Musculoskeletal Disorders (MSDs)
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

Tissue load vs. time

Injury

repeated exertion

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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

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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 (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....
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Recognizing MSD

Other hazards that may cause MSDs

- Contact stress
- Local or whole body vibration (WBV)
- Cold temperatures
- Work organization
- Psychosocial
- Individual characteristics
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