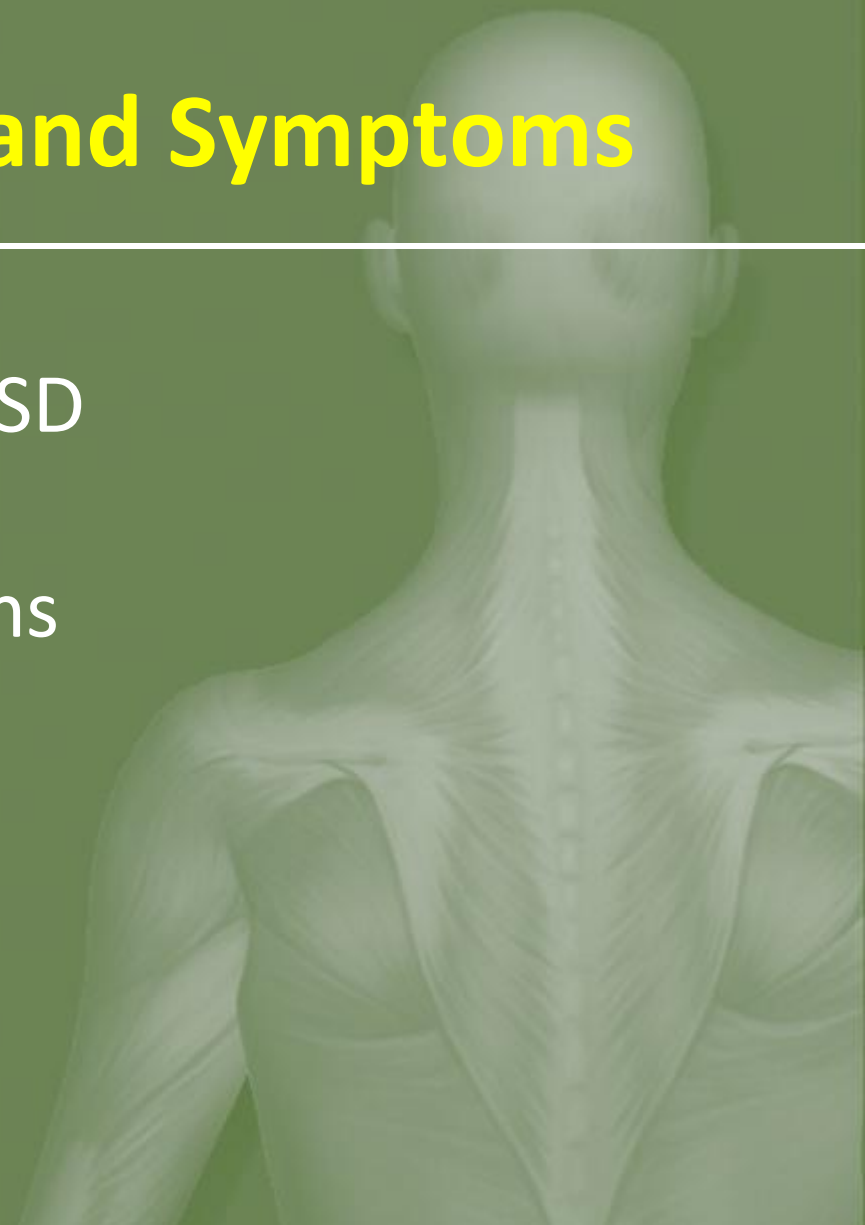
# Stages of MSD Progression

## Stages:

1. Experience symptoms at work but can continue to work  
Symptoms decrease with rest
2. Signs and symptoms come and go more frequently  
Likely to experience symptoms after work
3. Symptoms & Signs do not leave  
No longer able to work  
Disturbed sleep

# Reporting MSD Signs and Symptoms

If you have recognized a MSD sign or symptoms or if you have experienced daily pains and strains, talk to a supervisor, start the MSD investigative process...





# Employee Discomfort Survey (EDS)

<http://www.workplacesafetynorth.ca/resources/collection-msd-prevention-tools>



# Part 3: Recognizing MSD Hazards



# Causes of MSDs

## Primary risk factors:

- High Force
- Awkward Postures
- Repetition



# Force – Primary Risk Factor

**High Forces:** Overexertion occurs when the force required exceeds the tolerance of the body's tissues. The greater the force required, the greater the risk of injury

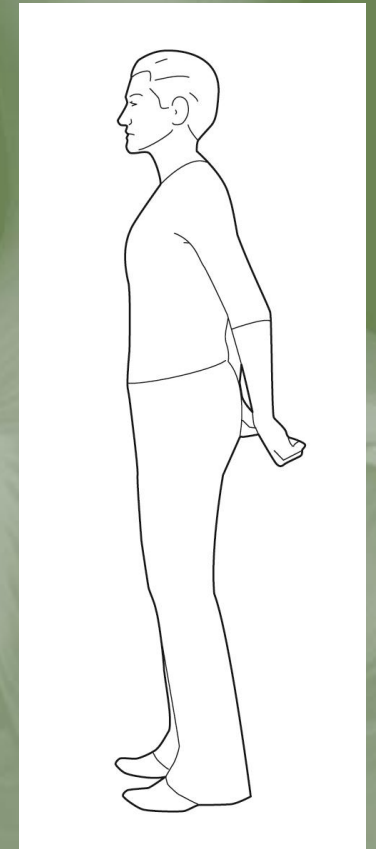
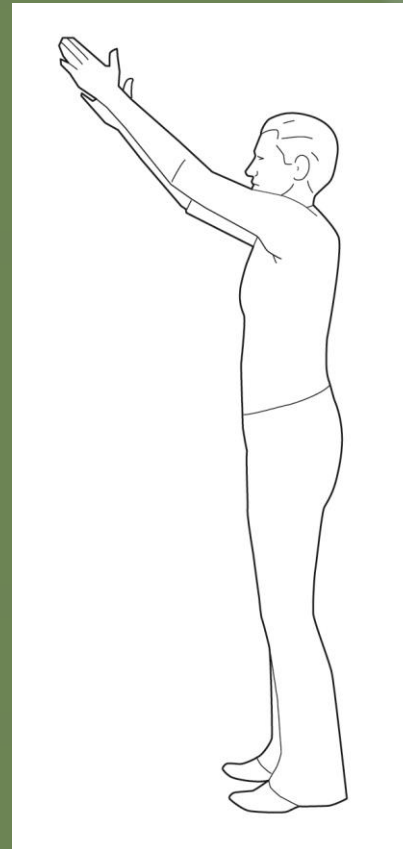
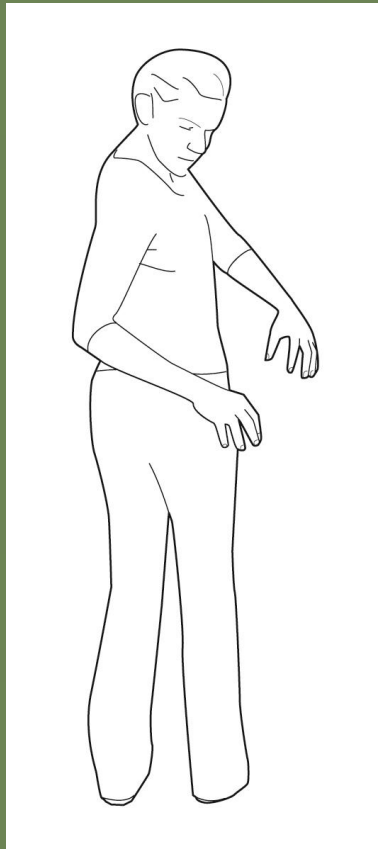


# Posture – Primary Risk Factor

If a task involves taking a static or awkward posture, the risk of pains and strains increases.

- **Awkward Posture** - Involves bending or twisting away from a neutral posture.
- **Static Posture** - The same position held for a long period of time; can be either a neutral or awkward posture.

# MSD Hazards – Awkward Postures



# Repetition – Primary Risk Factor

Repetition is the number of times a task or similar motion is performed per minute, hour, shift, or day.

- **Highly repetitive** tasks can cause muscle fatigue, damage to other tissues and, eventually, pain and discomfort



# Other MSD Risk Factors

## Secondary risk factors:

- Contact stress
- Vibration
- Temperature (too hot or too cold)
- Work organization – (Mining piece work)
- Work methods



# Risk Identification Checklist

<http://www.workplacesafetynorth.ca/resources/collection-msd-prevention-tools>

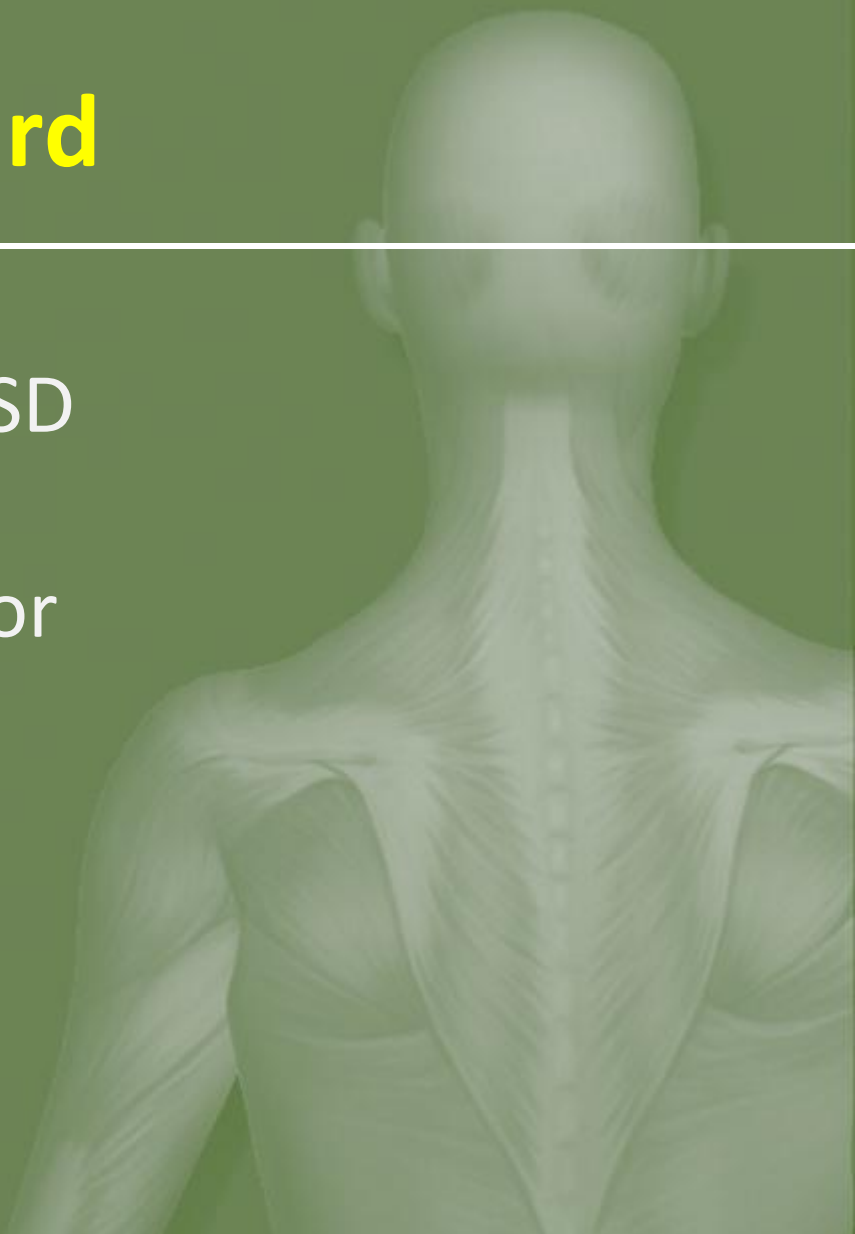
# MSD Risk Assessment



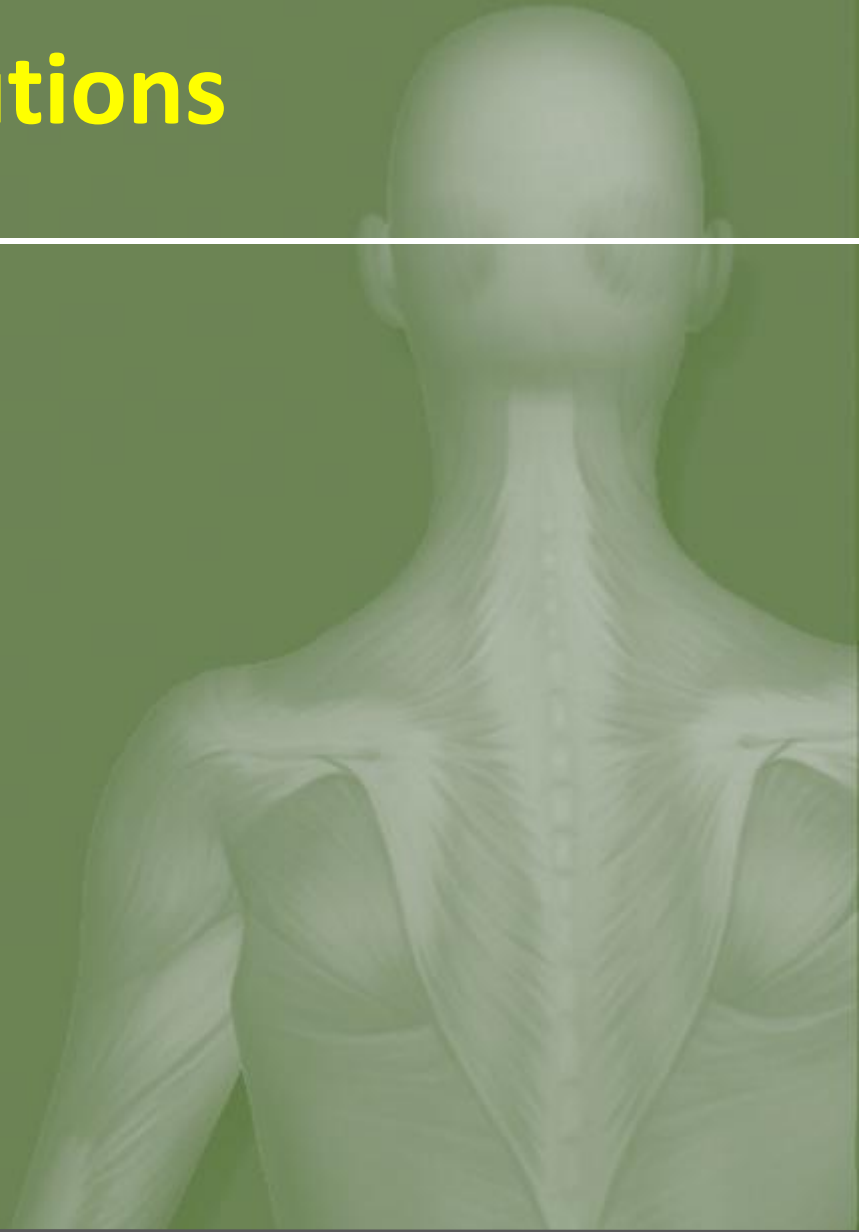
**Duration / Time**

# Reporting a MSD Hazard

If you have recognized a MSD High risk factor within your job tasks, talk to a supervisor about it. Get involved with the assessment, find solutions!



# Part 4: Ergonomic Solutions



# Ergonomics – Controlling Risk Factors

*Ergonomics* ‘fitting the task to the worker’

Removing or decreasing high risk factors from a worker’s daily tasks does not have to be expensive or complicated.

Some examples of solutions:

- Adjustable work benches to match needed height for each worker
- Reorganizing work materials to reduce twisting and lifting
- Using anti-vibration hand tools to reduce vibration
  - Changing postures
  - Taking micro-muscle breaks

# Reducing MSD Exposure

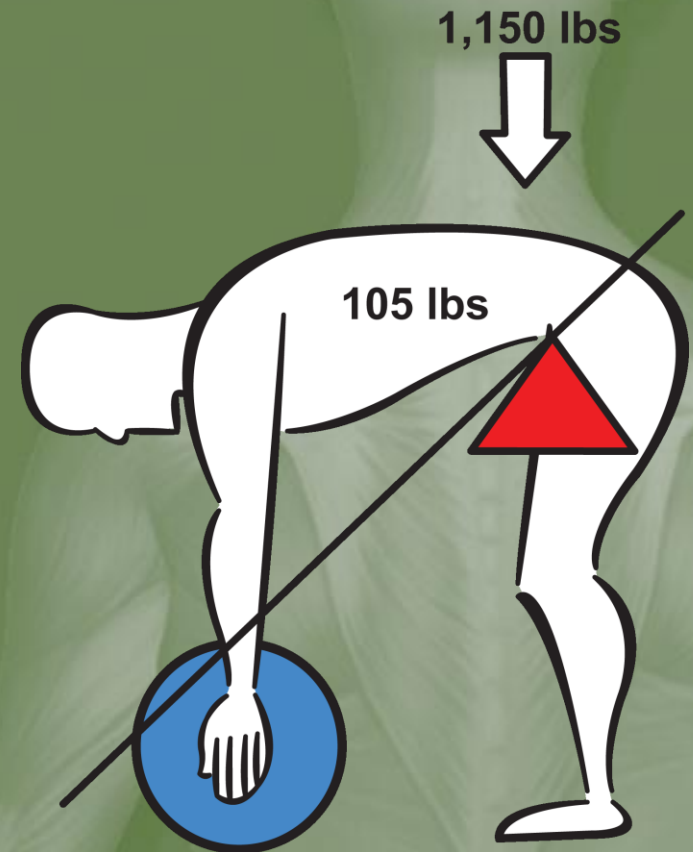
There are several steps that you can take to reduce your MSD exposure:

- Develop a “Sub-committee” ergo team, proactive
- Report MSD hazards
- Perform investigations immediately
- Work as a group to discuss solutions
- Warm up your body for the day
- Use the correct lifting technique

# Lifting Biomechanics

Improper lifting techniques require the muscles of the back to generate 10 times the weight being lifted!

How can the forces on the back be lowered?



# Personal Protective Equipment

Personal Protective Equipment (PPE) is not the best solution but may be appropriate in some situations.

## Examples:

### Effective:

- Well-designed “anti-vibration” gloves
- Kneepads for kneeling work
- Anti-fatigue matting
- Shock-absorbing insoles

### Ineffective:

- Back belts
- Wrist supports or splints





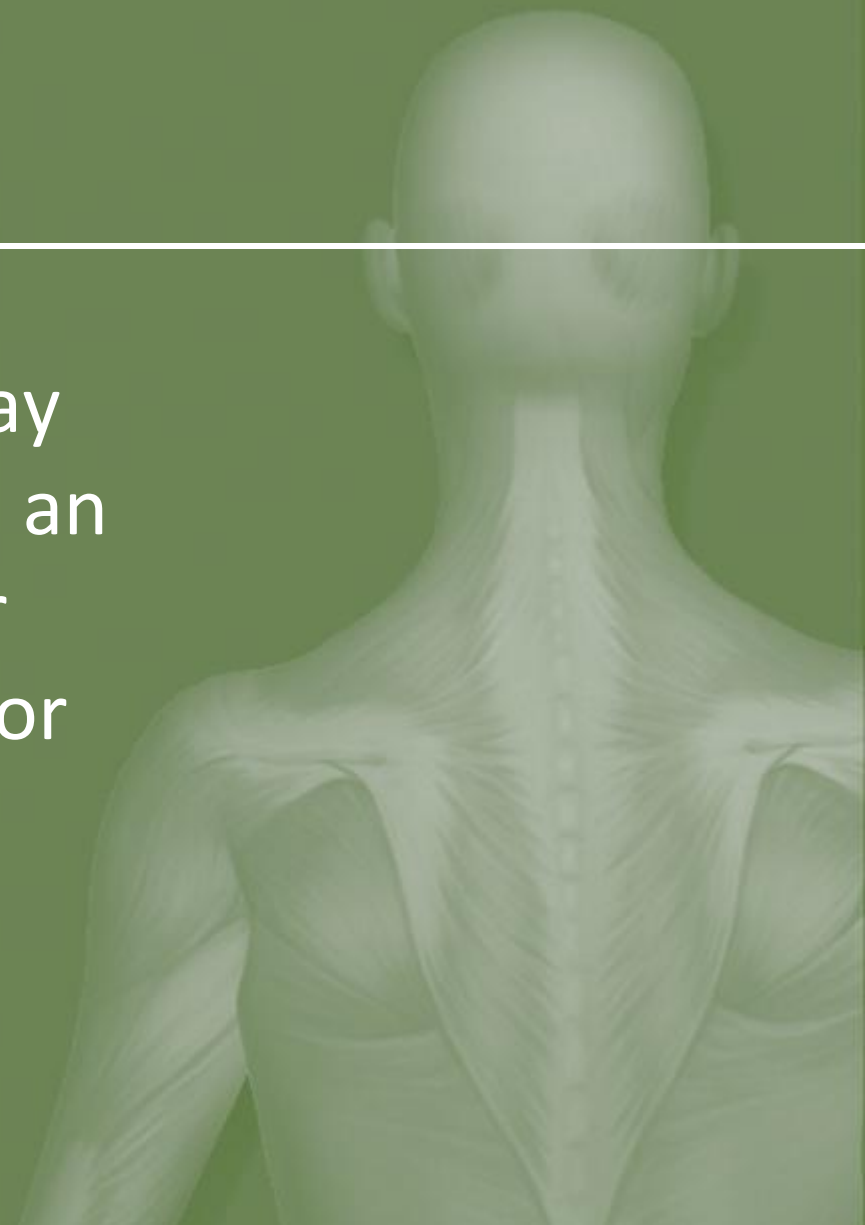
# Lifestyle Factors

Proper exercise and nutrition help keep the musculoskeletal system operating at its peak, and thus helping to prevent injuries

- Stretch/Exercise: 30 minutes each day
- Sleep > 7 - 9 hours ideal
- Good Nutrition

# Suggesting a Solution

If you have recognized a way to reduce your exposure to an MSD risk factor within your job tasks, talk to a supervisor about it.



# Part 5: Testing our Knowledge

Identify the MSD hazards that exist in each picture....

